# TM 11-6625-539-15-2

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR, ORGANIZATIONAL DS, GS,

AND DEPOT MAINTENANCE MANUAL

# TEST SET,

# TRANSISTOR TS-1836B/U

This copy is a reprint which includes current pages from Changes 1 through 3. Title was changed by Change 3.

HEADQUARTERS, DEPARTMENT OF THE ARMY

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HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *4 October 1968*

# OPERATOR, ORGANIZATIONAL DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOL LISTS

# TEST SET, TRANSISTOR TS-1836B/U

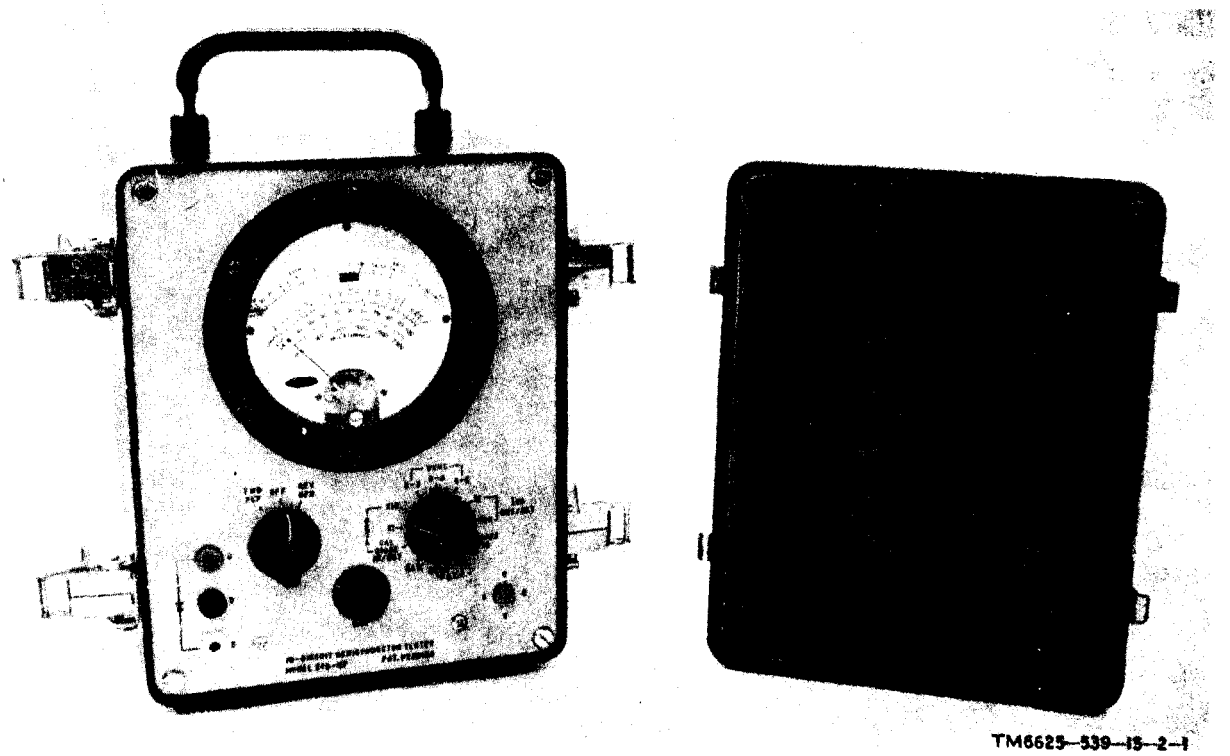



*Figure 1-1. Test set, Transistor TS-1836B/U.*

## 1-6. Items Comprising an Operable Test Set, Transistor TS-1836B/U

| FSN | QTY | Nomenclature, part No., and ntc code |
|---|---|---|
| | | **NOTE**<br>The part number is followed by the applicable 5-digit Federal supply code for manufacturers (FSCM) identified in SB 706-42 and used to identify manufacturer, distributor, or Government agency, etc. |
| | | **NOTE**<br>Dry batteries shown are used with the equipment but are not considered part of the equipment. They will not be preshipped automatically but are to be requisitioned in quantities necessary for the particular organization in accordance with SB 11-6. |
| 6625-813-9205 | 1 | Test Set, Transistor TS-1836B/U |
| | | which includes: |
| 6625-813-9205 | 1 | Cover, Test Set 4252193-503, 24624 |
| 6135-120-1010 | | Battery, Dry BA-42 |
| | 1 | Lead, Test 22801905, 93346 |
| | 1 | Lead, Test 2280190-6, 93346 |
| | 1 | Lead, Test 2280190-7, 93346 |

# CHAPTER 2

# INSTALLATION

## 2-1. Unpacking

*a. Packaging Data.* When packed for shipment, Test Set, Transistor TS-1836B/U is placed in a waterproof carton and packed in a wooden packing case. A typical packing case and its contents are shown in figure 2-1.

*b. Removing Contents (Wooden Packing Case).* Perform all the procedures in (1) through (5) below when unpacking equipment packed in a wooden packing case (fig. 2-1).

(1) Cut and fold back the metal straps.

***Caution:*** **Do not attempt to pry off the sides; this may damage the equipment.**

(2) Remove the nails from the cover and one side of the wooden packing case with a nailpuller. Remove the cover and one side.

(3) Open the moistureproof barrier that covers the outer corrugated carton. Remove the carton.

(4) Open the outer corrugated carton and the moisture-vaporproof barrier within the carton. Remove the inner corrugated carton.

(5) Open the inner corrugated carton, and remove the instrument.

## 2-2. Checking Unpacked Equipment

*a.* Inspect the equipment for damage incurred during shipment.

*b.* Check to see that the equipment is complete. The equipment is normally shipped less the batteries. Report all discrepancies in accordance with TM 38-750. Shortage of a minor assembly or part that does not affect proper functioning of the equipment should not prevent use of the equipment.

*c.* If the equipment has been used or reconditioned, see whether it has been changed by a modification work order (MWO). If the equipment has been modified, the MWO number will appear on the side near the nomenclature plate. Check to see whether the MWO number (if any) and appropriate notations concerning the modification have been entered in the equipment manual.

*Note.* Current MWO's applicable to the equipment are listed in DA Pam 310-7.

## 2-3. Cable Connections

No cable connections are necessary for operation of the test set other than the three accessory test leads. Connect the three accessory test leads as follows:

*a.* Insert the red plug into the red jack.

*b.* Insert the black plug into the black jack.

*c.* Insert the yellow plug into the yellow jack.

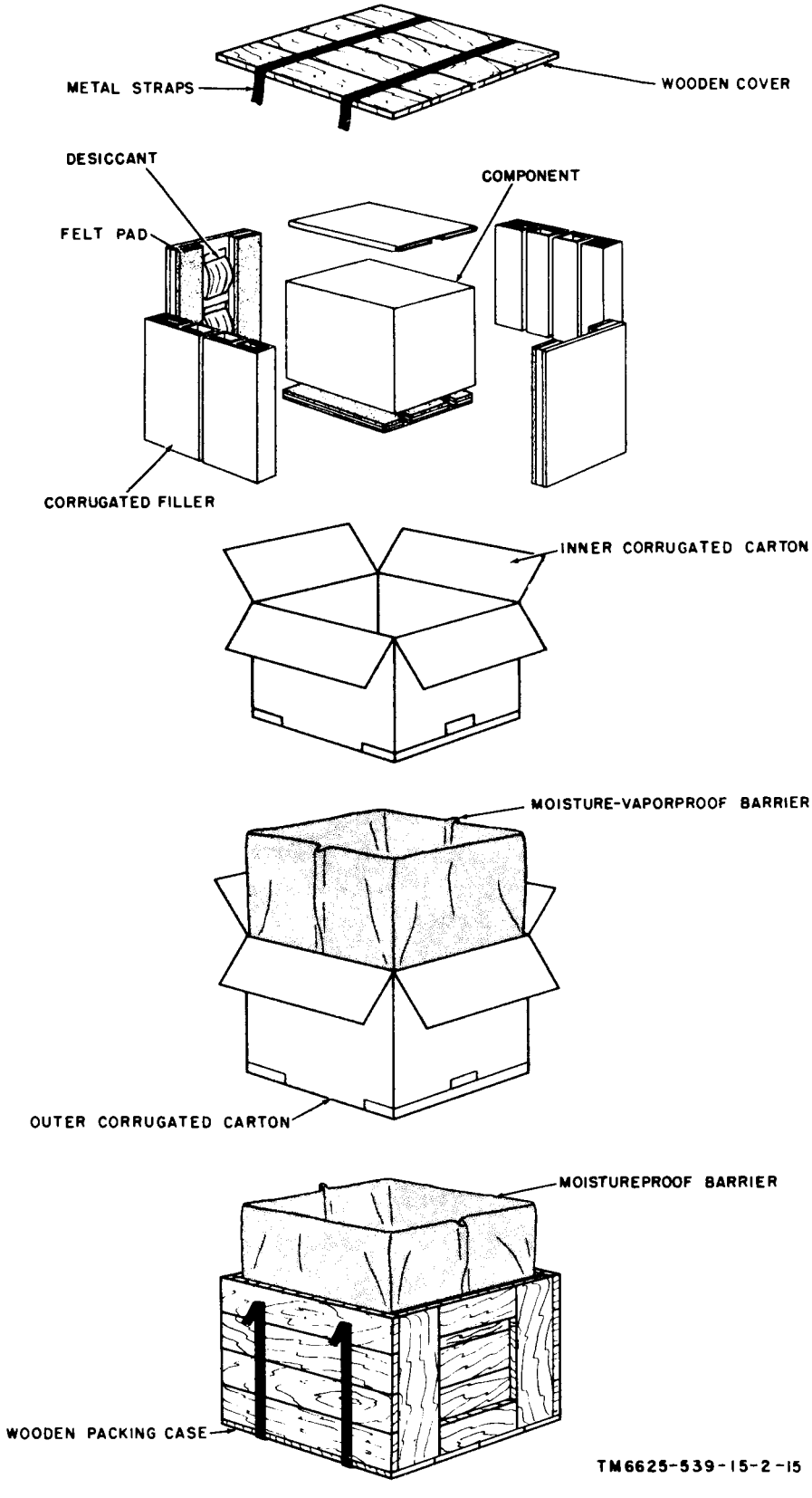



*Figure 2–1. Typical packaging diagram.*

# CHAPTER 3

# OPERATING INSTRUCTIONS

## 3-1. General

The test set is designed so that it is a safe instrument to use with semiconductor circuitry. The voltage and current levels that the test set can supply to any device are controlled so that the accidental misplacing of leads will not damage any semiconductor; however, to achieve valid readings, proper operation and switch setting are required. Controls and indicators, with the function of each, are listed in paragraph 3-3. Operating procedures are described in paragraph 3-4.

## 3-2. Preliminary Operating Instructions

Before operating the test set, check the meter to be sure that the pointer indicates exactly 0. If it does not, turn the adjusting screw on the front of the meter until the pointer is zeroed. The polarity switch should be set to OFF.

## 3-3. Controls and Indicators

The controls for the test set are on the front panel; their functions are described in the chart below.

| *Control or Indicator* | *Function* |
|---|---|
| Polarity switch _____ | When rotated to any position other than OFF, selects proper voltage nnd current polarities for type of semiconductor device being tested and for making reverse to forward ratio diode tests. |
| Fuction switch _____ | Selects desired function to be tested. |
| CAL control_____ | *a.* When beta is being measured, sets collector current of transistor under test to 1 ma.<br>*b.* When field effect transistors are being measured, sets gate to source voltage at 100 mv.<br>*c.* When forward ratio test is being made, sets diode current to 1 milliampere. |
| Color-coded jacks_____ | Used in conjunction with color-coded plug-in cables to make connection from test set to semiconductor under test. |
| Meter _____ | Provides readings in beta ohms, $I_{co}$ in microamperes, and $G_m$ in micromhos as required to test semiconductor devices and BAT range to check condition of internal batteries. |
| Transistor socket ____ | For use in conjunction with short lead out-of-circuit transistors. Transistors may be plugged into socket directly. |

## 3-4. Operating Procedures

*a. General.* Before operating the test set, check the meter to see if the pointer falls on the meter 0. If it does not, turn the meter adjust screw, either clockwise or counterclockwise, until the pointer is exactly over the 0 mark on the left side of the meter scale. The meter is shipped with the polarity switch placed in the OFF position. When the polarity switch is set to OFF, all of the batteries of the tester are disconnected from the circuitry and a short circuit is placed across the meter. The polarity switch should be set to OFF when the instrument is not being used.

***Caution:*** **Never leave the polarity switch of the instrument in one of the test positions when the instrument is not being used. Always return the polarity switch to the OFF position to prevent unnecessary drain of the internal batteries.**

*b. Beta Measurement (Out-of-Circuit).*

(1) If a transistor with short leads is being measured, place the transistor in the small socket on the lower right side of the front panel. The transistor jacks on the front panel are spaced so that they will accept a standard test adapter for rapid testing of transistors with long leads.

(2) Plate the polarity switch to correspond to the type of semiconductor device being used.

(3) Set the function switch to BETA CAL, and adjust the CAL control for full-scale meter deflection.

(4) Place the function switch to the BETA X1 range, and read the BETA directly on the top (BETA) scale of the meter. If the BETA is on the high portion of the BETA scale, advance the function switch to the BETA X10 range and multiply the reading by 10.

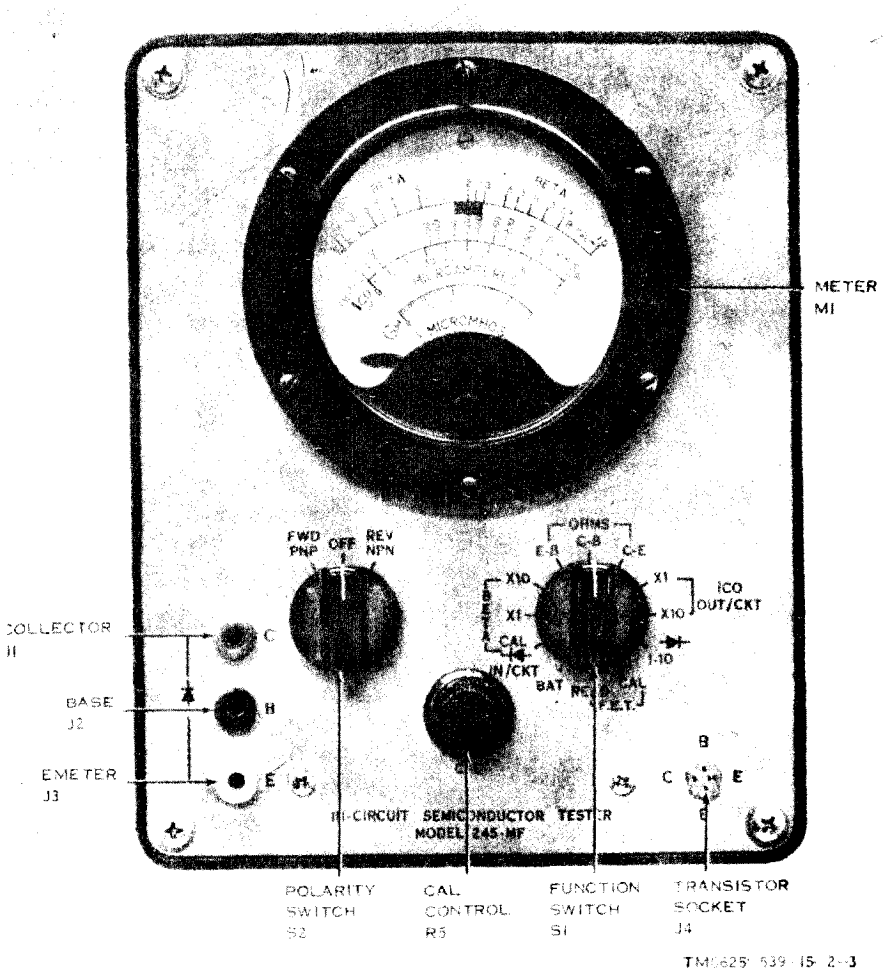



*Figure 3-1. Test Set, Transistor TS-1836B/U, controls and indicators.*

*c. Beta Measurement (In Circuit).*

(1) Insert the three test leads supplied with the instrument into the three color-coded jacks on the front panel, being careful to insert the red probe into the red jack, the black probe into the black jack, and the yellow probe into the yellow jack. Connect the other ends of the test leads to the transistor under test. Be careful to connect the red-coded alligator clip to the collector, the black-coded alligator clip to the base, and the yellow-coded alligator clip to the emitter.

(2) Set the polarity switch to correspond to the type of device being tested.

(3) Set the function switch to the BETA CAL position, and adjust the CAL control for full-scale meter deflection.

(4) Advance the function switch to the BETA X1 range, and read the BETA directly on the top (BETA) scale of the meter. If the BETA falls in the high portion of the BETA scale, advance the function switch to the BETA X10 range and multiply the BETA reading by 10.

*d. Electrode Resistance Measurement (In- or Out-of-Circuit).*

(1) Connect the leads to the transistor under test, as described in *b(1)* above for out-of-circuit measurement, as described in *c(1)* above for in-circuit measurement.

(2) Place the polarity switch to correspond to the type of semiconductor device being tested.

(3) Set the function switch to OHMS E-B.

(4) Read the resistance of the emitter-to-base circuitry directly on the center (OHMS) scale.

(5) Set the function switch to OHMS C-B.

(6) Read the resistance of the collector-to-base circuitry directly on the center (OHMS) scale.

(7) Set the function switch to OHMS C-E.

(8) Read the resistance of the collector-to-emitter circuitry directly on the center (OHMS) scale.

*e. $I_{co}$ (Out-of-Circuit).*

(1) Set the polarity switch to correspond to the type of semiconductor device being tested.

(2) Place the transistor in the socket on the lower right corner of the front panel.

(3) Set the function switch to ICO OUT/CKT X1.

(4) Read the $I_{CO}$ directly in microamperes on the center (ICO) scale.

(5) If the meter indicates in the high portion of the scale, place the function switch in the ICO OUT/CKT X10 position.

(6) Multiply the $I_{CO}$ reading in microampere by 10 to obtain the True $I_{CO}$ reading.

*f. Diodes in Circuit.*

(1) Set the polarity switch to FWD PNP.

(2) Connect the cathode of the diode to the red lead of test the cable; connect the anode of the diode to the yellow lead.

(3) Set the function switch to CAL DIODE IN/CKT.

(4) Increase the CAL control until an upward deflection is visible on the meter. If an upward deflection is obtained on the meter, the diode is neither open nor shorted. If there is no deflection, the diode is either open or shorted or the circuit impedance is under 20 ohms.

*g. Diodes $I_R$ (Out-of-Circuit).*

(1) Set the polarity switch to FWD PNP.

(2) Connect the cathode of the diode to the red lead of the test cable; connect the anode of the diode to the black lead.

(3) Set the function switch to ICO OUT/CKT X1.

(4) Read the $I_R$ directly in microampere on the middle (ICO) scale.

(5) If the meter pointer swings off scale, place the function switch in the ICO OUT/CKT X10 range.

(6) Multiply the $I_R$ reading in microampere by 10 to obtain the true $I_R$ reading.

*h. Diodes, Reverse-to-Forward Ratio (Out-of-Circuit).*

(1) Set the polarity switch to FWD PNP.

(2) Connect the cathode of the diode to the red lead of the test cable; connect the anode of the diode to the yellow lead.

(3) Set the function switch to DIODE 1-10, and adjust the CAL control for full scale meter deflection.

(4) Set the polarity switch to REV NPN, and read the diode ratio (with a reference to 1) directly on the BETA (top) scale.

*i. Field Effect Transistors $G_M$ (Out-of Circuit).*

(1) If a field effect transistor with short leads is being measured, place the transistor in the small socket on the lower right side of the front panel. Place the drain lead in pin C, the gate lead in pin B and the source lead in pin E. The transistor jacks on the front panel are spaced so that they will accept a standard test adapter for rapid testing of transistors with long leads.

(2) Set the polarity switch to FWD PNP when testing an N-type transistor, and to REV PNP when testing a P-type transistor.

(3) Set the function switch to F.E.T. CAL, and adjust the CAL control for full-scale meter deflection.

(4) Set the function switch to F.E.T. READ, and read the $G_M$ of the transistor under test directly on the meter on the bottom ($G_M$) scale.

*j. Fields Effect Transistors $G_M$ (In-Circuit).*

(1) Insert the three test leads supplied with the instrument into the three color-coded jacks on the front panel, being careful to insert the red probe into the red jack, the black probe into the black jack, and the yellow probe into the yellow jack. Connect the other ends of the test leads to the transistor under test. Be careful to connect the red-coded alligator clip to the drain lead, the black-coded alligator clip to the gate lead, and the yellow-coded alligator clip to the source lead of the field effect transistor.

(2) Set the polarity switch to FWD PNP when testing an N-type transistor, and set it to REV NPN when testing a P-type transistor.

(3) Set the function switch to F.E.T. CAL and adjust the CAL control for full-scale meter deflection.

(4) Set the function switch to F.E.T. READ, and read the $G_M$ of the transistor under test directly on the meter on the bottom ($G_M$) scale.

*k. Battery Check.*

(1) Set the function switch to BAT.

(2) The meter pointer should fall in the red box on the top scale labeled BAT. If the meter pointer falls outside this box, the batteries should be replaced.

## 3-5. Methods for Servicing Semiconductor Circuitry

Test Set, Transistor TS-1836B/U is designed so that it is a safe instrument to use with semiconductor circuitry. The voltage and current levels that the instrument can supply to the device are controlled so that the accidental misplacing of leads will not damage any semiconductor device; therefore, any device failure would be caused by equipment operation and not the manner which the test set is used.

## 3-6 Determining Types of Failures

The test set can be used to determine the type of failure encountered, and some of the tests can be used to verify the findings of other tests. The chart in paragraph 2-7 lists the types of failures that can be found and the manner in which the test set can be used to determine the type of failure. An open and a shorted diode both give zero meter deflection on the in-circuit diode measurement test. If the diode is shorted, switching the meter to the C-E OHMS test will give a 0-ohm reading. If the C-E ohms tests shows a resistance or an infinity reading on the meter, the diode is open.

a. Transistors.

| *Type of failure* | *Beta* | *Ohms (E-B, C-B, C-E)* |
|---|---|---|
| Open emitter-to-base junction | Beta reads infinity | Emitter-to-base ohms test. Meter indicates infinity or emitter-to-base load. |
| Shorted emitter-to-base junction | Test set cannot be set for BETA CAL. | Emitter-to-base ohms test. Meter indicates 0 ohm. |
| High leakage between the emitter-to-base junction. | Test set cannot be set for BETA CAL. | Emitter-to-base ohms test. Meter indicates low resistance. |
| Open collector-to-base junction | Test set cannot be set for BETA CAL. | Collector-to-base ohms test. Meter indicates infinity or collector-to-base load. |
| Shorted collector-to-base junction | Test set cannot be set for BETA CAL. | Collector-to-base ohms test. Meter indicates 0 ohm. |
| High leakage between the collector-to-base junction. | Test set cannot be set for BETA CAL. | Collector-to-base ohms test. Meter indicates low resistance. |
| Open collector-to-emitter | Test set cannot be set for BETA CAL. | Collector-to-emitter ohms test. Meter indicates infinity or the collector-to-emitter load. |
| Shorted collector-to-emitter | Test set cannot be set for BETA CAL. | Collector-to-emitter ohms test. Meter indicates 0 ohm. |
| High leakage between the collector-to-emitter. | Test set gives reverse indication for BETA CAL. | Collector-to-emitter ohms test. Meter indicates low resistance. |

*b. Diodes.*

| | *Meter indication* | |
|---|---|---|
| *Type of failure* | *In-circuit diode measurement* | *Ohm (C-E)* |
| Shorted diode | 0 meter deflection | 0. |
| Open diode | 0 meter deflection | Infinite or circuit resistance. |

# CHAPTER 4

# OPERATOR'S AND ORGANIZATIONAL MAINTENANCE

## 4-1. Scope of Maintenance

a. The maintenance duties assigned to the operator of the test set are listed below, together with a reference to the paragraphs covering the specific maintenance functions. The duties assigned do not require tools or test equipment other than those issued with the equipment.

(1) Operator's daily preventive maintenance checks and services (para 4-4).

(2) Operator's weekly preventive maintenance checks and services (para 4-5).

(3) Cleaning (para 4-7).

*b.* The maintenance duties assigned to the organizational maintenance repariman of the test set are listed below, together with a reference to the paragraphs covering the specific functions. The duties assigned do not require tools or test equipment other than those issued with the equipment.

(1) Organizational monthly preventive maintenance checks and services (para 4-6).

(2) Rustproofing and painting (para 4-8).

## 4-2. Preventive Maintenance

Preventive maintenance is the systematic care, servicing and inspection of the equipment to prevent the occurrence of trouble, to reduce downtime, and to assure that the equipment is servicible.

*a. 8ystematic Care.* The procedures given in paragraphs 4-4, 4-5, and 4-7 cover routine systematic care and cleaning essential to proper upkeep and operation of the equipment.

*b. Preventive Maintenance Checks and Services.* The operator's preventive maintenance checks and services charts (paras 4-4 and 4–5 ) outline functions to be performed at specific intervals. These checks and services are designed to maintain Army equipment in a combat-serviceable condition; that is, in good general (physical) condition and in good operating condition. To assist operators in maintaining combat serviceability, the charts indicate what to check, how to check, and what the normal conditions are; the *References* column lists the paragraphs or manuals that contain detailed repair or replacement procedures. If the defect cannot be remedied by the operator, higher category of maintenance or repair is required. Records and reports of these checks and services must be made in accordance with TM 38-750.

## 4-3. Preventive Maintenance Checks and Services Periods

Preventive maintenance checks and services of the TS-1836B/U are required daily, weekly, and monthly.

*a.* Paragraph 4-4 specifies the checks and services that must be accomplished daily and under the special conditions listed below:

(1) Before the test set is taken on a mission.

(2) When the test set is initially installed.

(3) When the test set is reinstalled after removal for any reason.

(4) At least once a week, if the equipment is maintained in standby condition.

*b.* Paragraphs 4-5 and 4-7 specify additional checks and services that must be performed on a weekly and monthly basis, respectively. Perform the maintenance functions indicated in the organizational monthly preventive maintenance checks and services chart (para 4-6) once each month. A month is defined as approximately 30 calendar days of 8-hour-per-day operation. If the equipment is operated 16 hours a day, the monthly preventive maintenance checks and services should be performed at 15-day intervals. Adjustment of the maintenance interval must be made to compensate for any unusual operating conditions. Equipment maintained in a standby (ready for immediate operation) condition must have monthly preventive maintenance checks and services. Equipment in limited storage (requires service before operation does not require monthly maintenance.

## 4-4. Operator's Daily Preventive Maintenance Checks and Service Chart

| Sequence No. | Item to be inspected | Procedure | References |
|---|---|---|---|
| 1 | Test set | Check equipment for completeness and general condition | App B. |
| 2 | Exterior surfaces | Clean exterior surfaces of the equipment | Para 4-7. |
| 3 | External receptacles | Inspect external receptacles for breakage and looseness | |
| 4 | Meter glass | Inspect front panel glass window for damaged housing, broken glass, physical damage, dust, or moisture. | |
| 5 | Knobs, controls, and switches | During operation (sequence No. 6), check knobs, controls, and switches for proper mechanical action. Action must be positive, without backlash, binding, or scraping. | |
| 6 | Operation | During operation, be alert for any abnormal indications | |

## 4-5. Operator's Weekly Preventive Maintenance Checks and Services Chart

| Sequence No. | Item to be inspected | Procedure | References |
|---|---|---|---|
| 1 | Cables | Inspect external cables for cuts, cracked or gouged jackets, fraying, or kinks. | |
| 2 | Hardware | Inspect all exterior hardware for looseness and damage. The test set cover, carrying handle, latches, and all bolts and screws must be tight and not damaged. | |
| 3 | Preservation | Inspect equipment for bare spots, rust, and corrosion. If these conditions exist, refer to a higher maintenance category for repair. | Paras 4-7 and 4-8. |
| 4 | Batteries | Inspect batteries for leakage, corrosion, and swelling | |

## 4-6. Organizational Monthly Preventive Maintenance Checks and Services Chart

| Sequence No. | Item to be inspected | Procedure | References |
|---|---|---|---|
| 1 | Publications | Inspect the manual for completeness and usable condition. Be sure that all changes to the manual are on hand. | DA Pam 310-4. |
| 2 | Modification work orders | Check to see that all URGENT MWO's have been applied and that all NORMAL MWO's have been scheduled. | DA Pam 310-7. |
| 3 | Completeness | Check the equipment for completeness and general condition | App B. |
| 4 | Cleanliness | Clean the exterior surfaces of the equipment | Para 4-7. |
| 5 | Preservation | Inspect the equipment to determine that it is free of bare spots, rust, and corrosion. | Para 4-8. |
| 6 | External receptacles | Inspect the external receptacles for breakage and looseness | |
| 7 | Meter glass | Inspect the front panel glass for damaged housing, broken glass, physical damage, dust, or moisture. | |
| 8 | Cables | Inspect the external cables for cuts, cracked or damaged jackets, fraying, or kinks. | |
| 9 | Operation | During operation, be alert for any abnormal indication | |

## 4-7. Cleaning

Inspect the exterior surface of the test set. The exterior surface should be free of dirt, grease, and fungus.

*a.* Remove dust and other loose dirt with a clean, SOft cloth.

***Warning:*** **Prolonged breathing of cleaning compound is dangerous; make certain that adequate ventilation is provided. Cleaning compound is flammable; *do not* use near a flame. Avoid contact with the skin; wash off any that spills on your hands.**

*b.* Remove grease, fungus, and ground-in dirt from the cases; use a cloth dampened (not wet) with cleaning compound (FSN 7930–395–9542).

*c.* Remove dirt from plugs and jacks with a brush.

**Caution: Do not press on the meter face (glass) when cleaning; the meter may become damaged.**

*d.* Clean the front panel, meter, and control knobs; use a soft, clean cloth. If necessary, dampen the cloth with water; mild soap may be used for more effective cleaning.

## 4-8. Rustproofing and Painting

*a. Rustproofing.* When the finish on the test set has become badly scarred or damaged, rust and corrosion can be prevented by touching up the bare spots. Use No. 000 sandpaper to clean the surface down to the bare metal. Obtain a bright, smooth finish.

*b. Painting.* Remove rust and corrosion from mental surfaces by lightly sanding them with fine sandpaper. Brush two thin coats of paint on the bare metal to protect it. Refer to the applicable cleaning and refinishing practices specified in TB SIG 364.

# CHAPTER 5

# CIRCUIT FUNCTIONING

## 5-1. Introduction

Circuits for Test Set, Transistor TS-1836B/U can be divided into four functional loops: Multivibrator, current limiting, audio amplifier, and switching. The multivibrator stage produces an amplified square wave signal that is applied to the switching circuits through coupling transformer T1. The current limiting network is provided for the protection of the semiconductor under test and to limit the current to the transistor when resistance tests are conducted. The audio amplifier is used in conjunction with the F.E.T. test to provide a parallel source to operate the meter. The switching circuit incorporates a 12-position, 9-wafer function and a 3-position, 12-pole 3-wafer type polarity (FND PNP/OFF/REV NPN) switch.

## 5-2. Battery Check

A simplified schematic diagram of the circuit used to check the batteries in the test set is shown in figure 5-1. With the function switch in the BAT. position, +9 volts is fed through series resistor R32 and meter M1. The resistance of R32 limits the deflection of meter M1 to the BAT position on the scale.

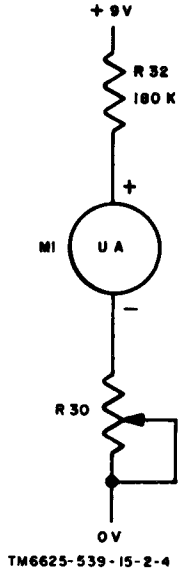



*Figure 5-1. Battery check, simplified schematic diagram.*

## 5-3. Beta and Diode In-Circuit Checks

*a.* A simplified schematic diagram of the circuit used to calibrate for beta is shown in figure 5-2. Figure 5-2 illustrates a PNP-type transistor; however,

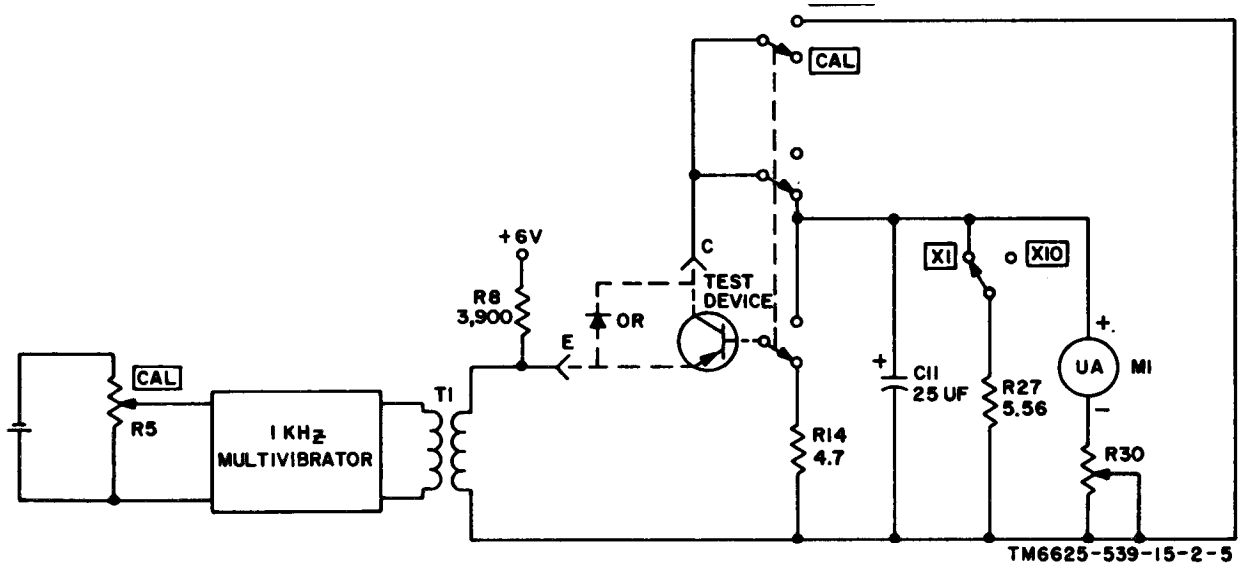



*Figure 5-2. Beta and diode check, simplified schematic diagram.*

the same principle applies for NPN and four-element devices ( tetrodes) when the fourth lead is left open-circuited.

*b.* With the switch in the BETA CAL position, 1-kilohertz (kHz) multivibrator Q1, Q2, and Q3 applies a symmetrical square wave to the input of the test device. The magnitude of the square wave is adjustable by CAL resistor R5. The output of the square wave generator is coupled to the test device by transformer T1. With the switch in the BETA CAL position, the amplitude of the square wave is adjusted by CAL resistor R5 until a 1-milliampere (ma) current flows in the collector of the test device. Setting the function switch to BETA X1 connects meter M1 to indicate the base current. Meter M1 is calibrated directly in beta from the relationship beta equals Ic/Ib, and beta is read directly. Setting the function switch to BETA X10 removes shunt resistor R27 from the meter, and the meter is 10 times as sensitive as in the BETA X1 position.

### 5-4. OHMS E-B, C-B, and C-E Resistance Checks

*a.* Figure 5-3 is a schematic diagram of the circuit used to measure resistance of transistor junctions. Figure 5-3 illustrates the emitter-to-base resistance measurements: however, the same principle applies to collector-to-base, and collector-to-emitter resistance measurements.

*b.* Resistor R10 and 6.8-volt Zener diode VR1 serve as a voltage divider. Tile Zener diode establishes constant voltage source, eliminating the need for a meter zero potent iomet er. Resistors R11 and R12 limit the maximum current through the meter to 100 ma. Resistor R11 is variable to compensate for tolerance variations of the meter and resistor R13, which is in series with the meter. Without the test device in the circuit, the full 100 ma flows through the meter, causing full scale deflection, which corresponds to a reading of infinity. With the test device in the circuit, current flow through the test device, which is inversely proportional to resistance, results in a decrease in current flow through the meter. Meter deflection in some amount less than full scale, depending on the resistance of the test device, and indicates, directly in ohms, the resistance of the element under test. Because the test set measures semiconductor resistance at very low current and voltage levels, resistance at the semiconductor electrodes may be measured without polarizing the leads. The voltage used, 0.01 volt, is well below the knee of a voltage-current diode plot; consequently, the resistance of the diode is extremely high. The correct value of resistance is read unless the diode is short-circuited or is excessively leaky.

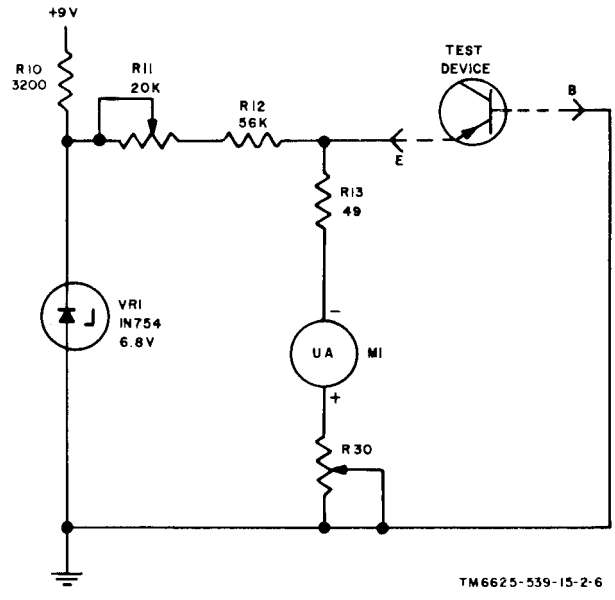



*Figure 5-3. Resistance check, simplified schcmatic diagram.*

### 5-5. Leakage ICO X1 and X10 Check

A simplified schematic diagram of the circuit used to check $Ix_{co}$. (direct current (dc) collector current when the collector junction is reverse-biased and the emitter is open-circuited) is illustrated in figure 5-4. Figure 5-4 illustrates a PNP transistor. With the function switch in the ICO X1 position, the test device is reverse-biased by the battery. The test device emitter is open-circuited. Meter Ml indicates the collector current. With function switch' at ICO X10, shunt resistor R28 and series resistor R29 are connected to the meter. The sensitivity of the meter is decreased by 10.

### 5-6. DIODE 1-10 Ratio Check

*a.* A simplified schematic diagram of the circuit used to check diodes for a 10 :1, front-to-back ratio is shown on figure 5–5. A, figure 5-5, illustrates the circuit used to obtain the forward or reference, reading and B, figure 5-5, illustrates the circuit used to obtain the reverse reading.

*b.* The 10:1 ratio measurement is obtained in the following manner. The test device is placed in series with the meter and its shunt and current limiting resistors in both forward and reverse positions. With the polarity switch in the FWD PNP position, the

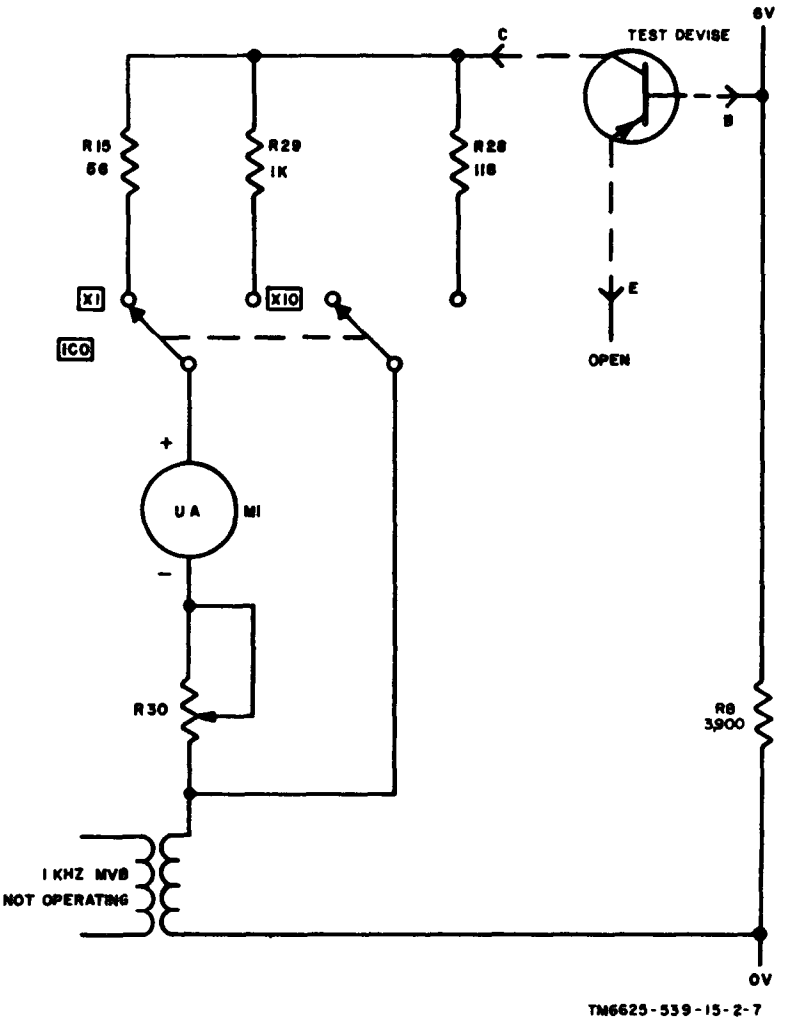



*Figure 5-4 $I_{co}$ (leakage) check, simplified schematic diagram.*

diode is forward-biased and conducts heavily. Resistors R9, R5, meter shunt R27, and the forward resistance of the test device limit the current through meter M1. CAL potentiometer R5 is adjusted to set the current through M1 to 100 ma which corresponds to a full-scale meter reading. After CAL potentiometer R5 has been set to provide a full-scale reading, the polarity switch is set to NPN REV as shown in B, figure 5-5. The circuit is essentially the same as the circuit used to obtain the reference reading; the only change is the reversal of the applied voltage and reversal of the meter. The test device is now back-biased and offers a high resistance. Circuit current is proportionally decreased because of the increased resistence of the test device, and consequently, meter deflection is proportionally reduced. The forward-to-revere current ratio is read directly on the BETA scale of the meter.

### 5-7. F.E.T. CAL Check

a. A schematic diagram of the circuit used to calibrate the test set for field effect transistor ( F. E.T.) transconductance measurement is shown in figure 5-6. Figure 5-6 shows an N-channel F.E.T. transistor; however, the same principle applies for a P-chnnnel F.E.T. transistor.

*b.* The F.E.T. CAL position of the function switch sets the signal level applied to the test device at 100 millivolts (mv) as follows. The 1-kHz multivibrator applies a symmetrical square wave between the source and the gate of the F.E.T. under test. A voltage divider, consisting of resistors R18 and R17, shunts the source gate junction of the test device; a portion of the 1-kHz square wave applied between

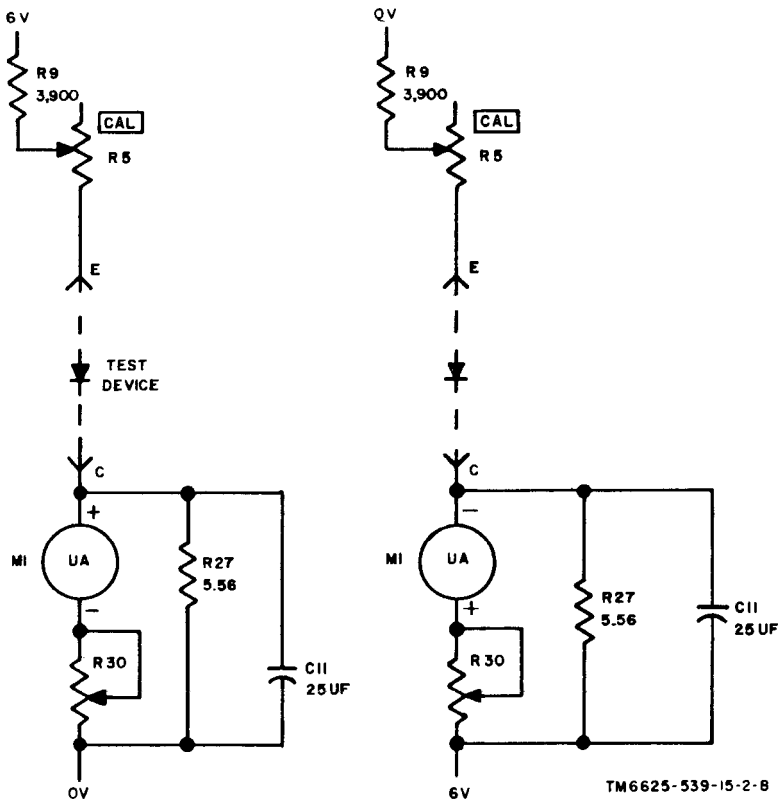



*Figure 5-5. Diode 1:10 ratio check, simplified schematic diagram.*

the source and the gate is picked off at the junction of R17 and R18 and is applied to the input of audio amplifier Q4, Q5, and Q6. The output of the audio amplifier is rectified by bridge CR1, CR2, CR3, and CR4 and is applied to the meter. A full scale meter reading indicates that tile square wave applied to the F.E.T. is 100 mv in amplitude. The output level of the multivihmtor (input level to the test device) is varied by adjusting CAL potentiometer R5. The signal level applied to the test device can be accurately set at 100 mv by adjustment of CAL potentiometer R5 while observing the meter for a full scale reading.

### 5-8. F.E.T. READ Check

GM measurements of field effect transistors are accomplished by the test set in the following manner. The 1-kHz multivibrator, when properly calibrated by adjustment of CAL potentiometer R5, applies a symmetrical 100-mv square wave between the source and gate of the test device. Operating voltages are also applied to the test device. The 1-kHz square wave appearing at the drain of the test device is applied to the input of the audio amplifier. The output of the audio amplifier is rectified by bridge CR1, CR2, CR3, and CR4 and is applied to the meter. The meter is calibrated directly in GM micromhos.

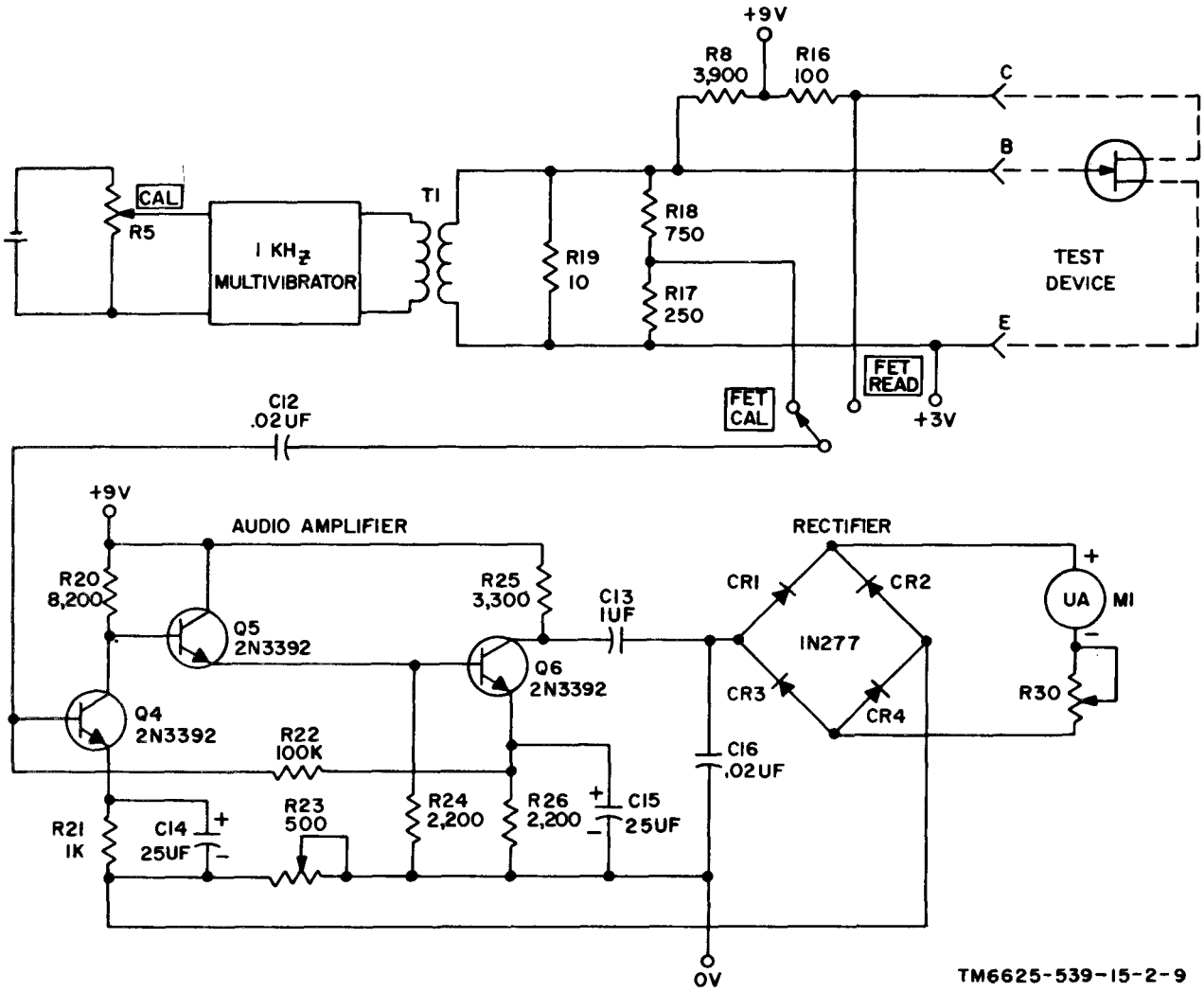



*Figure 5–6. F.E.T. checks, simplified schematic diagram.*

# CHAPTER 6
# TROUBLESHOOTING AND REPAIR

## 6-1. Troubleshooting Techniques

*a. General,* The first procedure in servicing a defective test set is to sectionalize the fault. Sectionalization consists of tracing the fault to a group of circuits concerned with one test function. Once the defective function is found, isolation to the defective part is accomplished. Troubleshooting is performed by general support and depot repairmen.

*b. Sectionalization.* Listed in (1) and (2) below is a group of tests that are arranged to help locate the defect to a faulty component.

(1) *Visual inspection.* When the test set is brought in for repair, remove the front panel and inspect as follows:

*(a)* Check to see that all connections are properly seated. Repair or replace any connections or leads that are broken or otherwise defective.

*(b)* Check all switches and controls for ease of operation.

*(c)* Remove the access cover to the batteries, and check for corrosion and looseness of batteries.

*(d)* Inspect for loose or missing screws, specifically those that fasten the rear parts board in place.

(2) *Operational tests.* Operational tests frequently indicate the general location of trouble. In many instances, the test will determine the exact nature of the fault. The operator's preventive maintenance checks and operation check (para 4-4) and the alignment procedures (para 7-1 through 7-4) provide a good operational test.

(3) *Troobleshooting chart and equipment required. The* meter indications, or lack of meter indications, and operational checks provide a systematic method of localizing trouble to the faulty circuit. The trouble symptoms listed in the troubleshooting chart (para 6-2) provide additional information for localizing troubles. The only test equipment required is Voltmeter, Electronic ME-30(*)/U (TM 11-6625-320-12).

**NOTE**

Voltmeter, Electronic ME-30(*)/U represents Voltmeter, Meter ME-30A/U and Voltmeters, Electronic ME-30B/U, ME-30/U, and ME-30E/U.

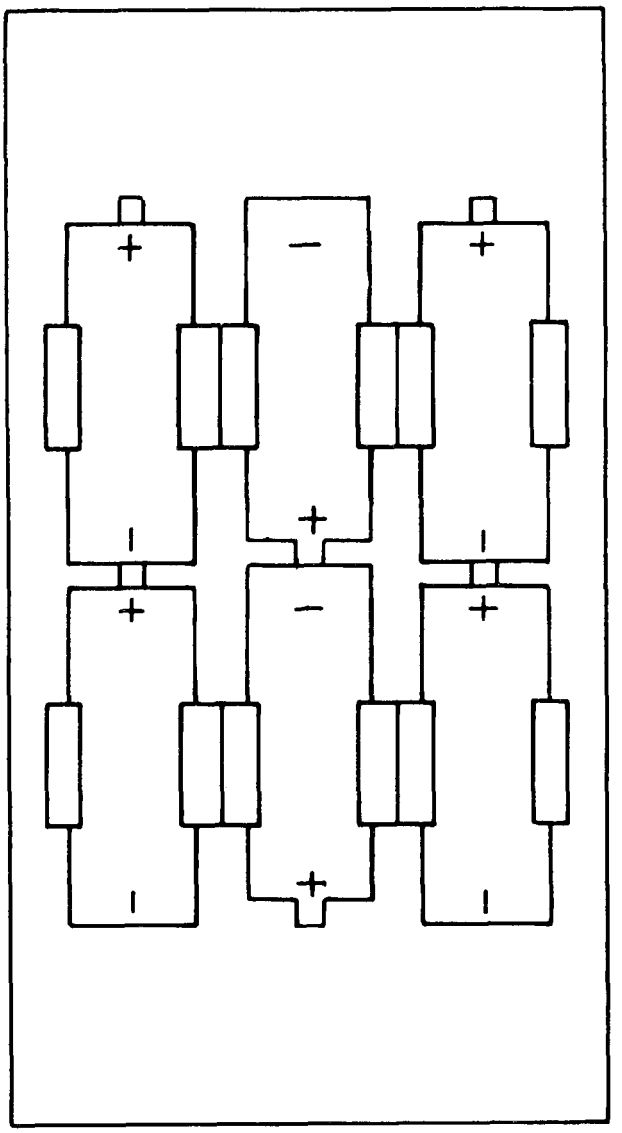



*Figure 6-1. Battery polarity and location, battery compartment.*

## 6-2. Troubleshooting Chart

| *Symptom* | *Probable cause* | *Corrective measure* |
|---|---|---|
| Meter pointer does not fall within BAT position on scale with function switch on BAT. | Batteries loose or weak. Meter M1 defective. | Check batteries (fig. 6-1). Check meter M1. |
| Meter pointer does not align (para 7-2). ----- | VR1, R10, R11, or R13 defective . . ..- . . . . | Check VR1, R10, R11, and R13. |
| ME-30(*)/ U doea not indicate 100 mv (para 7-3) . | Q1, Q2, Q3, on T1, or associated circuitry defective (figs. 5-6 and 7-1). | Check Q1, Q2, Q3, T1, and associated circuitry. |
| Meter pointer does not indicate full scale (para 7-3). | Q4, Q5, Q6, CR1, CR2, CR3, CR4, or associated circuitry defective. | Check Q4, Q5, Q6, and CR1 through CR4. |

# CHAPTER 7

# ALIGNMENT PROCEDURES

## 7-1. General

Under normal conditions, the test set will maintain the factory alignment over a long period of time. It is necessary to realign the test set if any component except the batteries is changed. Alignment procedures are given in paragraphs 7-2 through 7-4.

## 7-2. Alignment of Meter Zero

*a* Set the polarity switch to OFF.

*b.* Adjust the meter zero adjustment screw located directly below the base of the pointer for a 0 meter indication.

## 7-3. Alignment of Meter OHMS Position

*a. Test Equipment Required.* The only test equipment required is a 100-ohm, ±1 percent, ½-watt resistor, FSN.

*b. Procedure.*

(1) Disconnect the unit from the case by removing the four front panel screws.

(2) Set the polarity switch to FWD PNP.

(3) Set the. function switch to OHMS E-B.

(4) Adjust resistor Rll (fig. 7-1) so that the meter pointer indicates full scale on the OHMS scale.

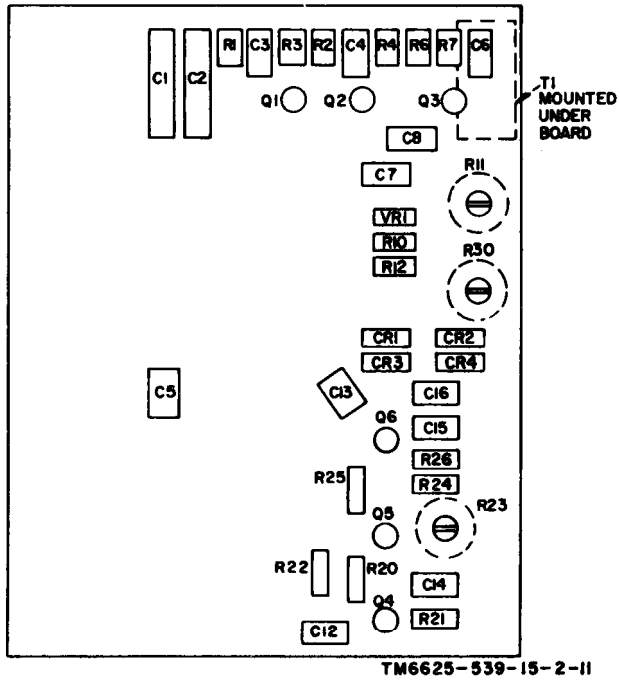



*Figure 7-1. Component location, board mounted.*

(5) Place the 100-ohm, ±1 percent, ½-watt resistor between the E and B jacks on the front panel.

(6) Adjust resistor R30 so that meter Mlindicates 100 ohms.

(7) Remove the 100-ohm resistor, and check to see that the meter pointer indicates full scale. If the meter pointer does not indicate full scale, repeat the procedures in (2) through (6) above.

### 7-4. Alignment of Test Set F.E.T. Position

*a. Test Equipment Required.* An ME-30(*) /U is required.

*b. Procedure.*

(1) Disconnect the unit from the case by removing the four panel screws.

(2) Set the polarity switch to FWD PNP.

(3) Set the function switch to F.E.T. CAL.

(4) Place the ME-30(*)/U across the E and B jacks on the front panel.

(5) Adjust CAL control R5 (fig. 7-2) and resistor R23 (fig. 7–1 ) so that the meter pointer indicates full scale when the ME-30(*)/U indicates 100 mv.

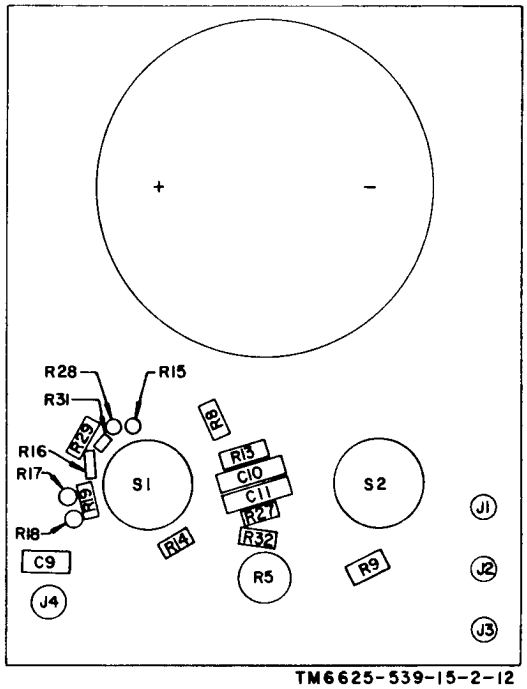



*Figure 7-2. Component location, panel mounted.*

# CHAPTER 8

# GENERAL SUPPORT TESTING PROCEDURES

## 8-1. General

*a.* Testing procedures are prepared for use by Electronic Field Maintenance Shops and Electronic Service Organizations responsible for general support maintenance of electronic equipment to determine the acceptability of repaired equipment. These procedures set forth specific requirements that repaired equipment *must* meet before it is returned to the using organization.

*b.* Comply with the instructions preceding each chart before proceeding to the chart. Perform each step in sequence. Do riot vary the Sequence. For each step, perform all the actions required in the *Control settings* columns; then perform each specific test procedure, and verify it against its performance standard.

## 8-2. Test Equipment and Material

The only test equipment and material required for testing the T.S-1836B/U is Voltmeter, Electronic ME-30(*)/U and a 100-ohm, ±1 percent, ½-watt. resistor.

## 8-3. Modification Work Orders

The performance standards listed in the teats (paras 8-5 and 8-6) are based on the assumption that all modification work orders have been performed. DA Pam 310-7 lists current MWO's.

## 8-4. Physical Tests and Inspection

*a. Test Equipment and Materials.* None required.

*b. Test Connection and Conditions.*

*(1)* No connections are necessary.

*(2)* Remove the test set chassis from its case.

*c. Procedure.*

| Step No. | Control settings: Test equipment | Control settings: Equipment under test | Test procedure | Performance standard |
|---|---|---|---|---|
| 1 | None---------- | Controls may be in any position. | a. Inspect case and chassis for damage, missing parts, and defective condition of paint.<br>**Note. Touch up painting is recommended In place of refinishing whenever practical; screw-heads, binding pints, receptacles, and other plated parts will not be painted or polished with abrasives.** | a. No darnage evident or park missing. External surfaces intended to be painted do not show bare metal. |
| | | | *b.* Inspect afl controls and mechanical assemblies for loose or missing screws, bolts, and nuts. | *b.* Screws, bolts, and nuta will be tight with none missing. |
| | | | *c.* Inspect all connectors, sockets, receptacles, and fuseholders and meter for looseness, damage, or missing parts. | *c.* No loosee parts or damage. No missing parts. |
| 2 | None---------- | Controls may be in any position. | *a.* Rotate all panel controls throughout their limits of travel. | *a.* Controls rotate. freely without binding or excessive looseness. |
| | | | *b.* Inspect dial stops for damage or bending; check for proper operation. | *b.* Stops operate properly without evidence of damage. |
| | | | *c.* Operate switches---------- | *c.* Switches operate properly. |
| 3 | *MX-1292/PAQ*<br>Connect mercury vapor lamp. | Controls may be in any position. | Turn on mercury vapor lamp and expose portion of equipment that haa been repaired or disturbed to direot *rays* of lamp. | All repaired or disturbed electrical components and chassis surfaces are covered. There must be no varnish on switch contacts or moving parta of mechanical assemblies.<br>***Note.* Moisture-fungi-proofing varnish glows gray-green under rays of mercury vapor lamp.** |

## 8-5. Meter OHMS Position Test

*a. Test Equipment and Materials.* A 100-ohm, ±1 percent, ½-watt resistor is required.

*b. Test Connectons and Conditions.* No connections are necessary other than those indicated in *c* below.

*c. Procedure.*

| Step No. | Control settings: Test equipment | Control settings: Equipment under test | Test procedure | Performance standard |
|---|---|---|---|---|
| 1 | None | Polarity switch: FWD PNP. Function switch: OHMS E--B. | Observe the meter | Meter pointer indicates full scale on the OHMS scale. |
| 2 | None | Same as step 1 | Place the 100-ohm, resistor between the E and B jacks on the front panel. Observe the meter. | Meter indicates 100 ohms ±5% |
| 3 | None | Same as step 1 | Remove the 100-ohm resistor, and observe the meter. | Same as step 1. |

## 8-6. Test Set F.E.T. Position Test

*a. Test Equipment and Materials.* The only test equipment required is Voltmeter, Meter ME-30(*)/U.

*b. Test Connections and Conditions.* Connect the equipment as instructed below.

c. *Procedure.*

| Step No. | Control settings: Test equipment | Control settings: Equipment under test | Test procedure | Performance standard |
|---|---|---|---|---|
| | ME-30(*)/U | | | |
| 1 | Range selector switch: 3. | Polarity switch: FWD PNP. Function switch: F.E.T. CAL. | Connect the ME-30(*) /U across the E and B Jacks. Observe the indication on the ME-30(*)/U meter. | ME-30(*)/U indicates 100 mv (0.1 volt) ±5%. |

# CHAPTER 9

# DEPOT OVERHAUL STANDARDS

## 9-1. Applicability of Depot Overhaul Standards

The tests outlined in this chapter are designed to measure the performance capability of a repaired equipment, Equipment that is to be returned to stock should meet the standards given in these tests.

## 9-2. Applicable References

*a. Repair Standards.* Applicable procedures of the depots perfoming these tests, and the general standards for repaired electronic equipment given in TB SIG 355-1, TB SIG 355-2, and TB SIG 355-3 form a part of the requirements for testing this equipment.

*b. Modification Work Orders.* Perform all modification work orders applicable to this equipment *before* making the tests specified. DA Pam 310-7 lists all available MWO'S.

## 9-3. Test Facilities Required

The only test, facilities required for depot testing are Voltmeter, Meter ME-30(*)/U and a 100-ohm ±1 percent, ½-watt resistor.

## 9-4. Depot Overhaul Standards Tests

For depot overhaul standards tests, perform the trots in paragraphs 8-5 and 8-6.

# CHAPTER 10

# SHIPMENT AND LIMITED STORAGE AND DEMOLITION TO PREVENT ENEMY USE

## Section I. SHIPMENT AND LIMITED STORAGE

### 10-1. Disassembly of Equipment

Disassembly procedures for Test Set, Transistor TS-M36B/U consist of the procedures in a through c below.

*a.* Disconnect the three test leads, and place them in the storage space in the top of the instrument case.

*b.* Remove the front panel and top to the battery comparment. Remove the six batteries. Replace the top to the battery compartment and front panel, being careful to tighten all screws securely.

*c.* Set the polarity switch to OFF.

### 10-2. Repackaging for Shipment or Limited Storage

The exact procedure for repackaging depends on the material available and whether the equipment is to be shipped or stored. Adapt the procedures outlined in *a* through *c* below whenever possible. The information concerning the original packaging ( para 2-1 ) will be helpful.

*a. Material Requirement.* The materials listed in the chart below are required for packaging Test Set, Transistor TS-1836B/U. For stock numbers of materials, consult SB 38-100.

| *Material* | Quantity |
|---|---|
| Waterproof paper | 6 sq ft. |
| Waterproof tape | 4 ft. |
| Cotton twine | 12 ft. |
| Corrugated cardboard | 6 sq ft. |
| Gummed tape | 4 ft. |
| Filler material | 3 lb. |

*b. Packaging.* The test set shall be packed on all surfaces with pads of filler material. Place the cushioned unit within a wrap of corrugated cardboard. Secure the corrugated cardboard with gummed tape.

*c. Packing.* Wrap the package in waterproof paper, seal it with waterproof tape, and place it in a nailed wooden box.

## Section II. DEMOLITION OF MATERIEL TO PREVENT ENEMY USE

### 10-3. Authority for Demolition

*a.* The demolition procedures given in paragraph 10-4 will be used to prevent the enemy from using or salvaging this equipment. Demolition of the equipment will be accomplished only upon the order of the commander.

*b.* Thorough demolition of equipment will be accomplished through the procedures outlined in International Standardization Agreement STANG 2113, *Destruction of Military Tchnical Equipment.* Methods of destruction should damage equipment and essential spare parts. so that it will not be possible to restore the equipment to a usable condition in the combat zone either by repair or cannibalization. Reporting of destruction of equipment is to be done through command channels.

*c.* If a destruction plan is not provided by higher authority one should be prepared by the organization using the equipment. In this plan, personnel should be assigned specific destruction tasks, but all personnel in the using organization should be familiar with all aspects of the complete destruction plan. The plan must be adequate and easily carried out in the field and must provide for as complete a destruction as available time, equipment, and personnel will permit. Because the time required for complete dest ruction may not always be available, the destruction plan must establish priorities so that essential parts of the equipments will be destroyed in the order of their importance. Systematic destruction of the same important units of equipment of a given type will prevent the enemy from learning the important features of the equipment or assembling a complete equipment by cannibalization of partially destroyed equipment. Adequate destruction of some units of equipment should always be accomplished rather than partial destruction of all units. The method listed in para-

graph 10-4 which is to be used depends on the time available for destruction.

### 10-4. Methods of Destruction

*a. Destruction Priority.* STANAG 2113 outlines the general priorities for any equipment which is to be destroyed.

*b. Smash.* Smash the controls, resistors, capacitors, switches, and other interior parts; use sledges, hammers, axes, crowbars, or other heavy tools.

*c. Cut.* Cut the cords, cables, and wiring; use axes, handaxes, or machetes.

***Warning:*** **Be extremely careful with explosive and incendiary devices. Use these items only when the need is urgent.**

*d. Burn.* Burn the cords, wiring, technical manuals, and components; use gasoline, kerosene, oil, flamethrowers, or incendiary grenades.

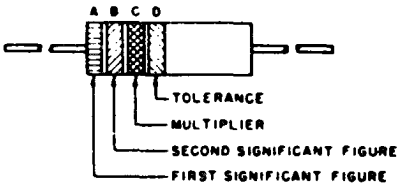
*e. Bend.* Bend the panels, casing, and connectors.

*f. Explosives.* If explosives are necessary, use fire+ arms, grenades, or TNT.

*g. Disposal* Burn or scatter the destroyed parts in slit trenches, foxholes, or other holes, or throw them into nearby streams.

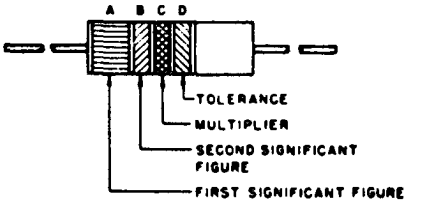
## COLOR CODE MARKING FOR MILITARY STANDARD RESISTORS

### COMPOSITION-TYPE RESISTORS




BAND A— Equal Width Band Signifies Composition-Type

### WIREWOUND-TYPE RESISTORS

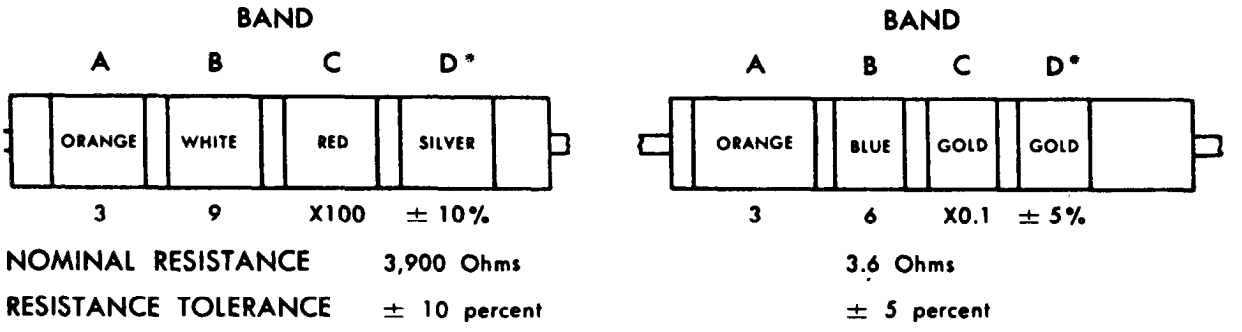



BAND A— Double Width Signifies Wire-wound Resistor

## COLOR CODE TABLE

| BAND A | | BAND B | | BAND C | | BAND D* | |
|---|---|---|---|---|---|---|---|
| COLOR | FIRST SIGNIFICANT FIGURE | COLOR | SECOND SIGNIFICANT FIGURE | COLOR | MULTIPLIER | COLOR | RESISTANCE TOLERANCE (PERCENT) |
| BLACK | 0 | BLACK | 0 | BLACK | 1 | | |
| BROWN | 1 | BROWN | 1 | BROWN | 10 | | |
| RED | 2 | RED | 2 | RED | 100 | | |
| ORANGE | 3 | ORANGE | 3 | ORANGE | 1,000 | | |
| YELLOW | 4 | YELLOW | 4 | YELLOW | 10,000 | SILVER | ± 10 |
| GREEN | 5 | GREEN | 5 | GREEN | 100,000 | GOLD | ± 5 |
| BLUE | 6 | BLUE | 6 | BLUE | 1,000,000 | | |
| PURPLE (VIOLET) | 7 | PURPLE (VIOLET) | 7 | | | | |
| GRAY | 8 | GRAY | 8 | SILVER | 0.01 | | |
| WHITE | 9 | WHITE | 9 | GOLD | 0.1 | | |

## EXAMPLES OF COLOR CODING




*If Band D is omitted, the resistor tolerance is ± 20%, and the resistor is not Mil-Std.

*Figure 10-1. Color-code marking for MIL-STD resistors.*

# APPENDIX A
# REFERENCES

| | |
|---|---|
| DA Pam 310-4 | Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7,8, and 9), Supply Bulletins, and Lubrication Orders.. |
| DA Pam 310-7 | US Army Equipment Index of Modification Work Orders. |
| SB 38-100 | Preservation, Packaging, Packing and Marking Materials, Supplies, and Equipment Used by the Army. |
| TB SIG 355-1 | Depot Inspection Standard for Repaired Signal Equipment. |
| TB SIG 355-2 | Depot Inspection Standard for Refinishing Repaired Signal Equipment. |
| TB SIG 355-3 | Depot Inspection Standard for Moisture and Fungus Resistant Treatment. |
| TB 43-0118 | Field Instructions for Painting and Preserving Electronics Command Equipment Including Camouflage Pattern Painting of Electrical Equipment Shelters. |
| TM 11-6625-320-12 | Operator's and Organizational Maintenance Manual: Voltmeter, Meter ME-30A/U and Voltmeters, Electronic ME-30B/U, ME-30C/U, and ME-30E/U. |
| TM 38-750 | The Army Maintenance Management System (TAMMS). |
| TM 740-90-1 | Administrative Storage of Equipment. |
| TM 750-244-2 | Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command). |

# APPENDIX C
# MAINTENANCE ALLOCATION

## Section I. INTRODUCTION

### C-1. General

This appendix provides a summary of the maintenance operations for the Test Set, Transistor TS-1836B/U. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

### C-2. Maintenance Function

Maintenance functions will be limited to and defined as follows:

*a. Inspect.* To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

*b. Test.* To verify serviceability and to detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

*c. Service.* Operations required periodically to keep an item in proper operating condition; i.e., to clean, preserve, drain, paint, or to replenish fuel/lubricants/hydraulic fluids or compressed air supplies.

*d. Adjust.* Maintain within prescribed limits by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.

*e. Align.* To adjust specified variable elements of an item to about optimum or desired performance.

*f. Calibrate.* To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipment used in precision measurement. Consists of the comparison of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

*g.* Install. The act of emplacing, seating, or fixing into position an item, part, module (component or assembly) in a manner to allow the proper functioning of the equipment/system.

*h. Replace.* The act of substituting a serviceable like-type part, subassembly, model (component or assembly) for an unserviceable counterpart.

*i. Repair.* The application of maintenance services (inspect, test, service, adjust; align, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module/component/assembly, end item or system. This function does not include the trial and error replacement of running spare type items such as fuses, lamps, or electron tubes.

*j. Overhaul.* That periodic maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (e.g., DMWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like-new condition.

*k. Rebuild.* Consists of those services/actions necessary for the restoration of unserviceable equipment to a like-new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours, miles, etc.) considered in classifying Army equipment/components.

### C-3. Column Entries

*a. Column 1, Group Number.* Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies and modules with the next higher assembly.

*b. Column 2, Component/Assembly.* Column 2 contains the noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

*c. Column 3, Maintenance Functions.* Column 3 lists the functions to be performed on the item listed in column 2. When items are listed without maintenance functions, it is solely for purpose of having the group numbers in the MAC and RPSTL coincide.

*d. Column 4, Maintenance Category.* Column 4 specifies, by the listing of a "worktime" figure in the appropriate subcolumn(s), the lowest level of maintenance authorized to perform the function listed in column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed

maintenance function vary at different maintenance categories, appropriate "worktime" figures will be shown for each category. The number of task-hours specified by the "worktime" figure represents the average time required to restore an item (assembly, subassembly, component, module, end item or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time and quality assurance quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. Subcolumns of column 4 are as follows:

C - Operator/crew
O - Organizational
F - Direct support
H - General support
D - Depot

*e. Column 5, Tools and Equipment.* Column 5 specifies by code, those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated function.

## C-4. Tool and Test Equipment Requirements (Table 1)

*a. Tool or Test Equipment Reference Code.* The numbers in this column coincide with the numbers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool or test equipment for the maintenance functions.

*b. Maintenance Category.* The codes in this column indicate the maintenance category allocated the tool or test equipment.

*c. Nomenclature.* This column lists the noun name and nomenclature of the tools and test equipment required to perform the maintenance functions.

*d. National/NATO Stock Number.* This column lists the National/NATO stock number of the specific tool or test equipment.

*e. Tool Number.* This column lists the manufacturer's part number of the tool followed by the Federal Supply Code for Manufacturers (5-digit) in parentheses.

## SECTION II MAINTENANCE ALLOCATION CHART FOR

TEST SET, TRANSISTOR TS-1836B/U

| (1) GROUP NUMBER | (2) COMPONENT/ASSEMBLY | (3) MAINTENANCE FUNCTION | (4) MAINTENANCE CATEGORY | | | | | (5) TOOLS AND EQUIPMENT |
|---|---|---|---|---|---|---|---|---|
| | | | C | O | F | H | D | |
| 00 | TEST SET, TRANSISTOR TS-1836B/U | Inspect | | 0.5 | | | | 4 |
| | | Service | | 1.0 | | | | 4 |
| | | Test[1] | | 0.5 | | | | 1 |
| | | Test[2] | | | | 1.0 | | 2,5,6 |
| | | Service[3] | | 0.2 | | | | 4 |
| | | Repair | | | | 1.5 | | 2,3,5,6 |
| | | Overhaul | | | | | 3.0 | 2,3,5,6 |
| 01 | CASE ASSEMBLY (UPPER) | Test | | | | 0.2 | | 2,3 |
| | | Repair | | | | 0.8 | | 3 |
| 02 | PANEL ASSEMBLY | Test | | | | 0.2 | | 2 |
| | | Repair | | | | 0.8 | | 3 |
| 0201 | ELECTRONIC COMPONENTS ASSEMBLY | Test | | | | 0.8 | | 2,3 |
| | | Repair | | | | 1.3 | | 2,3,6 |

(1) Operational tests.
(2) All tests.
(3) By replacement of knobs.

**TABLE 1, TOOL AND TEST EQUIPMENT REQUIREMENTS FOR**

TEST SET, TRANSISTOR TS-1836B/U

| TOOL OR TES EQUIPMENT REF CODE | MAINTENANCE CATEGORY | NOMENCLATURE | NATIONAL/NATC STOCK NUMBER | TOOL NUMBER |
|---|---|---|---|---|
| 1 | O | MULTIMETER AN/URM-1 05C | 625-00-999-6282 | |
| 2 | H,D | MULTIMETER TS-352B/U | 625-00-553-0142 | |
| 3 | H,D | TOOL KIT ELEC EQUIP TK-100/G | 180-00-605-0079 | |
| 4 | O | TOOLS AND TEST EQUIP AVAILABLE TO REPAIRPERSON USER BECAUSE OF HIS/HER ASSIGNED MISSION | | |
| 5 | H,D | VOLTMETER, ELECTRONIC ME-30/U | 625-00-643-1670 | |
| 6 | H,D | TEST SET, TRANSISTOR TS-1836/U | 625-00-893-2628 | |

# APPENDIX E

## TRANSISTOR CHARACTERISTIC DATA FOR

## TEST SET, TRANSISTOR TS-183613/U

Two of the most important parameters for testing transistors in circuit are $I_{co}$ and beta. Minimum value of beta and maximum values of $I_{co}$ are presented as an aid in determining faulty transistor and transistors that have started to degrade.

Beta is normally specified by the manufacturer at various collector-to-emitter voltages; however, beta is normally independent of collector-to-emitter voltage above the saturation voltage. The magnitude of the beta of a transistor, therefore, measured at a potential slightly above the saturation voltage is very close to the magnitude of the beta measured at some higher potential. The appendix shows data gathered from manufacture and specification sheets which accounts for the various potentials for which beta is given. The same reasoning is true for the $I_{CO}$ parameter if it does not contain a leakage current. A plot of collector current versus collector voltage of a reverse-biased collector-to-base junction with a negligible amount of leakage current yields a graph which rises to some current rather quickly and then remains constant with increasing voltage until the breakdown voltage of the junction is reached. A leakage component across the junction modifies this curve in an amount depending on the amount of leakage present across the junction. The figure of 6 volts was chosen as one that would give maximum information on the largest amount of transistors and diodes. A device with a lower breakdown voltage than 6 volts will not be damaged since the power, when this measurement is made, is limited to less than 5 milliwatts.

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO |
|---|---|---|---|---|
| 2N34 | 50 | 75 | PNP | TO22 |
| 2N34A | | 60 | PNP | |
| 2N35 | 50 | 75 | NPN | TO22 |
| 2N36 | | 45 | PNP | |
| [illegible] | | 30 | PNP | A109 |
| 2N36A | | 15 | PNP | A109 |
| 2N43 | 16 | 42 | PNP | B222 |
| 2N43A | 7.0 | 25 | PNP | TO5 |
| USAF 2N43A | 16 | 30 | PNP | B222 |
| 2N44 | 16 | 25 | PNP | B222 |
| 2N44A | 8.0 | 31 | PNP | B222 |
| USAF 2N44A | 16 | 13 | PNP | B222 |
| 2N45 | 10 | 12 | PNP | TO29 |
| 2N59 | 15 | 90 | PNP | TO5 |
| 2N59A | 15 | 90 | PNP | TO5 |
| 2N59B | 15 | 90 | PNP | TO5 |
| 2N59C | 15 | 90 | PNP | TO5 |
| 2N60 | 15 | 70 | PNP | TO5 |
| 2N60A | 15 | 70 | PNP | TO5 |
| 2N60B | 15 | 70 | PNP | TO5 |
| 2N60C | 15 | 70 | PNP | TO5 |
| 2N61 | 15 | 45 | PNP | TO5 |
| 2N61A | 15 | 45 | PNP | TO5 |
| 2N61B | 15 | 45 | PNP | TO5 |
| 2N61C | 15 | 45 | PNP | TO5 |
| 2N63 | 20 | 22 | PNP | A102 |
| 2N64 | 20 | 45 | PNP | A102 |
| 2N65 | 10 | 75 | PNP | |
| 2N77 | 10 | 55 | PNP | TO1 |
| 2N78 | 3.0 | 58 | NPN | A104 |
| 2N78A | 3.0 | 58 | NPN | A104 |
| USAF 2N78A | 3.0 | 40 | NPN | |
| 2N94 | 50 | 50 | NPN | TO22 |
| 2N94A | 50 | 20 | NPN | TO22 |
| 2N97 | 2.0 | 13 | NPN | TO5 |
| 2N98 | 2.0 | 40 | NPN | |
| 2N101/13 | 5.0 | 11 | PNP | TO13 |
| 2N102/13 | 2.0 | 11 | NPN | TO13 |
| 2N103 | 50 | 4. | NPN | |
| 2N104 | 10 | 44 | PNP | TO40 |
| 2N105 | 5.0 | 55 | PNP | TO2 |
| 2N106 | | 45 | PNP | A103 |
| 2N107 | 10 | 19 | PNP | B221 |
| 2N108 | | | PNP | |
| 2N109 | 7.0 | 65 | PNP | TO40 |
| 2N111 | | 25 | PNP | A103 |
| 2N111A | | 25 | PNP | |
| 2N112 | | 30 | PNP | A103 |
| 2N112A | | 30 | PNP | |
| 2N113 | | 45 | PNP | A103 |
| 2N114 | | 75 | PNP | A103 |
| 2N117 | 2.0 | 15 | NPN | A105 |
| USN 2N117 | 10 | 7.3 | NPN | A105 |
| 2N118 | 2.0 | 29 | NPN | A105 |
| JAN 2N118 | 10 | 20 | NPN | A105 |
| USN 2N118 | 10 | 14 | NPN | A105 |
| 2N118A | .10 | 54 | NPN | A105 |
| 2N119 | 2.0 | 63 | NPN | A105 |
| USN 2N119 | 10 | 0 | NPN | A105 |
| 2N120 | 2.0 | 200 | NPN | A105 |
| 2N122 | .10 | 3. | NPN | C306 |
| 2N123 | 6.0 | 75 | PNP | B222 |
| USAF 2N123 | 6.0 | 30 | PNP | B222 |
| 2N124 | 2.0 | 18 | NPN | A107 |
| 2N125 | 2.0 | 36 | NPN | A107 |
| 2N126 | 2.0 | 20 | NPN | B218 |
| 2N128 | 3.0 | 19 | PNP | TO24 |
| JAN 2N128 | 15 | 19 | PNP | TO24 |
| 2N130 | 12 | 24 | PNP | TO5 |
| 2N130A | 15 | 26 | PNP | |
| 2N131 | 12 | 50 | PNP | TO5 |
| 2N131A | 15 | 45 | PNP | |
| 2N132 | 12 | 90 | PNP | TO5 |
| 2N132A | 15 | 90 | PNP | |
| 2N133 | 12 | 50 | PNP | TO5 |
| 2N133A | 15 | 50 | PNP | |
| 2N135 | 5.0 | 20 | PNP | B221 |
| 2N136 | 5.0 | 40 | PNP | B221 |
| 2N137 | 5.0 | 60 | PNP | B221 |
| 2N138 | 20 | 44 | PNP | TO22 |
| 2N139 | 10 | 48 | PNP | TO40 |
| 2N140 | 10 | 75 | PNP | TO40 |
| 2N141/13 | 2.0 | 25 | PNP | TO13 |
| 2N143/13 | 5.0 | 10 | PNP | TO13 |
| 2N144/13 | 6.0 | 11 | NPN | TO13 |
| 2N145 | 3.0 | | NPN | A107 |
| 2N146 | 3.0 | | NPN | A107 |
| 2N147 | 3.0 | | NPN | A107 |
| 2N155 | 1.0 | 32 | PNP | TO3 |
| 2N156 | 1.0 | 25 | PNP | TO13 |
| 2N158 | 1.0 | 21 | PNP | TO13 |
| JAN 2N158 | 1.0 | 12 | PNP | D401 |
| 2N158A | 1.0 | 21 | PNP | TO13 |
| 2N160 | 10 | 15 | NPN | A107 |
| 2N160A | 10 | 15 | NPN | A107 |
| 2N161 | 10 | 30 | NPN | A107 |
| 2N161A | 10 | 30 | NPN | A107 |
| 2N163 | 10 | 78 | NPN | A107 |
| 2N163A | 10 | 78 | NPN | A107 |
| 2N164A | 5.0 | 40 | NPN | B205 |
| 2N165 | 5.0 | 72 | NPN | B205 |
| 2N166 | 5.0 | 32 | NPN | |
| 2N167 | 1.5 | 65 | NPN | A104 |
| 2N167A | 1.5 | 30 | NPN | A104 |
| JAN 2N167A | 1.5 | 17 | NPN | A104 |
| 2N168A | 5.0 | 40 | NPN | A104 |
| 2N169 | 5.0 | 72 | NPN | A104 |
| 2N169A | 5.0 | 50 | NPN | A104 |
| 2N170 | 3.0 | 20 | NPN | A104 |
| 2N172 | 3.0 | | NPN | A107 |
| 2N173 | 4.0 | 35 | PNP | TO36 |
| 2N174 | 4.0 | 25 | PNP | TO36 |
| JAN 2N174 | 15 | 40 | PNP | TO6 |
| 2N174A | 8.0 | 40 | PNP | TO36 |
| 2N175 | 12 | 65 | PNP | TO40 |
| 2N176 | 3.0 | 25 | PNP | TO3 |
| 2N178 | 3.0 | 15 | PNP | TO3 |
| 2N180 | 10 | 60 | PNP | |
| 2N181 | 10 | 60 | PNP | |
| 2N182 | | 25 | NPN | |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO |
|---|---|---|---|---|
| 2N183 | | 40 | NPN | |
| 2N184 | | 60 | NPN | |
| 2N185 | 14 | 80 | PNP | TO22 |
| 2N186 | 16 | 24 | PNP | B222 |
| 2N186A | 16 | 24 | PNP | B222 |
| 2N187 | 16 | 36 | PNP | B222 |
| 2N187A | 16 | 36 | PNP | B222 |
| 2N188 | 16 | 54 | PNP | B222 |
| 2N188A | 16 | 54 | PNP | B222 |
| 2N189 | 16 | 32 | PNP | B222 |
| 2N190 | 16 | 42 | PNP | B222 |
| 2N191 | 16 | 67 | PNP | B222 |
| 2N192 | 16 | 90 | PNP | B222 |
| 2N193 | 50 | 7.5 | NPN | TO22 |
| 2N194 | 25 | 8. | NPN | TO22 |
| 2N194A | 50 | 8. | NPN | TO22 |
| 2N206 | 10 | 47 | PNP | TO1 |
| 2N207 | 15 | | PNP | TO5 |
| 2N207A | 10 | 100 | PNP | TO5 |
| 2N207B | 10 | 100 | PNP | TO5 |
| 2N211 | 20 | | NPN | TO22 |
| 2N212 | 50 | 20 | NPN | TO22 |
| 2N213 | 50 | 80 | NPN | TO22 |
| 2N213A | 50 | 165 | NPN | TO22 |
| 2N214 | 50 | 75 | NPN | TO22 |
| 2N214A | 50 | 100 | NPN | TO5 |
| 2N215 | 14 | 65 | PNP | TO1 |
| 2N216 | 50 | 7.5 | NPN | TO22 |
| 2N217 | 14 | 75 | PNP | TO1 |
| 2N218 | 10 | 48 | PNP | TO1 |
| 2N219 | 10 | 75 | PNP | TO44 |
| 2N220 | 12 | 65 | PNP | TO1 |
| JAN 2N220 | 12 | 48 | PNP | TO1 |
| 2N223 | 20 | 110 | PNP | TO28 |
| 2N224 | 25 | 90 | PNP | TO25 |
| 2N226 | 25 | 60 | PNP | TO25 |
| 2N228 | 100 | 80 | NPN | TO22 |
| 2N229 | 100 | 75 | NPN | TO22 |
| 2N231 | 6.0 | 19 | PNP | TO24 |
| 2N232 | 6.0 | 24 | PNP | TO24 |
| 2N233 | 50 | 3.5 | NPN | TO22 |
| 2N233A | 50 | 15 | NPN | TO22 |
| 2N234A | | 25 | PNP | TO3 |
| 2N235A | 1.0 | 40 | PNP | TO3 |
| 2N235B | 1.0 | 60 | PNP | TO3 |
| 2N236A | 1.0 | 40 | PNP | TO3 |
| 2N236B | 1.0 | 60 | PNP | TO3 |
| 2N237 | 10 | 50 | PNP | |
| 2N238 | 20 | 45 | PNP | TO22 |
| 2N240 | 3.0 | 30 | PNP | TO24 |
| JAN 2N240 | 10 | 3.2 | PNP | TO24 |
| 2N241 | 16 | 73 | PNP | B222 |
| 2N241A | 16 | 73 | PNP | B222 |
| 2N242 | 5.0 | | PNP | E905 |
| 2N243 | 1.0 | 20 | NPN | A101 |
| 2N244 | 1.0 | 59 | NPN | A101 |
| 2N247/33 | 12 | 60 | PNP | TO33 |
| 2N249 | 25 | 50 | PNP | |
| 2N250 | 1.0 | 30 | PNP | TO3 |
| 2N250A | | 25 | PNP | TO3 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|
| 2N251 | 2.0 | 30 | PNP | TO3 |
| 2N251A | .50 | 25 | PNP | TO3 |
| 2N252 | 10 | | PNP | A107 |
| 2N253 | 3.0 | | NPN | A107 |
| 2N254 | 3.0 | | NPN | A107 |
| 2N255 | 1.0 | 30 | PNP | TO3 |
| 2N255A | 5.0 | 30 | PNP | TO3 |
| 2N256 | 1.0 | 30 | PNP | TO3 |
| 2N256A | 5.0 | 30 | PNP | TO3 |
| 2N257 | 2.0 | 40 | PNP | TO3 |
| 2N257B | 5.0 | 50 | PNP | TO3 |
| 2N257G | 5.0 | 40 | PNP | TO3 |
| 2N257W | 5.0 | 60 | PNP | TO3 |
| 2N263 | 50 | 45 | NPN | A101 |
| 2N264 | 50 | 20 | NPN | A101 |
| 2N265 | 16 | 115 | PNP | B222 |
| 2N268 | 2.0 | 40 | PNP | TO3 |
| 2N268A | 2.0 | 20 | PNP | TO3 |
| 2N269 | 20 | 40 | PNP | TO1 |
| 2N270 | 16 | 70 | PNP | B219 |
| 2N271 | | 45 | PNP | |
| 2N271A | | 45 | PNP | |
| 2N272 | 10 | 120 | PNP | TO5 |
| 2N273 | 10 | 20 | PNP | TO5 |
| 2N274 | 8.0 | 60 | PNP | TO44 |
| USA 2N274 | 8.0 | 60 | PNP | TO44 |
| 2N277 | 8.0 | 35 | PNP | TO36 |
| 2N278 | 4.0 | 35 | PNP | TO36 |
| 2N279 | 12 | 30 | PNP | B206 |
| 2N280 | 12 | 47 | PNP | B206 |
| 2N281 | 10 | 70 | PNP | B205 |
| 2N283 | 4.5 | 40 | PNP | B205 |
| | 12 | 30 | PNP | B205 |
| 2N284A | 12 | 47 | PNP | B205 |
| | 1.0 | 150 | PNP | TO3 |
| 2N285B | 1.0 | 150 | PNP | TO3 |
| 2N291 | 25 | 45 | PNP | A106 |
| 2N292 | 5.0 | 25 | NPN | A104 |
| 2N293 | 5.0 | 25 | NPN | A104 |
| 2N296 | 1.0 | 20 | PNP | TO3 |
| 2N297 | 5.0 | 12 | PNP | TO3 |
| 2N297A | 3.0 | 40 | PNP | TO3 |
| JAN 2N297A | 3.0 | 40 | PNP | TO3 |
| USA 2N300 | 3.0 | 10 | PNP | TO24 |
| 2N301 | 3.0 | | PNP | TO3 |
| 2N301A | 3.0 | | PNP | TO3 |
| 2N302 | 10 | 45 | PNP | |
| 2N306 | 50 | 75 | NPN | TO22 |
| 2N307 | 5.0 | 20 | PNP | TO3 |
| 2N307A | 2.0 | 30 | PNP | TO3 |
| 2N308 | 10 | | PNP | A107 |
| 2N309 | 10 | | PNP | A107 |
| 2N310 | 10 | | PNP | A107 |
| 2N311 | 60 | 50 | PNP | TO5 |
| 2N312 | 60 | 50 | NPN | TO5 |
| 2N315 | 25 | 20 | PNP | TO5 |
| 2N315A | 25 | 35 | PNP | TO5 |
| 2N315B | 2.0 | 70 | PNP | TO5 |
| 2N316 | 25 | 30 | PNP | TO5 |
| 2N316A | 25 | 35 | PNP | TO5 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-DWG. NPN NO. |
|---|---|---|---|
| 2N317 | 2.0 | 40 | PNP T05 |
| 2N317A | 25 | 40 | PNP T05 |
| 2N319 | 16 | 34 | PNP T05 |
| 2N320 | 16 | 50 | PNP T05 |
| 2N321 | 16 | 80 | PNP T05 |
| 2N322 | 16 | 44 | PNP T05 |
| 2N323 | 16 | 70 | PNP T05 |
| 2N324 | 16 | 88 | PNP T05 |
| JAN 2N325 | .50 | 15 | PNP E505 |
| 2N326 | .30 | 15 | NPN E505 |
| JAN 2N326 | .50 | 15 | NPN E505 |
| 2N327A | .10 | 15 | PNP T05 |
| 2N327B | .001 | 14 | PNP T05 |
| 2N328A | .10 | 30 | PNP T05 |
| JAN 2N328A | 1.0 | 18 | PNP T05 |
| 2N328B | .001 | 28 | PNP T05 |
| 2N329A | .10 | 60 | PNP T05 |
| JAN 2N329A | 1.0 | 36 | PNP T05 |
| 2N329B | .001 | 14 | PNP T05 |
| 2N330A | 1.0 | 25 | PNP T05 |
| 2N331 | 16 | 15 | PNP T09 |
| JAN 2N331 | 10 | 30 | PNP T09 |
| 2N332 | 2.0 | 15 | NPN T05 |
| 2N332A | .50 | 16 | NPN T05 |
| 2N333 | 2.0 | 29 | NPN T05 |
| JAN 2N333 | 2.0 | 29 | NPN T05 |
| 2N333A | .50 | 30 | NPN T05 |
| 2N334 | 2.0 | 54 | NPN T05 |
| 2N334A | .50 | 38 | NPN T05 |
| 2N335 | 2.0 | 63 | NPN T05 |
| JAN 2N335 | 2.0 | 63 | NPN T05 |
| 2N335A | .50 | 52 | NPN T05 |
| 2N335B | .50 | 52 | NPN T05 |
| 2N336 | 2.0 | 200 | NPN T05 |
| JAN 2N336 | 2.0 | 200 | NPN T05 |
| 2N336A | .50 | 95 | NPN T05 |
| 2N337 | 1.0 | 22 | NPN T05 |
| JAN 2N337 | 1.0 | 22 | NPN T05 |
| 2N337A | 50 | 55 | NPN T05 |
| 2N338 | 1.0 | 24 | NPN T05 |
| JAN 2N338 | 1.0 | 24 | NPN T05 |
| 2N338A | 50 | 99 | NPN T05 |
| 2N339 | 1.0 | 50 | NPN T011 |
| 2N339A | 1.0 | 53 | NPN T011 |
| 2N340 | 1.0 | 50 | NPN T011 |
| 2N340A | 1.0 | 53 | NPN T011 |
| 2N341 | 1.0 | 50 | NPN T011 |
| JSN 2N341 | 50 | 15 | NPN T011 |
| 2N341A | 10.0 | 53 | NPN T011 |
| 2N342 | 1.0 | 20 | NPN T011 |
| JAN 2N342 | 10.0 | 90. | NPN T011 |
| 2N342A | 1.0 | 20 | NPN T011 |
| JAN 2N342A | 1.0 | 90. | NPN T011 |
| 2N342B | 1.0 | 21 | NPN T011 |
| 2N343 | 1.0 | 50 | NPN T011 |
| JAN 2N343 | 1.0 | 28 | NPN T011 |
| 2N343B | 1.0 | 59 | NPN T011 |
| 2N344 | 3.0 | 22 | PNP T024 |
| 2N345 | 3.0 | 66 | PNP T024 |
| 2N346 | 3.0 | 10 | PNP T024 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-DWG. NPN NO. |
|---|---|---|---|
| 2N350 | 3.0 | | PNP T03 |
| 2N350A | 3.0 | | PNP T03 |
| 2N351 | 3.0 | 25 | PNP T03 |
| 2N351A | 3.0 | 25 | PNP T03 |
| 2N356 | 25 | 30 | NPN T05 |
| 2N356A | 25 | 35 | NPN T05 |
| 2N357 | 25 | 30 | NPN T05 |
| 2N357A | 25 | 40 | NPN T05 |
| 2N358 | 25 | 30 | NPN T05 |
| 2N358A | 5.0 | 40 | NPN T05 |
| JAN 2N358A | 25 | 25 | NPN T05 |
| 2N359 | 15 | 200 | PNP T05 |
| 2N360 | 15 | 100 | PNP T05 |
| 2N361 | 15 | 50 | PNP T08 |
| 2N362 | 15 | 90 | PNP T05 |
| 2N363 | 15 | 50 | PNP T05 |
| 2N364 | 10 | 15 | NPN A107 |
| 2N365 | 10 | 34 | NPN A107 |
| 2N366 | 10 | 95 | NPN A107 |
| 2N367 | | 15 | PNP T09 |
| 2N368 | | 34 | PNP A107 |
| 2N369 | | 95 | PNP A107 |
| 2N370 | 20 | 60 | PNP T07 |
| 2N370/33 | 10 | 107 | PNP T033 |
| 2N371 | 20 | 60 | PNP T07 |
| 2N371/33 | 10 | 97 | PNP T033 |
| 2N372 | 20 | 60 | PNP T07 |
| 2N372/33 | 10 | 97 | PNP T033 |
| 2N373 | 8.0 | 60 | PNP T07 |
| 2N374 | 8.0 | 60 | PNP T07 |
| 2N375 | 3.0 | 35 | PNP T03 |
| 2N376 | 3.0 | 35 | PNP T03 |
| 2N376A | 3.0 | 35 | PNP T03 |
| 2N377 | 10 | 40 | NPN T05 |
| 2N377A | 40 | 40 | NPN T05 |
| 2N378 | .50 | 15 | PNP T03 |
| 2N379 | .50 | 20 | PNP T03 |
| 2N380 | .50 | 30 | PNP T03 |
| 2N381 | 10 | 60 | PNP T05 |
| 2N382 | 10 | 90 | PNP T05 |
| 2N383 | 10 | 115 | PNP T05 |
| 2N384 | 12 | 60 | PNP T044 |
| AN 2N384 | 50 | 20 | PNP T044 |
| 2N384/33 | 50 | 60 | PNP T033 |
| 2N385 | 10 | 60 | NPN T05 |
| 2N385A | 40 | 70 | NPN T05 |
| 2N388 | 10 | 150 | NPN T05 |
| AN 2N388 | 20 | 60 | NPN T05 |
| 2N388A | 40 | 120 | NPN T05 |
| 2N389 | 10 | 12 | NPN C303 |
| AN 2N389 | 10 | 15 | NPN T053 |
| SN 2N389 | | 15 | NPN C303 |
| 2N389A | 10 | 12 | NPN C303 |
| 2N389/1 | | 12 | NPN C303 |
| 2N389A/1 | | 12 | NPN C303 |
| 2N392 | 8.0 | | PNP T03 |
| 2N393 | 5.0 | 155 | PNP T024 |
| AN 2N393 | 5.0 | 40 | PNP T024 |
| 2N394 | 100 | 70 | PNP T05 |
| 2N394A | 6.0 | 70 | PNP T05 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|
| 2N395 | 6.0 | 85 | PNP | TO5 |
| | 6.0 | 90 | PNP | TO5 |
| 2N396A | 100 | 90 | PNP | TO5 |
| JAN 2N396A | 6.0 | 30 | PNP | TO5 |
| 2N397 | 6.0 | 95 | PNP | TO5 |
| 2N398 | 14 | 60 | PNP | TO9 |
| USN 2N398 | 50 | 20 | PNP | TO5 |
| 2N398A | 50 | 65 | PNP | TO5 |
| 2N398B | 6.0 | 20 | PNP | TO5 |
| 2N399 | 1.0 | 40 | PNP | TO3 |
| 2N400 | 2.0 | 50 | PNP | TO3 |
| 2N401 | 1.0 | 40 | PNP | TO3 |
| 2N402 | 15 | 25 | PNP | TO5 |
| 2N403 | 15 | 35 | PNP | TO5 |
| | 20 | 40 | PNP | TO5 |
| JAN 2N404 | 5.0 | 30 | PNP | TO5 |
| 2N404A | 5.0 | | PNP | TO5 |
| JAN 2N404A | 5.0 | 30 | PNP | TO5 |
| | 14 | 35 | PNP | TO44 |
| 2N406 | 14 | 35 | PNP | TO1 |
| 2N407 | 14 | 65 | PNP | TO40 |
| 2N408 | 14 | 65 | PNP | TO1 |
| 2N409 | 10 | 48 | PNP | TO40 |
| 2N410 | 10 | 48 | PNP | TO1 |
| 2N411 | 10 | 75 | PNP | TO40 |
| 2N412 | 10 | 75 | PNP | TO1 |
| 2N413 | 5.0 | 30 | PNP | TO5 |
| 2N413A | | 30 | PNP | TO5 |
| 2N414 | 5.0 | 60 | PNP | TO5 |
| 2N414A | | 60 | PNP | TO5 |
| 2N414B | 6.0 | 60 | PNP | TO5 |
| 2N414C | 6.0 | 60 | PNP | TO5 |
| 2N415 | 2.0 | | PNP | |
| 2N415A | | 80 | PNP | |
| 2N416 | 5.0 | 80 | PNP | TO5 |
| USA 2N416 | 5.0 | 80 | PNP | TO5 |
| 2N417 | 5.0 | 140 | PNP | TO5 |
| USA 2N417 | 5.0 | 140 | PNP | TO5 |
| 2N418 | 1.5 | 40 | PNP | TO3 |
| 2N419 | 1.0 | 9. | PNP | TO3 |
| 2N420 | 1.5 | 40 | PNP | TO3 |
| 2N420A | .50 | 40 | PNP | TO3 |
| 2N422 | 15 | 90 | PNP | TO5 |
| USN 2N422 | 20 | 30 | PNP | TO5 |
| 2N424 | 10 | 12 | NPN | C303 |
| JAN 2N424 | 10 | 15 | NPN | TO83 |
| USN 2N424 | | 15 | NPN | C303 |
| 2N424/1 | | 12 | NPN | C303 |
| 2N424A | 10 | 12 | NPN | C303 |
| 2N424A/1 | .10 | 12 | NPN | C303 |
| 2N425 | 4.0 | 30 | PNP | TO5 |
| USA 2N425 | 4.0 | 30 | PNP | TO5 |
| 2N426 | 4.0 | 40 | PNP | TO5 |
| USA 2N426 | 4.0 | 40 | PNP | TO5 |
| 2N427 | 4.0 | 55 | PNP | TO5 |
| USA 2N427 | 4.0 | 55 | PNP | TO5 |
| 2N428 | 4.0 | 80 | PNP | TO5 |
| JAN 2N428 | 25 | 20 | PNP | TO5 |
| 2N428A | 4.0 | 20 | PNP | TO5 |
| USAF 2N432 | 2.0 | 20 | NPN | TO5 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|
| USAF 2N433 | 2.0 | 45 | NPN | TO5 |
| 2N438 | 6.0 | 25 | NPN | TO5 |
| 2N438A | 10 | 25 | NPN | TO9 |
| 2N439 | 10 | 45 | NPN | TO5 |
| 2N439A | 10 | 45 | NPN | TO9 |
| 2N440 | 10 | 40 | NPN | TO5 |
| 2N440A | 10 | 70 | NPN | TO9 |
| 2N441 | 8.0 | 20 | PNP | TO36 |
| 2N442 | 4.0 | 20 | PNP | TO36 |
| 2N443 | 4.0 | 20 | PNP | TO36 |
| 2N444 | 25 | 15 | NPN | TO5 |
| 2N444A | 25 | 30 | NPN | TO5 |
| 2N445 | 25 | 35 | NPN | TO5 |
| 2N445A | 25 | 90 | NPN | TO5 |
| 2N446 | 25 | 60 | NPN | TO5 |
| 2N446A | 25 | 150 | NPN | TO5 |
| 2N447 | 25 | 125 | NPN | TO5 |
| 2N447A | 25 | 200 | NPN | TO5 |
| 2N447A | 4.0 | 200 | NPN | TO5 |
| 2N448 | 5.0 | 25 | NPN | A104 |
| 2N449 | 5.0 | 72 | NPN | |
| 2N450 | 6.0 | 130 | PNP | TO5 |
| 2N456 | 2.0 | 10 | PNP | TO3 |
| 2N456A | 2.0 | 30 | PNP | TO3 |
| USA 2N456A | .50 | 30 | PNP | ES04A |
| 2N456B | .50 | 30 | PNP | TO3 |
| 2N457 | 2.0 | 10 | PNP | TO3 |
| 2N457A | 2.0 | 30 | PNP | TO3 |
| USA 2N457A | .50 | 30 | PNP | ES04A |
| 2N457B | .50 | 30 | PNP | TO3 |
| 2N458 | 2.0 | 10 | PNP | TO3 |
| 2N458A | 2.0 | 30 | PNP | TO3 |
| USA 2N458A | .50 | 30 | PNP | ES04A |
| 2N458B | .50 | 30 | PNP | TO3 |
| 2N459 | .50 | 20 | PNP | TO3 |
| 2N459A | .50 | 20 | PNP | TO3 |
| 2N460 | 15 | 24 | PNP | TO5 |
| 2N461 | 15 | 49 | PNP | TO5 |
| USAF 2N461 | 10 | 30 | PNP | TO5 |
| USN 2N463 | .30 | 20 | PNP | TO32 |
| 2N464 | 15 | 26 | PNP | TO5 |
| USA 2N464 | 15 | 26 | PNP | TO5 |
| 2N465 | 15 | 45 | PNP | TO5 |
| USA 2N465 | 20 | 27 | PNP | TO5 |
| 2N466 | 15 | 90 | PNP | TO5 |
| JAN 2N466 | 20 | 54 | PNP | TO5 |
| 2N467 | 15 | 180 | PNP | TO5 |
| USA 2N467 | 20 | 110 | PNP | TO5 |
| 2N470 | .50 | 17 | NPN | TO5 |
| 2N471 | .50 | 17 | NPN | TO5 |
| 2N471A | 2.0 | 6. | NPN | TO5 |
| 2N472 | .50 | 17 | NPN | TO5 |
| 2N472A | .50 | 6. | NPN | TO5 |
| 2N473 | .50 | 35 | NPN | TO5 |
| 2N474 | .50 | 35 | NPN | TO5 |
| 2N494A | .50 | 20 | NPN | TO5 |
| 2N475 | | 30 | NPN | TO5 |
| 2N475A | .50 | 35 | NPN | TO5 |
| 2N476 | .50 | 45 | NPN | TO5 |
| 2N477 | .50 | 4. | NPN | TO5 |

| TYPE NO. | $I_{CBO}$ (μA) | $h_{fe}$ | PNP NPN DWG. NO. |
|---|---|---|---|
| 2N478 | | 60 | NPN TO5 |
| 2N479 | .50 | 60 | NPN TO5 |
| 2N479A | .50 | 70 | NPN TO5 |
| 2N480 | .50 | 60 | NPN TO5 |
| 2N480A | .50 | 70 | NPN TO5 |
| 2N481 | 10 | 50 | PNP TO5 |
| 2N482 | 10 | 50 | PNP TO5 |
| 2N483 | 10 | 60 | PNP TO5 |
| 2N484 | 10 | 90 | PNP TO5 |
| 2N485 | 10 | 50 | PNP TO5 |
| 2N486 | 10 | 100 | PNP TO5 |
| 2N495 | .001 | 9. | PNP TO1 |
| 2N495/18 | 1.0 | 15 | PNP TO18 |
| 2N496 | .10 | 9. | PNP TO1 |
| 2N496/18 | | 15 | PNP TO18 |
| 2N497 | .01 | 12 | NPN TO5 |
| JAN 2N497 | 10 | 12 | NPN TO5 |
| 2N497A | 100 | 36 | NPN TO5 |
| 2N498 | .01 | 12 | NPN TO5 |
| JAN 2N498 | 10 | 12 | NPN TO5 |
| 2N498A | 100 | 36 | NPN TO5 |
| 2N499 | 100 | 8.5 | PNP TO1 |
| USA 2N499 | 100 | 8.5 | PNP TO1 |
| 2N499A | 15 | 50 | PNP TO1 |
| USA 2N499A | 15 | 50 | PNP TO1 |
| 2N501 | 100 | 70 | PNP TO1 |
| 2N501/18 | 100 | 20 | PNP TO18 |
| 2N501A | 25 | 95 | PNP TO1 |
| JAN 2N501A | 25 | 30 | PNP TO1 |
| 2N502 | 20 | 65 | PNP TO9 |
| 2N502A | 20 | 65 | PNP TO9 |
| USA 2N502A | 20 | 65 | PNP TO9 |
| 2N502B | 5.0 | 20 | NPN TO9 |
| USA 2N502B | 20 | 20 | PNP TO9 |
| 2N503 | 100 | 45 | PNP TO9 |
| 2N504 | 10 | 16 | PNP TO1 |
| 2N505 | | 40 | PNP TO9 |
| 2N506 | 15 | 40 | PNP |
| 2N507 | 15 | 25 | NPN TO22 |
| 2N508 | 7.0 | 120 | PNP TO5 |
| 2N508A | 7.0 | 120 | PNP TO5 |
| 2N511 | 15 | 20 | PNP E503 |
| 2N511A | 15 | 20 | PNP E503 |
| 2N511B | 15 | 20 | PNP E503 |
| 2N512 | 15 | 20 | PNP E503 |
| 2N512A | 15 | 20 | PNP E503 |
| 2N512B | 15 | 20 | PNP E503 |
| 2N513 | 15 | 20 | PNP E503 |
| 2N513A | 15 | 20 | PNP E503 |
| 2N513B | 15 | 20 | PNP E503 |
| 2N514 | 15 | 20 | PNP E503 |
| 2N514A | 15 | 20 | PNP E503 |
| 2N514B | 15 | 20 | PNP E503 |
| 2N515 | 50 | 7.5 | NPN TO22 |
| 2N516 | 50 | 7.5 | NPN TO22 |
| 2N517 | 50 | 7.5 | NPN TO22 |
| 2N518 | 6.0 | 60 | PNP B222 |
| 2N519 | 2.0 | 25 | PNP TO5 |
| 2N519A | 25 | 35 | PNP TO5 |
| 2N520 | 25 | 40 | PNP TO5 |
| 2N520A | 25 | 100 | PNP TO5 |
| 2N521 | 25 | 7. | PNP TO5 |
| 2N521A | 25 | 150 | PNP TO5 |
| 2N522 | 2.0 | 120 | PNP TO5 |
| 2N522A | 25 | 200 | PNP TO5 |
| 2N523 | 2.0 | 200 | PNP TO5 |
| 2N523A | 25 | 250 | PNP TO5 |
| 2N524 | 10 | 30 | PNP TO5 |
| 2N524A | 10 | 23 | PNP TO5 |
| 2N525 | 10 | 44 | PNP TO5 |
| 2N525A | 10 | 30 | PNP TO5 |
| 2N526 | 10 | 64 | PNP TO5 |
| JAN 2N526 | 10 | 44 | PNP TO5 |
| 2N526A | 10 | 47 | PNP TO5 |
| 2N527 | 10 | 80 | PNP TO5 |
| 2N527A | 10 | 65 | PNP TO5 |
| USN 2N528 | .05 | 20 | PNP TO38 |
| 2N529 | 25 | 18 | PNP TO5 |
| 2N530 | 25 | 23 | PNP TO5 |
| 2N531 | 25 | 26 | PNP TO5 |
| 2N532 | 25 | 33 | PNP TO5 |
| 2N533 | 25 | 38 | PNP TO5 |
| 2N535 | 12 | 100 | PNP TO5 |
| 2N535A | 12 | 100 | PNP TO5 |
| 2N535B | 12 | 100 | PNP TO5 |
| 2N536 | 12 | 150 | PNP TO5 |
| USA 2N537 | 100 | 10 | PNP TO29 |
| 2N538 | 2.0 | 20 | PNP F632 |
| 2N538A | 2.0 | 20 | PNP F632 |
| 2N539 | 2.0 | 30 | PNP F632 |
| JAN 2N539 | 2.0 | 30 | PNP F632 |
| 2N539A | 2.0 | 30 | PNP F632 |
| JAN 2N539A | 2.0 | 30 | PNP F632 |
| 2N540 | 2.0 | 45 | PNP F632 |
| 2N540A | 2.0 | 45 | PNP F632 |
| 2N541 | .50 | 130 | NPN TO5 |
| 2N542 | .50 | 130 | NPN TO5 |
| 2N542A | .50 | 80 | NPN TO5 |
| 2N543 | .50 | 130 | NPN TO5 |
| 2N543A | .50 | 140 | NPN TO5 |
| 2N544/33 | 16 | 97 | PNP TO33 |
| 2N545 | 15 | 25 | NPN TO5 |
| USN 2N545 | 15 | 15 | NPN TO5 |
| 2N546 | 15 | 25 | NPN TO5 |
| 2N547 | 15 | 35 | NPN TO5 |
| 2N548 | 15 | 4. | NPN TO5 |
| 2N549 | 15 | 20 | NPN TO5 |
| 2N550 | 15 | 20 | NPN TO5 |
| 2N551 | 15 | 20 | NPN TO5 |
| 2N552 | 15 | 20 | NPN TO5 |
| 2N553 | 2.0 | 40 | PNP E501 |
| 2N554 | 10 | 50 | PNP TO3 |
| 2N555 | 20 | 50 | PNP TO3 |
| 2N556 | | 50 | NPN TO5 |
| 2N557 | 10 | 30 | NPN TO5 |
| 2N558 | 10 | 75 | NPN TO5 |
| USA 2N559 1 | 3.0 | 25 | PNP TO28 |
| USA 2N559 2 | 3.0 | 25 | PNP TO28 |
| USA 2N559 3 | 3.0 | 25 | PNP TO28 |
| 2N560 | .10 | 20 | NPN TO29 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-DWG. NPN NO |
|---|---|---|---|
| JAN 2N560 | .10 | 20 | NPN TO29 |
| 2N561 | 3.0 | 20 | PNP TO3 |
| 2N563 | 25 | 25 | PNP |
| 2N564 | 25 | 25 | PNP TO5 |
| 2N565 | 25 | 55 | PNP |
| 2N566 | 25 | 55 | PNP TO9 |
| 2N567 | 15 | 40 | NPN |
| 2N568 | 25 | 100 | PNP TO5 |
| 2N569 | 25 | 150 | PNP |
| 2N570 | 25 | 150 | PNP TO5 |
| 2N571 | 25 | 200 | PNP |
| 2N572 | 25 | 200 | PNP TO5 |
| 2N573 | 40 | 150 | PNP TO5 |
| 2N574 | 7.0 | 9. | PNP F604 |
| USA 2N574 | 7.0 | 9. | PNP F604 |
| 2N574A | 20 | 9. | PNP F604 |
| 2N575 | 7.0 | 10 | PNP F604 |
| USA 2N575 | 7.0 | 10 | PNP F604 |
| 2N575A | 20 | 10 | PNP F604 |
| USA 2N575A | 20 | 19 | PNP F604 |
| 2N576 | 10 | 30 | NPN TO5 |
| 2N576A | 40 | 30 | NPN TO5 |
| 2N578 | 20 | 15 | PNP TO9 |
| 2N579 | 20 | 30 | PNP TO9 |
| 2N580 | 20 | 45 | PNP TO9 |
| 2N581 | 20 | 30 | PNP TO5 |
| 2N582 | 20 | 60 | PNP TO5 |
| 2N583 | 20 | 30 | PNP TO1 |
| 2N584 | 20 | 60 | PNP TO1 |
| 2N585 | 8.0 | 40 | PNP TO9 |
| 2N586 | 16 | 55 | PNP 8219 |
| 2N587 | 10 | 20 | PNP TO5 |
| 2N588 | 15 | | PNP TO1 |
| 2N588A | 15 | 30 | PNP TO1 |
| 2N589 | 2.0 | 20 | PNP TO3 |
| 2N591 | 7.0 | 70 | PNP TO1 |
| 2N597 | 25 | 40 | PNP TO5 |
| 2N598 | 25 | 50 | PNP TO5 |
| USA 2N598 | 25 | 50 | PNP TO31 |
| 2N599 | 25 | 75 | PNP TO5 |
| USN 2N599 | 25 | 70 | PNP TO9 |
| USA 2N600 | 25 | 50 | PNP TO31 |
| 2N602 | 25 | 50 | PNP TO9 |
| 2N602A | 5.0 | 50 | PNP TO9 |
| 2N603 | 25 | 65 | PNP TO9 |
| 2N603A | 5.0 | 65 | PNP TO9 |
| 2N604 | 25 | 90 | PNP TO9 |
| USAF 2N604 | 8.0 | 40 | PNP TO5 |
| 2N604A | 5.0 | 80 | PNP TO9 |
| 2N609 | 25 | 90 | PNP TO5 |
| 2N610 | .25 | 65 | PNP TO5 |
| 2N611 | 15 | 45 | PNP TO5 |
| 2N612 | 25 | 25 | PNP TO5 |
| 2N613 | 25 | 35 | PNP TO5 |
| 2N617 | 6.0 | 15 | PNP TO5 |
| 2N618 | 3.0 | 60 | PNP TO3 |
| 2N624 | 30 | 20 | PNP 8203 |
| USA 2N624 | 30 | 20 | PNP 8203 |
| 2N627 | 20 | 10 | PNP TO3 |
| 2N628 | 20 | 10 | PNP TO3 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-DWG. NPN NO. |
|---|---|---|---|
| 2N629 | 20 | 10 | PNP TO3 |
| 2N630 | 20 | 10 | PNP TO3 |
| 2N631 | 25 | 200 | PNP TO5 |
| 2N632 | 25 | 120 | PNP TO5 |
| 2N633 | 25 | 60 | PNP TO5 |
| 2N634 | 15 | 15 | NPN TO9 |
| 2N634A | 6.0 | 15 | NPN TO5 |
| 2N635 | 15 | 25 | NPN TO9 |
| 2N636 | 15 | 35 | NPN TO9 |
| 2N636A | 6.0 | 190 | NPN TO5 |
| 2N637 | 1.0 | 30 | PNP TO3 |
| 2N637A | 1.0 | 30 | PNP TO3 |
| 2N637B | 1.0 | 30 | PNP TO3 |
| 2N638 | 1.0 | 20 | PNP TO3 |
| 2N638A | 1.0 | 20 | PNP TO3 |
| 2N638B | 1.0 | 20 | PNP TO3 |
| 2N639 | 1.0 | 15 | PNP TO3 |
| 2N639A | 5.0 | 15 | PNP TO3 |
| 2N639B | 5.0 | 15 | PNP TO3 |
| 2N640 | 5.0 | 60 | PNP TO7 |
| 2N641 | 7.0 | 60 | PNP TO7 |
| 2N642 | 7.0 | 60 | PNP TO7 |
| 2N643 | 10 | 45 | PNP TO9 |
| 2N644 | 10 | 45 | PNP TO9 |
| 2N645 | 10 | 45 | PNP TO9 |
| 2N647 | 14 | 70 | NPN TO1 |
| 2N647/22 | 14 | 70 | NPN TO22 |
| 2N649 | 14 | 65 | NPN TO1 |
| 2N649/22 | 14 | 65 | NPN TO22 |
| 2N650 | 50 | 40 | PNP TO5 |
| 2N650A | 50 | 50 | PNP TO5 |
| JAN 2N650A | 50 | 30 | PNP TO5 |
| 2N651 | 50 | 80 | PNP TO5 |
| 2N651A | 50 | 85 | PNP TO5 |
| JAN 2N651A | 50 | 50 | PNP TO5 |
| 2N652 | 50 | 130 | PNP TO5 |
| 2N652A | 50 | 160 | PNP TO5 |
| JAN 2N652A | 50 | 100 | PNP TO5 |
| 2N653 | 15 | 40 | PNP TO5 |
| 2N654 | 15 | 80 | PNP TO5 |
| 2N655 | 15 | 130 | PNP TO5 |
| 2N656 | .01 | 30 | NPN TO5 |
| JAN 2N656 | 10 | 30 | NPN TO5 |
| 2N656A | 10 | 60 | NPN TO5 |
| 2N657 | .01 | 30 | NPN TO5 |
| JAN 2N657 | 10 | 30 | NPN TO5 |
| 2N657A | 10 | 60 | NPN TO5 |
| 2N658 | 5.0 | 50 | PNP TO5 |
| 2N659 | 5.0 | 70 | PNP TO5 |
| 2N660 | 5.0 | 90 | PNP TO5 |
| 2N661 | 5.0 | 120 | PNP TO5 |
| 2N662 | 5.0 | 70 | PNP TO5 |
| 2N663 | 12 | 25 | PNP TO3 |
| 2N665 | 2.0 | 40 | PNP TO3 |
| JAN 2N665 | 10 | 40 | PNP TO3 |
| 2N669 | 3.0 | 75 | PNP TO3 |
| 2N670 | 75 | 100 | PNP 8201 |
| 2N677 | 2.0 | 20 | PNP TO3 |
| 2N677A | 2.0 | 20 | PNP TO3 |
| 2N677B | 5.0 | 20 | PNP TO3 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-DWG. NPN NO. |
|---|---|---|---|
| 2N677C | 5.0 | 20 | PNP TO3 |
| 2N678 | 2.0 | 50 | PNP TO3 |
| 2N678A | 2.0 | 50 | PNP TO3 |
| 2N678B | 2.0 | 50 | PNP TO3 |
| 2N678C | 5.0 | 50 | PNP TO3 |
| 2N679 | 25 | 30 | NPN B204 |
| 2N680 | 14 | 35 | PNP |
| USA 2N694 | 3.0 | 9. | PNP TO28 |
| 2N695 | 3.0 | 40 | PNP TO17 |
| USN 2N695 | 100 | 25 | PNP TO17 |
| 2N696 | 1.0 | 20 | NPN TO5 |
| JAN 2N696 | .50 | 20 | NPN TO5 |
| 2N697 | 1.0 | 40 | NPN TO5 |
| JAN 2N697 | .50 | 40 | NPN TO5 |
| 2N697A | .10 | 80 | NPN TO5 |
| 2N698 | .005 | .20 | NPN TO5 |
| 2N699 | 2.0 | 40 | NPN TO5 |
| 2N699A | .10 | 80 | NPN TO5 |
| 2N699B | .01 | 80 | NPN TO5 |
| 2N700 | 2.0 | 10 | PNP TO17 |
| 2N700A | 100 | 4. | PNP TO17 |
| 2N700A/18 | 100 | 4. | PNP TO18 |
| USA 2N700A | 2.0 | 4. | PNP TO17 |
| 2N700/18 | 2.0 | 10 | PNP TO18 |
| 2N702 | 5.0 | 40 | NPN TO18 |
| USA 2N702 | 5.0 | 40 | NPN TO18 |
| 2N703 | 5.0 | 70 | NPN TO18 |
| USA 2N703 | 5.0 | 70 | NPN TO18 |
| 2N705 | 100 | 40 | PNP TO18 |
| JAN 2N705 | 3.0 | 25 | PNP TO18 |
| 2N705A | | 40 | PNP TO18 |
| 2N706 | .05 | 20 | NPN TO18 |
| JAN 2N706 | .10 | 30 | NPN TO18 |
| 2N706A | 10 | 20 | NPN TO18 |
| 2N706A/TNT | .05 | 20 | NPN H812 |
| 2N706A/TPT | .05 | 20 | NPN G724 |
| 2N706A/46 | 10 | 20 | NPN TO46 |
| 2N706A/51 | 10 | 20 | NPN TO46 |
| 2N706B | 10 | 40 | NPN TO18 |
| 2N706B/46 | 10 | 40 | NPN TO46 |
| 2N706B/51 | 10 | 40 | NPN TO51 |
| 2N706C | | 20 | NPN TO18 |
| 2N706C/46 | 1.0 | 20 | NPN TO46 |
| 2N706C/51 | 1.0 | 20 | NPN TO51 |
| 2N706/51 | .05 | 20 | NPN TO51 |
| 2N706/KVT | .05 | 20 | NPN G723 |
| 2N706/TNT | .05 | 20 | NPN H812 |
| 2N706/46 | .05 | 20 | NPN TO46 |
| 2N706/TPT | .05 | 20 | NPN G724 |
| 2N707 | 5.0 | 12 | NPN TO18 |
| 2N707A | 10 | 30 | NPN TO18 |
| 2N708 | .025 | 30 | NPN TO18 |
| 2N715 | 10 | 30 | NPN TO18 |
| USA 2N716 | 10 | 10 | NPN TO18 |
| 2N717 | 1.0 | 20 | NPN TO18 |
| 2N717A | | | NPN TO18 |
| 2N718 | 1.0 | 40 | NPN TO18 |
| 2N718A | .01 | 40 | NPN TO18 |
| USN 2N718A | 10 | 35 | NPN TO18 |
| 2N719 | 2.0 | 20 | NPN TO18 |
| 2N719A | .01 | 20 | NPN TO18 |
| 2N720 | 2.0 | 80 | NPN TO18 |
| 2N720A | .01 | 40 | NPN TO18 |
| 2N721 | .0 | 20 | PNP TO18 |
| 2N721A | .10 | 15 | PNP TO18 |
| 2N722 | .0 | 30 | PNP TO18 |
| 2N722A | .10 | 30 | PNP TO18 |
| 2N725 | | 20 | PNP TO18 |
| 2N726 | .0 | 30 | PNP TO18 |
| 2N727 | .0 | 60 | PNP TO18 |
| 2N728 | 5.0 | 7.5 | NPN TO18 |
| 2N729 | 5.0 | 7.5 | NPN TO18 |
| 2N730 | 100 | 40 | NPN TO18 |
| 2N731 | 100 | 80 | NPN TO18 |
| 2N734 | 10 | 35 | NPN TO18 |
| 2N735A | 5 N | 40 | NPN TO18 |
| 2N736 | 10 | 80 | NPN TO18 |
| 2N736B | 5 N | 80 | NPN TO18 |
| 2N736A | 10 | 140 | NPN TO18 |
| 2N738 | 10 | 35 | NPN TO18 |
| 2N739 | 10 | 70 | NPN TO18 |
| 2N739A | 5 N | 40 | NPN TO18 |
| 2N740A | 5 N | 80 | NPN TO18 |
| 2N741 | 3.0 | 25 | PNP TO18 |
| 2N741A | 3.0 | 25 | PNP TO18 |
| 2N742 | 10 | 20 | NPN TO18 |
| 2N742A | 10 | 20 | NPN TO18 |
| 2N743 | | 40 | NPN TO18 |
| 2N743/46 | | 40 | NPN TO46 |
| 2N743/51 | | 40 | NPN TO51 |
| 2N744 | | 80 | NPN TO18 |
| USN 2N744 | | 120 | NPN TO18 |
| 2N744/46 | | 80 | NPN TO46 |
| 2N744/51 | | 80 | NPN TO51 |
| 2N752 | .10 | 40 | NPN TO18 |
| 2N753 | 10 | 80 | NPN TO18 |
| 2N753/46 | .50 | 40 | NPN TO46 |
| 2N753/51 | .50 | 40 | NPN TO51 |
| 2N754 | 1.0 | 40 | NPN TO18 |
| 2N755 | 1.0 | 40 | NPN TO18 |
| 2N756 | 50 | 18 | NPN TO18 |
| 2N756A | 50 | 19 | NPN TO18 |
| 2N757 | 50 | 30 | NPN TO18 |
| 2N757A | 50 | 29 | NPN TO18 |
| USA 2N757A | 50 | 18 | NPN TO18 |
| 2N758 | 50 | 54 | NPN TO18 |
| 2N758A | .10 | 54 | NPN TO18 |
| 2N758B | 5 N | 18 | NPN TO18 |
| 2N759 | 50 | 63 | NPN TO18 |
| 2N759A | 50 | 63 | NPN TO18 |
| USA 2N759A | 50 | 35 | NPN TO18 |
| 2N759B | 5 N | 36 | NPN TO18 |
| 2N760 | 50 | 204 | NPN TO18 |
| 2N760A | 50 | 204 | NPN TO18 |
| USA 2N760A | 50 | 76 | NPN TO18 |
| 2N760B | 5 N | 76 | NPN TO18 |
| 2N761 | 50 | 19 | NPN TO18 |
| 2N762 | 50 | 39 | NPN TO18 |
| 2N768 | 10 | 40 | PNP TO18 |
| 2N769 | 10 | 55 | PNP TO18 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|
| 2N779A | 25 | 85 | PNP | TO18 |
| 2N780 | .01 | 20 | NPN | TO18 |
| 2N781 | 3.0 | 25 | PNP | TO18 |
| 2N782 | 3.0 | 20 | PNP | TO18 |
| 2N783 | .25 | 50 | NPN | TO18 |
| 2N784 | .25 | 25 | NPN | TO18 |
| 2N784A | 100 | 80 | NPN | TO18 |
| 2N784A/46 | 100 | 80 | NPN | TO46 |
| 2N784A/51 | 100 | 80 | NPN | TO51 |
| 2N794 | 3.0 | 50 | PNP | TO18 |
| 2N795 | 3.0 | 50 | PNP | TO18 |
| 2N796 | 3.0 | 75 | PNP | TO18 |
| 2N797 | 100 | 85 | NPN | TO18 |
| 2N827 | | 100 | PNP | TO18 |
| 2N828 | 100 | 40 | PNP | TO18 |
| 2N828A | 3.0 | 40 | PNP | TO18 |
| 2N829 | 3.0 | 80 | PNP | TO18 |
| 2N834 | .50 | 40 | NPN | TO18 |
| 2N834A | | 25 | NPN | TO18 |
| 2N834/46 | .50 | 40 | NPN | TO46 |
| 2N834/51 | .50 | 40 | NPN | TO5 |
| 2N835 | .50 | 40 | NPN | TO18 |
| 2N835/46 | .50 | 40 | NPN | TO46 |
| 2N835/51 | .50 | 40 | NPN | TO51 |
| 2N837 | 3.0 | 30 | PNP | TO18 |
| 2N838 | | 30 | PNP | TO18 |
| 2N839 | 1.0 | 35 | NPN | TO18 |
| 2N840 | 1.0 | 70 | NPN | TO18 |
| 2N841 | 1.0 | 140 | NPN | TO18 |
| 2N841/46 | 1.0 | 140 | NPN | TO46 |
| 2N841/51 | 1.0 | 140 | PNP | TO81 |
| 2N841/KVT | 1.0 | 140 | NPN | G723 |
| 2N841/TNT | 1.0 | 140 | NPN | H812 |
| 2N841/TPT | 1.0 | 140 | NPN | G724 |
| 2N842 | 1.0 | 20 | NPN | TO18 |
| 2N843 | 1.0 | 40 | NPN | TO18 |
| 2N844 | 1.0 | 80 | NPN | TO18 |
| 2N845 | 1.0 | 80 | NPN | TO18 |
| 2N846A | 3.0 | 35 | PNP | TO18 |
| 2N849 | 10 | 40 | NPN | H804 |
| 2N850 | 10 | 80 | NPN | H804 |
| 2N851 | 10 | 40 | NPN | TO80 |
| 2N852 | 10 | 80 | NPN | TO80 |
| USA 2N852 | | 60 | NPN | TO80 |
| 2N858 | 1.0 | 20 | PNP | TO18 |
| 2N859 | 1.0 | 35 | PNP | TO18 |
| 2N860 | 1.0 | 20 | PNP | TO18 |
| 2N861 | 1.0 | 35 | PNP | TO18 |
| 2N862 | .01 | 20 | PNP | TO18 |
| 2N863 | 1.0 | 35 | PNP | TO18 |
| 2N864 | .10 | 35 | PNP | TO18 |
| 2N868 | .10 | 75 | PNP | TO18 |
| 2N869 | .01 | 20 | PNP | TO18 |
| 2N869A | .01 | 40 | PNP | TO18 |
| USN 2N869A | .01 | 40 | PNP | TO18 |
| 2N870 | .01 | 75 | NPN | TO18 |
| 2N871 | .01 | 130 | NPN | TO18 |
| 2N909 | 1.0 | 110 | NPN | TO18 |
| 2N910 | .025 | 125 | NPN | TO18 |
| USA 2N910 | .025 | 80 | NPN | TO18 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|
| 2N911 | .025 | 45 | NPN | TO18 |
| USA 2N911 | .025 | 16 | NPN | TO18 |
| 2N912 | .025 | 38 | NPN | TO18 |
| USA 2N912 | .025 | 20 | NPN | TO18 |
| 2N913 | .05 | 75 | NPN | TO18 |
| 2N914 | 25 N | 55 | NPN | TO18 |
| 2N914/46 | .025 | 30 | NPN | TO46 |
| 2N914/51 | .025 | 30 | NPN | TO51 |
| 2N915 | .01 | 50 | NPN | TO18 |
| 2N916 | .01 | 40 | NPN | TO18 |
| USN 2N916 | 10 N | 40 | NPN | TO18 |
| 2N917 | .001 | 20 | NPN | B225 |
| 2N917/46 | .001 | 20 | NPN | |
| 2N917/51 | .001 | 20 | NPN | TO51 |
| 2N918 | .01 | 20 | NPN | B225 |
| 2N918/46 | .01 | 20 | NPN | TO46 |
| 2N918/51 | .01 | 20 | NPN | TO51 |
| 2N919 | 10 | 40 | NPN | TO18 |
| 2N920 | 10 | 40 | NPN | TO18 |
| 2N921 | 10 | 40 | NPN | TO18 |
| 2N922 | 10 | 40 | NPN | TO18 |
| 2N923 | 50 | 21 | PNP | TO18 |
| 2N924 | 50 | 47 | PNP | TO18 |
| 2N925 | 50 | 17 | PNP | TO18 |
| 2N926 | 50 | 38 | PNP | TO18 |
| 2N927 | 50 | 15 | PNP | TO18 |
| 2N928 | 50 | 34 | PNP | TO18 |
| 2N929 | 10 | 60 | NPN | TO18 |
| JAN 2N929 | 2 | 60 | NPN | TO18 |
| USA 2N929 | 10 | 60 | NPN | TO18 |
| 2N929A | 2 | 60 | NPN | TO18 |
| 2N929/51 | 10 | 60 | NPN | TO51 |
| 2N930 | 10 | 150 | NPN | TO18 |
| JAN 2N930 | 2 | 150 | NPN | TO18 |
| USA 2N930 | 10 | 150 | NPN | TO18 |
| 2N930A | 2 | 150 | NPN | TO18 |
| 2N930A/46 | 2 | 150 | NPN | TO46 |
| 2N930A/51 | 2 | 150 | NPN | TO51 |
| 2N930/KVT | 10 | 150 | NPN | G723 |
| 2N930/TNT | 10 | 150 | NPN | H812 |
| 2N930/TPT | 10 | 150 | NPN | G724 |
| 2N930/46 | 10 | 150 | NPN | TO46 |
| 2N930/51 | 10 | 150 | NPN | TO51 |
| 2N934 | 6.0 | 60 | PNP | TO18 |
| 2N935 | .10 | 11 | PNP | TO18 |
| 2N936 | .10 | 28 | PNP | TO18 |
| 2N937 | .10 | 60 | PNP | TO18 |
| 2N938 | .025 | 15 | PNP | TO18 |
| 2N939 | .025 | 30 | PNP | TO18 |
| 2N940 | .025 | 60 | PNP | TO18 |
| 2N941 | 2.5 | 50 | PNP | TO18 |
| 2N942 | 2.5 | 50 | PNP | TO18 |
| 2N943 | | | PNP | TO18 |
| 2N944 | | | PNP | TO18 |
| 2N945 | | | PNP | TO18 |
| 2N946 | | | PNP | TO18 |
| 2N947 | 1.0 | 30 | NPN | TO18 |
| 2N955 | 5.0 | 60 | NPN | TO18 |
| 2N955A | 5.0 | 50 | NPN | TO18 |
| 2N956 | | 100 | NPN | TO18 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|
| 2N957 | 5.0 | 45 | NPN | TO18 |
| 2N960 | 3.0 | 40 | PNP | TO18 |
| 2N960/46 | 3.0 | 40 | PNP | TO46 |
| 2N961 | 3.0 | 40 | PNP | TO18 |
| 2N961/46 | 3.0 | 40 | PNP | TO46 |
| 2N962 | 3.0 | 40 | PNP | TO18 |
| USN 2N962 | 3.0 | 40 | PNP | TO18 |
| 2N962/46 | 3.0 | 40 | PNP | TO46 |
| 2N963 | 5.0 | 20 | PNP | TO18 |
| 2N964 | 3.0 | 70 | PNP | TO18 |
| USN 2N964 | 3.0 | 70 | PNP | TO18 |
| 2N964A | 3.0 | 80 | PNP | TO18 |
| 2N964/46 | 3.0 | 70 | PNP | TO46 |
| 2N965 | 3.0 | 70 | PNP | TO18 |
| 2N966 | 3.0 | 70 | PNP | TO18 |
| 2N967 | 5.0 | 40 | PNP | TO18 |
| 2N968 | 3.0 | 20 | PNP | TO18 |
| 2N969 | 3.0 | 20 | PNP | TO18 |
| 2N970 | 3.0 | 20 | PNP | TO18 |
| 2N971 | 10 | 20 | PNP | TO18 |
| 2N972 | 3.0 | 40 | PNP | TO18 |
| 2N973 | 3.0 | 40 | PNP | TO18 |
| 2N974 | 3.0 | 40 | PNP | TO18 |
| 2N975 | 10 | 40 | PNP | TO18 |
| 2N976 | 100 | 80 | PNP | TO18 |
| 2N978 | 5.0 | 38 | PNP | TO18 |
| 2N979 | 3.0 | 50 | PNP | TO18 |
| 2N980 | 5.0 | 50 | PNP | TO18 |
| 2N981 | 1.0 | 36 | PNP | TO18 |
| 2N982 | 3.0 | 100 | PNP | TO18 |
| 2N983 | 3.0 | 85 | PNP | TO18 |
| 2N984 | 5.0 | 70 | PNP | TO18 |
| 2N985 | 100 | 60 | PNP | TO18 |
| 2N987 | 8.0 | 100 | PNP | B225 |
| USA 2N987 | 8.0 | 100 | PNP | B225 |
| 2N988 | .50 | 20 | NPN | TO18 |
| 2N989 | .50 | 20 | NPN | TO18 |
| 2N990 | 8.0 | 150 | PNP | TO18 |
| 2N991 | 8.0 | 40 | PNP | B225 |
| 2N992 | 8.0 | 40 | PNP | B225 |
| 2N993 | 8.0 | 150 | PNP | TO18 |
| 2N995 | .005 | 35 | PNP | TO18 |
| 2N995A | 5 N | 35 | PNP | TO18 |
| 2N996 | 5.N | 75 | PNP | TO18 |
| 2N997 | 10 N | 1000 | PNP | TO18 |
| 2N1000 | 15 | 35 | NPN | TO5 |
| 2N1007 | 1.0 | 30 | PNP | TO3 |
| 2N1008 | | 90 | PNP | TO5 |
| 2N1008A | | 90 | PNP | TO5 |
| 2N1008B | | 90 | PNP | TO5 |
| USA 2N1008B | | 90 | PNP | TO5 |
| 2N1009 | | | | |
| 2N1010 | 10 | 35 | NPN | TO1 |
| 2N1011 | 20 | 30 | PNP | TO3 |
| USA 2N1011 | 15 | 30 | PNP | TO3 |
| 2N1012 | 25 | 40* | NPN | TO5 |
| 2N1015 | 10 | 10 | NPN | F601 |
| 2N1015A | 10 | 10 | NPN | F601 |
| 2N1015B | 10 | 10 | NPN | F601 |
| 2N1015C | 10 | 10 | NPN | F601 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|
| 2N1015D | 10 | 10 | NPN | F601 |
| 2N1015E | 10 | 10 | NPN | F601 |
| 2N1016 | 10 | 10 | NPN | F601 |
| 2N1016A | 10 | 10 | NPN | F601 |
| 2N1016B | 10 | 10 | NPN | F601 |
| USN 2N1016B | 1.0 | 10 | NPN | F601 |
| 2N1016C | 10 | 10 | NPN | F601 |
| USN 2N1016C | 1.0 | 10 | NPN | F601 |
| 2N1016D | 10 | 10 | NPN | F601 |
| USN 2N1016D | 1.0 | 10 | NPN | F601 |
| 2N1016E | 10 | 10 | NPN | F601 |
| 2N1017 | 25 | 100 | PNP | TO5 |
| 2N1018 | 4.0 | 140 | PNP | TO5 |
| 2N1021 | 2.0 | 30 | PNP | TO3 |
| USA 2N1021 | .50 | 30 | PNP | E504A |
| 2N1021A | .50 | 30 | PNP | TO3 |
| 2N1022 | 2.0 | 30 | PNP | TO3 |
| USA 2N1022 | .50 | 30 | PNP | E504A |
| 2N1022A | .50 | 30 | PNP | TO3 |
| 2N1023 | 12 | 60 | PNP | TO44 |
| 2N1024 | .025 | 15 | PNP | TO5 |
| 2N1025 | .025 | 15 | PNP | TO5 |
| JAN 2N1025 | 100 | 9. | PNP | TO5 |
| 2N1026 | .025 | 30 | PNP | TO5 |
| JAN 2N1026 | 100 | 18 | PNP | TO5 |
| 2N1026A | .025 | 36 | PNP | TO5 |
| 2N1027 | .025 | 30 | PNP | TO5 |
| 2N1028 | .025 | 9. | PNP | TO5 |
| 2N1029 | 15 | 20 | PNP | E511 |
| 2N1029A | 15 | 20 | PNP | E511 |
| 2N1029B | 15 | 20 | PNP | E511 |
| 2N1029C | 15 | 20 | PNP | E511 |
| 2N1030 | 15 | 50 | PNP | E511 |
| 2N1030A | 15 | 50 | PNP | E511 |
| 2N1030B | 15 | 50 | PNP | E511 |
| 2N1030C | 15 | 50 | PNP | E511 |
| 2N1031 | 15 | 20 | PNP | TO41 |
| 2N1031A | 15 | 20 | PNP | TO41 |
| 2N1031B | 15 | 20 | PNP | TO41 |
| 2N1031C | 15 | 20 | PNP | TO41 |
| 2N1032 | 15 | 50 | PNP | TO41 |
| 2N1032A | 15 | 50 | PNP | TO41 |
| 2N1032B | 15 | 50 | PNP | TO41 |
| 2N1032C | 15 | 50 | PNP | TO41 |
| 2N1034 | 1.0 | 15 | PNP | TO5 |
| 2N1035 | 1.0 | 30 | PNP | TO5 |
| 2N1036 | 1.0 | 60 | PNP | TO5 |
| 2N1037 | 1.0 | 25 | PNP | TO5 |
| 2N1038 | 125 | 20 | PNP | B243 |
| 2N1038-1 | .65 | 20 | PNP | F646 |
| 2N1038-2 | .65 | 20 | PNP | F603A |
| 2N1038-2 | .65 | 20 | PNP | F622 |
| 2N1039 | 125 | 20 | PNP | B243 |
| JAN 2N1039 | 70 | 20 | PNP | TO85 |
| 2N1039-1 | .65 | 20 | PNP | F646 |
| 2N1039-2 | .65 | 20 | PNP | F603A |
| 2N1039-2 | .65 | 20 | PNP | F622 |
| 2N1040 | 125 | 20 | PNP | B243 |
| 2N1040-1 | .65 | 20 | PNP | F646 |
| 2N1040-2 | .65 | 20 | PNP | F603A |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|
| 2N1040-2 | .65 | 20 | PNP | F622 |
| 2N1041 | 125 | 20 | PNP | B243 |
| JAN 2N1041 | 70 | 20 | PNP | TO85 |
| 2N1041-1 | .65 | 20 | PNP | F646 |
| 2N1041-2 | .65 | 20 | PNP | F603A |
| 2N1041-2 | .65 | 20 | PNP | F622 |
| 2N1042 | .65 | 20 | PNP | F603A |
| 2N1042 | .65 | 20 | PNP | F622 |
| JAN 2N1042 | 8.0 | 20 | PNP | F624 |
| 2N1042-1 | .65 | 20 | PNP | F646 |
| 2N1042-2 | .65 | 20 | PNP | TO5 |
| 2N1042-2 | .65 | 20 | PNP | F603A |
| 2N1043 | .65 | 20 | PNP | F603A |
| 2N1043 | .65 | 20 | PNP | F622 |
| JAN 2N1043 | 8.0 | 20 | PNP | F624 |
| 2N1043-1 | .65 | 20 | PNP | F646 |
| 2N1043-2 | .65 | 20 | PNP | TO5 |
| 2N1043-2 | .65 | 20 | PNP | F603A |
| 2N1044 | .65 | 20 | PNP | F603A |
| 2N1044 | .65 | 20 | PNP | F622 |
| JAN 2N1044 | 8.0 | 20 | PNP | F624 |
| 2N1044-1 | .65 | 20 | PNP | F646 |
| 2N1044-2 | .65 | 20 | PNP | TO5 |
| 2N1044-2 | .65 | 20 | PNP | F603A |
| 2N1045 | .65 | 20 | PNP | F603A |
| 2N1045 | .65 | 20 | PNP | F622 |
| JAN 2N1045 | 8.0 | 20 | PNP | F624 |
| 2N1045-1 | .65 | 20 | PNP | MT51 |
| 2N1045-2 | .65 | 20 | PNP | AZ2 |
| 2N1046 | 2.0 | 40 | PNP | TO3 |
| USN 2N1046 | 10 | 40 | PNP | TO3 |
| 2N1046A | 2.0 | 40 | PNP | TO3 |
| 2N1046B | 2.0 | 20 | PNP | TO3 |
| 2N1047 | .015 | 12 | NPN | F603 |
| 2N1047A | .015 | 12 | NPN | F603 |
| USN 2N1047A | 15 | 12 | NPN | F603 |
| 2N1047B | .015 | 12 | NPN | F603 |
| 2N1048 | .015 | 12 | NPN | F603 |
| 2N1048A | .015 | 12 | NPN | F603 |
| USN 2N1048A | 15 | 12 | NPN | F603 |
| 2N1049 | .015 | 30 | NPN | F603 |
| 2N1049A | .015 | 30 | NPN | F603 |
| USN 2N1049A | 15 | 36 | NPN | F603 |
| 2N1049B | .015 | 30 | NPN | F603 |
| 2N1050 | .015 | 30 | NPN | F603 |
| 2N1050A | .015 | 30 | NPN | F603 |
| USN 2N1050A | 15 | 36 | NPN | F603 |
| 2N1050B | .015 | 30 | NPN | F603 |
| 2N1051 | .10 | 40 | NPN | TO29 |
| USN 2N1051 | .10 | 30 | NPN | TO29 |
| 2N1052 | 10 | 35 | NPN | TO5 |
| 2N1053 | 10 | 35 | NPN | TO5 |
| 2N1054 | 5.0 | 12 | NPN | TO5 |
| 2N1055 | 15 | 3. | NPN | TO5 |
| 2N1056 | 25 | 32 | PNP | TO5 |
| 2N1057 | 16 | 58 | PNP | B222 |
| 2N1058 | 50 | 17 | NPN | TO22 |
| 2N1059 | 50 | 75 | NPN | TO22 |
| 2N1065 | 50 | 50 | PNP | TO9 |
| 2N1066 | 12 | 60 | PNP | TO33 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|
| 2N1067 | .50 | 15 | NPN | TO8 |
| 2N1068 | .50 | 15 | NPN | TO8 |
| 2N1069 | 1.0 | 10 | NPN | TO3 |
| 2N1070 | 1.0 | 10 | NPN | TO3 |
| USA 2N1072 | .10 | 20 | NPN | TO38 |
| 2N1073 | 1.0 | 20 | PNP | TO3 |
| 2N1073A | 1.0 | 20 | PNP | TO3 |
| 2N1073B | 2.0 | 20 | PNP | TO3 |
| 2N1079 | 10 | 20 | NPN | TO53 |
| 2N1080 | 10 | 20 | NPN | TO53 |
| 2N1081 | 15 | 20 | NPN | TO5 |
| USA 2N1081 | .50 | 20 | NPN | TO5 |
| 2N1082 | .50 | 10 | NPN | TO5 |
| USA 2N1082 | .50 | 10 | NPN | TO5 |
| 2N1084 | 10 | 20 | PNP | TO5 |
| 2N1085 | 50 | 40 | NPN | TO5 |
| 2N1086 | 3.0 | 40 | NPN | A104 |
| 2N1086A | 3.0 | 40 | NPN | A104 |
| 2N1087 | 3.0 | 40 | NPN | A104 |
| 2N1090 | 25 | 50 | NPN | TO9 |
| 2N1091 | 25 | 70 | NPN | TO9 |
| 2N1092 | .50 | 15 | NPN | TO5 |
| 2N1093 | 6.0 | 125 | PNP | |
| USA 2N1094 | 5.0 | 50 | PNP | TO28 |
| 2N1097 | 16 | 34 | PNP | TO5 |
| 2N1098 | 16 | 34 | PNP | TO5 |
| 2N1099 | 4.0 | 35 | PNP | TO36 |
| 2N1100 | 4.0 | 25 | PNP | TO36 |
| 2N1101 | 50 | 45 | NPN | TO22 |
| 2N1102 | 50 | 45 | NPN | TO22 |
| 2N1103 | 1.0 | 30 | NPN | TO5 |
| 2N1104 | 1.0 | 45 | NPN | TO5 |
| 2N1107 | 10 | 34 | PNP | TO22 |
| 2N1108 | 10 | 33 | PNP | TO22 |
| 2N1109 | 10 | 20 | PNP | TO22 |
| 2N1110 | 10 | 29 | PNP | TO22 |
| 2N1111A | 10 | 25 | PNP | TO22 |
| 2N1111B | 10 | 25 | PNP | TO22 |
| 2N1114 | 30 | 110 | NPN | TO5 |
| 2N1115 | 6.0 | | PNP | A104 |
| 2N1116 | 15 | 6. | NPN | TO5 |
| 2N1117 | 15 | 40 | NPN | TO5 |
| 2N1118 | 1.0 | 30 | PNP | TO5 |
| JAN 2N1118 | .10 | 15 | PNP | TO5 |
| 2N1118A | 1.0 | 25 | PNP | TO5 |
| 2N1119 | .10 | 25 | PNP | TO5 |
| JAN 2N1119 | .10 | 15 | PNP | TO5 |
| 2N1120 | 15 | 20 | PNP | TO41 |
| USA 2N1120 | 15 | 20 | PNP | TO41 |
| 2N1121 | 5.0 | 34 | NPN | A104 |
| 2N1122 | 5.0 | 25 | PNP | TO24 |
| 2N1122A | 5.0 | 25 | PNP | TO24 |
| 2N1124 | 75 | 125 | PNP | B201 |
| 2N1125 | 75 | 125 | PNP | B201 |
| 2N1128 | 20 | 120 | PNP | B201 |
| 2N1129 | 25 | 165 | PNP | B201 |
| 2N1130 | 25 | 110 | PNP | B201 |
| 2N1131 | 1.0 | 20 | PNP | TO5 |
| USN 2N1131 | 10 | 15 | PNP | TO5 |
| 2N1131A | 50 | 20 | PNP | TO5 |

| TYPE NO. | $I_{CBO}$ (μA) | $h_{fe}$ | PNP-NPN | DWG. NO |
|---|---|---|---|---|
| 2N1131A/51 | .50 | 20 | PNP | TO51 |
| 2N1131/51 | 1.0 | 20 | PNP | TO51 |
| 2N1132 | 1.0 | 30 | PNP | TO5 |
| USN 2N1132 | 10 | 25 | PNP | TO5 |
| 2N1132A | .50 | 30 | PNP | TO5 |
| 2N1132A/46 | 1.0 | 30 | PNP | TO46 |
| 2N1132A/51 | 1.0 | 30 | PNP | TO51 |
| 2N1132B | 100 | 60 | PNP | TO5 |
| 2N1132B/46 | 100 | 60 | PNP | TO46 |
| 2N1132B/51 | .01 | 30 | PNP | TO51 |
| 2N1132/KVT | .0 | 30 | PNP | G723 |
| 2N1132/TNT | | 30 | PNP | H812 |
| 2N1132/TPT | .0 | 30 | PNP | G724 |
| 2N1132/46 | .0 | 30 | PNP | TO46 |
| 2N1132/51 | .0 | 30 | PNP | TO51 |
| 2N1136 | .0 | 50 | PNP | TO3 |
| 2N1136A | .0 | 50 | PNP | TO3 |
| 2N1136B | .0 | 50 | PNP | TO3 |
| 2N1137 | .0 | 75 | PNP | TO3 |
| 2N1137A | .0 | 75 | PNP | TO3 |
| 2N1137B | .0 | 75 | PNP | TO3 |
| 2N1138 | | 100 | PNP | TO3 |
| 2N1138A | | 100 | PNP | TO3 |
| 2N1138B | | 100 | PNP | TO3 |
| 2N1139 | 5.0 | 40 | NPN | TO5 |
| 2N1141 | 100 | 49 | PNP | TO5 |
| 2N1141A | | 15 | PNP | TO5 |
| 2N1142 | 100 | 49 | PNP | TO5 |
| USN 2N1142 | 100 | 10 | PNP | TO5 |
| 2N1142A | | 15 | PNP | TO5 |
| 2N1143 | 100 | 49 | PNP | TO5 |
| 2N1143A | | 15 | PNP | TO5 |
| 2N1144 | 16 | 55 | PNP | B222 |
| 2N1145 | 16 | 45 | PNP | B222 |
| 2N1146 | 4.0 | 60 | PNP | TO3 |
| 2N1146A | 4.0 | 60 | PNP | TO3 |
| 2N1146B | 4.0 | 60 | PNP | TO3 |
| 2N1146C | 4.0 | 60 | PNP | TO3 |
| 2N1147 | 4.0 | 60 | PNP | TO41 |
| 2N1147A | 4.0 | 60 | PNP | TO41 |
| 2N1147B | 4.0 | 60 | PNP | TO41 |
| 2N1147C | 4.0 | 60 | PNP | TO41 |
| 2N1149 | 2.0 | 13 | NPN | A107 |
| 2N1150 | 2.0 | 24 | NPN | A107 |
| 2N1151 | 2.0 | 39 | NPN | A107 |
| 2N1152 | 2.0 | 49 | NPN | A107 |
| 2N1153 | 2.0 | 99 | NPN | A107 |
| 2N1154 | 5.0 | 19 | NPN | A107 |
| 2N1155 | 6.0 | 19 | NPN | A107 |
| 2N1156 | 8.0 | 15 | NPN | A107 |
| 2N1157 | 7.0 | 10 | PNP | F604 |
| 2N1157A | 20 | 10 | PNP | F604 |
| USA 2N1157A | 20 | 38 | PNP | F604 |
| USA 2N1158A | 5.0 | 50 | PNP | TO9 |
| 2N1159 | 8.0 | 30 | PNP | TO3 |
| 2N1160 | 8.0 | 20 | PNP | TO3 |
| 2N1162 | 15 | 15 | PNP | TO3 |
| 2N1162A | 15 | 15 | PNP | TO3 |
| 2N1163 | 15 | 15 | PNP | TO41 |
| 2N1163A | 15 | 15 | PNP | TO41 |

| TYPE NO. | $I_{CBO}$ (μA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|
| 2N1164 | 15 | 15 | PNP | TO3 |
| 2N1164A | 15 | 15 | PNP | TO3 |
| 2N1165 | 15 | 15 | PNP | TO41 |
| USN 2N1165 | 15 | 15 | PNP | TO41 |
| 2N1165A | 15 | 15 | PNP | TO41 |
| 2N1166 | 15 | 15 | PNP | TO3 |
| 2N1166A | 15 | 15 | PNP | TO3 |
| 2N1167 | 15 | 15 | PNP | TO41 |
| 2N1167A | 15 | 15 | PNP | TO41 |
| 2N1168 | 8.0 | 70 | PNP | TO3 |
| 2N1171 | 5.0 | 30 | PNP | TO5 |
| USN 2N1173 | 10 | 50 | NPN | TO8 |
| USN 2N1174 | 10 | 50 | PNP | TO5 |
| 2N1175 | 12 | 80 | PNP | TO5 |
| 2N1175A | 12 | 80 | PNP | TO5 |
| 2N1176 | 25 | 40 | PNP | TO5 |
| 2N1176A | 30 | 40 | PNP | TO5 |
| 2N1176B | 35 | 40 | PNP | TO5 |
| 2N1177 | 12 | 100 | PNP | TO45 |
| 2N1178 | 12 | 40 | PNP | TO45 |
| 2N1179 | 12 | 80 | PNP | TO45 |
| 2N1180 | 12 | 80 | PNP | TO45 |
| 2N1183 | | 20 | PNP | TO8 |
| USA 2N1183 | .25 | 20 | PNP | TO8 |
| 2N1183A | | 20 | PNP | TO8 |
| USA 2N1183A | .25 | 20 | PNP | TO8 |
| 2N1183B | | 20 | PNP | TO8 |
| USA 2N1183B | .25 | 20 | PNP | TO8 |
| 2N1184 | | 40 | PNP | TO8 |
| USA 2N1184 | .25 | 40 | PNP | TO8 |
| 2N1184A | | 40 | PNP | TO8 |
| USA 2N1184A | .25 | 40 | PNP | TO8 |
| 2N1184B | | 40 | PNP | TO8 |
| USA 2N1184B | .25 | 40 | PNP | TO8 |
| 2N1185 | 50 | 260 | PNP | TO5 |
| 2N1186 | 50 | 49 | PNP | TO5 |
| 2N1187 | 50 | 80 | PNP | TO5 |
| 2N1188 | 50 | 130 | PNP | TO5 |
| 2N1189 | 50 | 120 | PNP | TO5 |
| 2N1190 | 50 | 190 | PNP | TO5 |
| 2N1191 | 15 | 40 | PNP | TO5 |
| 2N1192 | 15 | 75 | PNP | TO5 |
| 2N1193 | 15 | 160 | PNP | TO5 |
| 2N1194 | 15 | 280 | PNP | TO5 |
| 2N1195 | | 40 | PNP | TO29 |
| JAN 2N1195 | 100 | 25 | PNP | TO29 |
| 2N1196 | .25 | 10 | PNP | TO5 |
| USA 2N1196 | .25 | 10 | PNP | TO5 |
| 2N1197 | .25 | 10 | PNP | TO5 |
| 2N1198 | | 17 | NPN | |
| USA 2N1199A | 5.0 | 12 | NPN | B233 |
| USA 2N1200 | 5.0 | 9. | NPN | B233 |
| USA 2N1201 | 5.0 | 9. | NPN | B233 |
| 2N1202 | 2.0 | 40 | PNP | F632 |
| 2N1203 | 2.0 | 25 | PNP | F632 |
| 2N1204 | 7.0 | 30 | PNP | TO9 |
| 2N1205 | 5.0 | 10 | NPN | TO5 |
| 2N1206 | 1.0 | 35 | NPN | TO5 |
| 2N1207 | 1.0 | 35 | NPN | TO5 |
| 2N1208 | 10 | 15 | NPN | F607 |

| TYPE NO. | $I_{CBO}$ (μA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|
| 2N1208/1 | | 15 | NPN | F607 |
| 2N1209 | 20 | 20 | NPN | F607 |
| 2N1209/1 | | 20 | NPN | F607 |
| 2N1210 | 10 | 15 | NPN | C302 |
| 2N1210/1 | 20 | 15 | NPN | C303 |
| 2N1211 | 10 | 15 | NPN | C302 |
| 2N1211/1 | 10 | 15 | NPN | C303 |
| 2N1212 | 10 | 12 | NPN | F607 |
| 2N1212/1 | 10 | 12 | NPN | F607 |
| 2N1217 | 1.5 | 60 | NPN | A154 |
| 2N1218 | .10 | 30 | NPN | TO3 |
| 2N1219 | .10 | 18 | PNP | TO5 |
| 2N1220 | 10 | 9. | PNP | TO5 |
| 2N1221 | .10 | 18 | PNP | TO8 |
| 2N1222 | .10 | 9. | PNP | TO5 |
| 2N1223 | .10 | 6. | PNP | TO8 |
| 2N1224 | 12 | 60 | PNP | TO33 |
| USA 2N1224 | 50 | 20 | PNP | TO8 |
| 2N1225 | 12 | 60 | PNP | TO33 |
| USA 2N1225 | 50 | 20 | PNP | TO5 |
| 2N1226 | 12 | 60 | PNP | TO33 |
| 2N1227 | 1.0 | 50 | PNP | TO3 |
| 2N1228 | .10 | 14 | PNP | TO5 |
| 2N1229 | .10 | 30 | PNP | TO5 |
| 2N1230 | .10 | 14 | PNP | TO8 |
| 2N1231 | .10 | 30 | PNP | TO8 |
| 2N1232 | .10 | 14 | PNP | TO5 |
| 2N1233 | .10 | 30 | PNP | TO8 |
| 2N1234 | .10 | 14 | PNP | TO5 |
| USA 2N1234 | 100 | 14 | PNP | TO8 |
| 2N1238 | .10 | 14 | PNP | G701 |
| 2N1239 | .10 | 30 | PNP | G701 |
| 2N1240 | .10 | 14 | PNP | G701 |
| 2N1241 | .10 | 30 | PNP | G701 |
| 2N1242 | .10 | 14 | PNP | G701 |
| 2N1243 | .10 | 30 | PNP | G701 |
| 2N1244 | .10 | 14 | PNP | G701 |
| 2N1247 | .005 | 25 | NPN | TO8 |
| 2N1248 | .001 | 25 | NPN | TO8 |
| 2N1249 | | 30 | NPN | TO8 |
| 2N1250 | | 15 | NPN | C302 |
| 2N1250/1 | 10 | 15 | NPN | C303 |
| 2N1251 | 50 | 150 | NPN | TO22 |
| 2N1252 | 10 | 35 | NPN | TO8 |
| 2N1253 | 10 | 45 | NPN | TO8 |
| 2N1254 | .20 | 25 | PNP | TO5 |
| 2N1255 | .20 | 40 | PNP | TO5 |
| 2N1256 | .20 | 25 | PNP | TO5 |
| 2N1257 | .20 | 40 | PNP | TO5 |
| 2N1258 | .20 | 75 | PNP | TO5 |
| 2N1259 | .20 | 25 | PNP | TO5 |
| 2N1261 | 2.0 | 20 | PNP | F632 |
| 2N1262 | 2.0 | 30 | PNP | F632 |
| 2N1263 | 2.0 | 45 | PNP | F632 |
| 2N1264/13 | 50 | 25 | PNP | TO13 |
| 2N1265/5 | | 75 | PNP | TO5 |
| 2N1266 | | 40 | PNP | TO22 |
| 2N1273 | 14 | 27 | PNP | TO5 |
| 2N1274 | 14 | 27 | PNP | TO5 |
| 2N1275 | 1.0 | 15 | PNP | TO5 |

| TYPE NO. | $I_{CBO}$ (μA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|
| 2N1276 | | 14 | NPN | TO5 |
| 2N1277 | 1.0 | 33 | NPN | TO5 |
| 2N1278 | 1.0 | 66 | NPN | TO5 |
| 2N1279 | 1.0 | 333 | NPN | TO5 |
| 2N1280 | 10 | 60 | PNP | TO5 |
| 2N1281 | 10 | 90 | PNP | TO5 |
| 2N1282 | 10 | 100 | PNP | TO5 |
| 2N1284 | 6.0 | 90 | PNP | TO5 |
| 2N1285 | 20 | 100 | PNP | TO33 |
| 2N1291 | 1.5 | 30 | PNP | TO3 |
| 2N1292 | 1.0 | 30 | NPN | TO3 |
| 2N1293 | 2.0 | 30 | PNP | TO3 |
| 2N1294 | 2.0 | 30 | NPN | TO3 |
| 2N1295 | 2.0 | 40 | PNP | TO3 |
| 2N1296 | 3.0 | 30 | NPN | TO3 |
| 2N1297 | 4.0 | 30 | PNP | TO3 |
| 2N1299 | | 110 | NPN | TO5 |
| 2N1300 | 3.0 | 50 | PNP | TO5 |
| 2N1301 | 3.0 | 75 | PNP | TO5 |
| 2N1302 | 6.0 | 20 | NPN | TO5 |
| JAN 2N1302 | 6.0 | 20 | NPN | TO5 |
| 2N1303 | 6.0 | 20 | PNP | TO5 |
| JAN 2N1303 | 6.0 | 20 | PNP | TO5 |
| 2N1304 | 6.0 | 40 | NPN | TO5 |
| JAN 2N1304 | 6.0 | 40 | NPN | TO5 |
| 2N1305 | 6.0 | 40 | PNP | TO5 |
| JAN 2N1305 | 6.0 | 40 | PNP | TO5 |
| 2N1306 | 6.0 | 60 | NPN | TO5 |
| JAN 2N1306 | 6.0 | 60 | NPN | TO5 |
| 2N1307 | 6.0 | 60 | PNP | TO5 |
| JAN 2N1307 | 6.0 | 60 | PNP | TO5 |
| 2N1308 | 6.0 | 80 | NPN | TO5 |
| JAN 2N1308 | 6.0 | 80 | NPN | TO5 |
| 2N1309 | 6.0 | 80 | PNP | TO5 |
| JAN 2N1309 | 6.0 | 80 | PNP | TO5 |
| 2N1309A | 6.0 | 80 | PNP | TO5 |
| 2N1310 | 25 | 35 | NPN | TO9 |
| USN 2N1310 | 25 | 30 | NPN | TO5 |
| 2N1311 | 25 | 30 | NPN | TO9 |
| 2N1312 | 25 | 40 | NPN | TO9 |
| 2N1313 | | 83 | PNP | TO5 |
| 2N1314 | .10 | 20 | PNP | E502 |
| 2N1316 | 25 | 100 | PNP | TO5 |
| 2N1317 | 25 | 95 | PNP | TO5 |
| 2N1318 | 7.0 | 85 | PNP | TO5 |
| 2N1319 | 6.0 | 30 | PNP | TO5 |
| 2N1321 | 1.0 | 30 | NPN | TO10 |
| 2N1323 | 2.0 | 30 | NPN | TO10 |
| 2N1325 | 3.0 | 30 | NPN | TO10 |
| 2N1326 | 2.0 | 30 | PNP | TO10 |
| 2N1335 | 1.0 | 10 | NPN | TO5 |
| 2N1336 | 1.0 | 10 | NPN | TO5 |
| 2N1337 | 1.0 | 10 | NPN | TO5 |
| 2N1338 | 10 | 10 | NPN | TO5 |
| 2N1339 | 1.0 | 10 | NPN | TO5 |
| 2N1340 | 1.0 | 10 | NPN | TO5 |
| 2N1341 | 1.0 | 10 | NPN | TO5 |
| 2N1342 | 10 | 10 | NPN | TO5 |
| 2N1343 | 6.0 | 40 | PNP | TO5 |
| 2N1344 | 10 | 90 | PNP | TO5 |

| TYPE NO. | $I_{CBO}$ (μA) | $h_{fe}$ | PNP-DWG NPN NO |
|---|---|---|---|
| 2N1345 | 6.0 | 60 | PNP TO5 |
| 2N1346 | 5.0 | 125 | PNP TO5 |
| 2N1347 | 6.0 | 80 | PNP TO5 |
| 2N1348 | 10 | 95 | PNP |
| 2N1349 | 10 | 110 | PNP |
| 2N1350 | 20 | 95 | PNP |
| 2N1351 | 10 | 65 | PNP |
| 2N1352 | 5.0 | 70 | PNP TO5 |
| 2N1353 | 6.0 | 70 | PNP TO5 |
| 2N1354 | 6.0 | 70 | PNP TO5 |
| 2N1355 | 6.0 | 80 | PNP TO5 |
| 2N1356 | 6.0 | 80 | PNP TO5 |
| 2N1357 | 6.0 | 85 | PNP TO5 |
| 2N1358 | 8.0 | 25 | PNP TO36 |
| JAN 2N1358 | 4.0 | 25 | PNP TO36 |
| 2N1358A | 10 | 25 | PNP TO36 |
| 2N1359 | 3.0 | 35 | PNP TO3 |
| 2N1360 | 3.0 | 60 | PNP TO3 |
| 2N1362 | 3.0 | 35 | PNP TO3 |
| 2N1363 | 3.0 | 60 | PNP TO3 |
| 2N1364 | 3.0 | 35 | PNP TO3 |
| 2N1365 | 3.0 | 40 | PNP TO3 |
| 2N1366 | 15 | 10 | NPN TO5 |
| 2N1370 | 14 | 45 | PNP TO5 |
| 2N1371 | 14 | 45 | PNP TO5 |
| 2N1372 | 7.0 | 27 | PNP TO5 |
| 2N1373 | 7.0 | 27 | PNP TO5 |
| 2N1374 | 7.0 | 45 | PNP TO5 |
| 2N1375 | 7.0 | 45 | PNP TO5 |
| 2N1376 | 7.0 | 67 | PNP TO5 |
| 2N1377 | 7.0 | 67 | PNP TO5 |
| 2N1378 | 7.0 | 85 | PNP TO5 |
| 2N1379 | 7.0 | 85 | PNP TO5 |
| 2N1380 | 14 | 27 | PNP TO5 |
| 2N1381 | 14 | 27 | PNP TO5 |
| 2N1382 | 14 | 45 | PNP TO5 |
| 2N1383 | 14 | 27 | PNP TO5 |
| 2N1384 | 50 | 50 | PNP TO11 |
| 2N1385 | 10 | 10 | PNP B277 |
| 2N1386 | .10 | 45 | NPN TO5 |
| 2N1387 | .10 | 30 | NPN TO5 |
| 2N1388 | .50 | | NPN TO5 |
| 2N1389 | .50 | | NPN TO5 |
| 2N1390 | .80 | | NPN TO5 |
| 2N1391 | 4.0 | 70 | NPN TO5 |
| 2N1395 | 12 | 90 | PNP TO33 |
| 2N1396 | 12 | 90 | PNP TO33 |
| 2N1397 | 12 | 90 | PNP TO33 |
| 2N1404 | 5.0 | 100 | PNP TO5 |
| 2N1406 | 25 | 25 | PNP TO5 |
| 2N1409 | 10 | 45 | NPN TO5 |
| 2N1409A | 10 | 45 | NPN TO5 |
| 2N1410 | 10 | 90 | NPN TO5 |
| 2N1410A | 10 | 60 | NPN TO5 |
| 2N1411 | 5.0 | 75 | PNP TO25 |
| JSA 2N1411 | 5.0 | 75 | PNP TO24 |
| 2N1412 | 4.0 | 25 | PNP TO36 |
| USA 2N1412 | 6.0 | 25 | PNP TO36 |
| 2N1413 | 12 | 30 | PNP TO5 |
| 2N1414 | 12 | 44 | PNP TO5 |
| 2N1415 | 12 | 64 | PNP TO5 |
| 2N1416 | | | |
| 2N1417 | 10 | 60 | NPN TO5 |
| 2N1418 | 1.0 | 60 | NPN TO5 |
| 2N1420 | 1.0 | 150 | NPN TO5 |
| 2N1420A | .01 | 100 | NPN TO5 |
| 2N1425 | 12 | 50 | PNP TO7 |
| 2N1426 | 12 | 130 | PNP TO7 |
| 2N1427 | 5.0 | 120 | PNP TO24 |
| 2N1428 | .10 | 30 | PNP TO1 |
| 2N1429 | .10 | 30 | PNP TO5 |
| 2N1430 | | 30 | PNP TO41 |
| 2N1431 | 50 | 112 | NPN TO22 |
| 2N1432 | 15 | 60 | PNP TO33 |
| 2N1437 | 2.0 | 20 | PNP TO13 |
| 2N1438 | 2.0 | 20 | PNP TO10 |
| 2N1439 | .025 | 9. | PNP TO5 |
| 2N1440 | 50 | 15 | PNP TO5 |
| 2N1441 | 50 | 27 | PNP TO5 |
| 2N1442 | 50 | 43 | PNP TO5 |
| 2N1443 | .025 | 65 | PNP TO5 |
| 2N1446 | 10 | 35 | PNP TO5 |
| 2N1447 | 10 | 52 | PNP TO5 |
| 2N1448 | 10 | 70 | PNP TO5 |
| 2N1449 | 10 | 95 | PNP TO5 |
| 2N1450 | 100 | 20 | PNP TO9 |
| USAF2N1450 | 10 | 20 | PNP TO5 |
| 2N1451 | 15 | 45 | PNP TO5 |
| 2N1452 | 15 | 60 | PNP TO5 |
| 2N1465 | 2.5 | 20 | PNP TO13 |
| 2N1466 | 2.5 | 20 | PNP TO10 |
| 2N1469 | .025 | 60 | PNP TO5 |
| JAN 2N1469 | 100 | 36 | PNP TO5 |
| 2N1471 | 5.0 | 160 | PNP |
| 2N1473 | 5.0 | 50 | NPN TO5 |
| 2N1474 | .05 | 26 | PNP TO5 |
| 2N1474A | .05 | 30 | PNP TO5 |
| 2N1475 | .05 | 60 | PNP TO5 |
| 2N1476 | .20 | 24 | PNP TO5 |
| 2N1477 | .20 | 45 | PNP TO5 |
| 2N1478 | 5.0 | 70 | PNP TO9 |
| 2N1479 | .01 | 20 | NPN TO5 |
| USA 2N1479 | .01 | 20 | NPN TO5 |
| 2N1480 | .01 | 20 | NPN TO5 |
| USA 2N1480 | .01 | 20 | NPN TO5 |
| 2N1481 | .01 | 35 | NPN TO5 |
| USA 2N1481 | .01 | 35 | NPN TO5 |
| 2N1482 | .01 | 35 | NPN TO5 |
| USA 2N1482 | .01 | 35 | NPN TO5 |
| 2N1483 | .015 | 20 | NPN TO8 |
| USA 2N1483 | .015 | 20 | NPN TO8 |
| 2N1484 | .015 | 20 | NPN TO8 |
| USA 2N1484 | .015 | 20 | NPN TO8 |
| 2N1485 | .015 | 35 | NPN TO8 |
| USA 2N1486 | .015 | 35 | NPN TO8 |
| 2N1487 | .015 | 35 | NPN TO8 |
| USA 2N1487 | .015 | 35 | NPN TO8 |
| 2N1488 | .015 | 35 | NPN TO8 |
| USA 2N1488 | .015 | 35 | NPN TO8 |
| 2N1489 | .025 | 25 | NPN E504 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-DWG. NPN NO |
|---|---|---|---|
| USA 2N1489 | .01 | 25 | NPN E504A |
| 2N1490 | .005 | 25 | NPN E504 |
| USA 2N1490 | .005 | 25 | NPN E504A |
| 2N1491 | 10 | 50 | NPN TO39 |
| 2N1492 | 10 | 50 | NPN TO39 |
| 2N1493 | 10 | 50 | NPN TO39 |
| USA 2N1493 | .001 | 50 | NPN TO5 |
| 2N1494 | 100 | 30 | PNP TO31 |
| 2N1494A | 7.0 | 25 | PNP TO31 |
| 2N1495 | 7.0 | 60 | PNP TO9 |
| 2N1496 | 7.0 | 60 | PNP TO31 |
| 2N1499A | 25 | 50 | PNP TO9 |
| USA 2N1499A | 25 | 50 | PNP TO9 |
| 2N1499B | 7.0 | 60 | PNP TO9 |
| 2N1500 | 25 | 70 | PNP TO9 |
| USA 2N1500 | 25 | 20 | PNP TO9 |
| 2N1500/18 | 1.5 | 70 | PNP TO18 |
| 2N1501 | 2.0 | 25 | PNP F632 |
| 2N1502 | 2.0 | 25 | PNP F632 |
| 2N1504/16 | 1.0 | 21 | PNP TO10 |
| 2N1505 | .05 | 7. | NPN TO5 |
| 2N1506 | .01 | 10 | NPN TO5 |
| 2N1506A | .050 | 10 | NPN TO5 |
| USA 2N1506A | .050 | 10 | NPN TO5 |
| 2N1507 | 100 | 150 | NPN TO5 |
| 2N1510 | 5.0 | 30 | NPN A104 |
| 2N1511 | .025 | 15 | NPN TO36 |
| USA 2N1511 | .025 | 15 | NPN TO36 |
| 2N1512 | .025 | 15 | NPN TO36 |
| USA 2N1512 | .025 | 15 | NPN TO36 |
| 2N1513 | .025 | 25 | NPN TO36 |
| USA 2N1513 | .025 | 25 | NPN TO36 |
| 2N1514 | .025 | 25 | NPN TO36 |
| USA 2N1514 | .025 | 25 | NPN TO36 |
| 2N1515 | 13 | 100 | PNP TO7 |
| 2N1516 | 13 | 67 | PNP TO7 |
| 2N1517 | 13 | 67 | PNP TO7 |
| 2N1518 | 4.0 | 15 | PNP TO36 |
| 2N1519 | 4.0 | 15 | PNP TO36 |
| 2N1520 | 4.0 | 17 | PNP TO36 |
| 2N1521 | 4.0 | 17 | PNP TO36 |
| 2N1522 | 4.0 | 22 | PNP TO36 |
| 2N1523 | 4.0 | 22 | PNP TO36 |
| 2N1524 | 16 | 60 | PNP TO9 |
| 2N1524/33 | 16 | 60 | PNP TO33 |
| 2N1525 | 16 | 60 | PNP TO9 |
| 2N1526 | 16 | 130 | PNP TO1 |
| 2N1526/33 | 16 | 130 | PNP TO33 |
| 2N1527 | 16 | 130 | PNP TO40 |
| 2N1528 | 1.0 | 4. | NPN TO5 |
| 2N1529 | 2.0 | 20 | PNP TO3 |
| 2N1529A | 2.0 | 20 | PNP TO3 |
| 2N1530 | 2.0 | 20 | PNP TO3 |
| 2N1530A | 2.0 | 20 | PNP TO3 |
| 2N1531 | 2.0 | 20 | PNP TO3 |
| 2N1531A | 2.0 | 20 | PNP TO3 |
| 2N1532 | 2.0 | 20 | PNP TO3 |
| 2N1532A | 2.0 | 20 | PNP TO3 |
| 2N1533 | 2.0 | 20 | PNP TO3 |
| 2N1534 | 2.0 | 35 | PNP TO3 |
| 2N1534A | 2.0 | 35 | PNP TO3 |
| 2N1535 | 2.0 | 35 | PNP TO3 |
| 2N1535A | 2.0 | 35 | PNP TO3 |
| 2N1536 | 2.0 | 35 | PNP TO3 |
| 2N1536A | 2.0 | 35 | PNP TO3 |
| 2N1537 | 2.0 | 35 | PNP TO3 |
| 2N1537A | 2.0 | 35 | PNP TO3 |
| 2N1538 | 2.0 | 35 | PNP TO3 |
| 2N1539 | 2.0 | 50 | PNP TO3 |
| 2N1539A | 2.0 | 50 | PNP TO3 |
| 2N1540 | 2.0 | 50 | PNP TO3 |
| 2N1540A | 2.0 | 50 | PNP TO3 |
| 2N1541 | 2.0 | 50 | PNP TO3 |
| 2N1541A | 2.0 | 50 | PNP TO3 |
| 2N1542 | 2.0 | 50 | PNP TO3 |
| 2N1542A | 2.0 | 50 | PNP TO3 |
| 2N1543 | 2.0 | 50 | PNP TO3 |
| 2N1544 | 2.0 | 75 | PNP TO3 |
| 2N1544A | 2.0 | 75 | PNP TO3 |
| 2N1545 | 2.0 | 75 | PNP TO3 |
| 2N1545A | 2.0 | 75 | PNP TO3 |
| 2N1546 | 2.0 | 75 | PNP TO3 |
| 2N1546A | 2.0 | 75 | PNP TO3 |
| 2N1547 | 2.0 | 75 | PNP TO3 |
| 2N1547A | 2.0 | 75 | PNP TO3 |
| 2N1548 | 2.0 | 75 | PNP TO3 |
| 2N1549 | 3.0 | 10 | PNP TO3 |
| 2N1549A | 3.0 | 10 | PNP TO3 |
| 2N1550 | 3.0 | 10 | PNP TO3 |
| 2N1550A | 3.0 | 10 | PNP TO3 |
| 2N1551 | 3.0 | 10 | PNP TO3 |
| 2N1551A | 3.0 | 10 | PNP TO3 |
| 2N1552 | 3.0 | 10 | PNP TO3 |
| 2N1552A | 3.0 | 10 | PNP TO3 |
| 2N1553 | 3.0 | 30 | PNP TO3 |
| 2N1553A | 3.0 | 30 | PNP TO3 |
| 2N1554 | 3.0 | 30 | PNP TO3 |
| 2N1554A | 3.0 | 30 | PNP TO3 |
| 2N1555 | 3.0 | 30 | PNP TO3 |
| 2N1555A | 3.0 | 30 | PNP TO3 |
| 2N1556 | 3.0 | 30 | PNP TO3 |
| 2N1556A | 3.0 | 30 | PNP TO3 |
| 2N1557 | 3.0 | 50 | PNP TO3 |
| 2N1557A | 3.0 | 50 | PNP TO3 |
| 2N1558 | 3.0 | 50 | PNP TO3 |
| 2N1558A | 3.0 | 50 | PNP TO3 |
| 2N1559 | 3.0 | 50 | PNP TO3 |
| 2N1559A | 3.0 | 50 | PNP TO3 |
| 2N1560 | 3.0 | 50 | PNP TO3 |
| 2N1560A | 3.0 | 50 | PNP TO3 |
| 2N1561 | 10 | 10 | PNP B249 |
| 2N1562 | 10 | 9. | PNP B249 |
| 2N1564 | 10 | 35 | NPN TO5 |
| 2N1565 | 10 | 70 | NPN TO5 |
| 2N1566 | 10 | 140 | NPN TO5 |
| 2N1566A | 10 | 140 | NPN TO5 |
| 2N1572 | 10 | 35 | NPN TO5 |
| 2N1573 | 10 | 70 | NPN TO5 |
| 2N1574 | 10 | 140 | NPN TO5 |
| 2N1986 | | 18 | NPN A107 |

| TYPE NO. | $I_{CBO}$ (μA) | $h_{fe}$ | PNP - NPN | DWG. NO. |
|---|---|---|---|---|
| 2N1587 | | 18 | NPN | A107 |
| 2N1588 | | 18 | NPN | A107 |
| 2N1589 | | 50 | NPN | A107 |
| 2N1590 | | 50 | NPN | A107 |
| 2N1591 | | 50 | NPN | A107 |
| 2N1592 | | 140 | NPN | A107 |
| 2N1593 | | 140 | NPN | A107 |
| 2N1594 | | 140 | NPN | A107 |
| 2N1605 | 5.0 | 125 | NPN | T05 |
| 2N1605A | 10 | 60 | NPN | T05 |
| 2N1613 | .01 | 80 | NPN | T05 |
| USN 2N1613 | 10 | 35 | NPN | T05 |
| 2N1613A | .002 | 80 | NPN | T05 |
| 2N1613/KVT | .01 | 80 | NPN | G723 |
| 2N1613/TNT | .01 | 80 | NPN | H812 |
| 2N1613/TPT | .01 | 80 | NPN | G724 |
| 2N1613/46 | .01 | 80 | NPN | T046 |
| 2N1613/51 | .01 | 80 | NPN | T051 |
| 2N1614 | 25 | 32 | PNP | B222 |
| 2N1615 | 2.0 | 25 | NPN | T05 |
| 2N1616 | 10 | 15 | NPN | F607 |
| 2N1616A | 1.0 | 15 | NPN | F607 |
| 2N1616A/1 | 10 | 10 | NPN | F607 |
| 2N1616/1 | 10 | 15 | NPN | F607 |
| 2N1617 | 10 | 15 | NPN | F607 |
| 2N1617A | 1.0 | 15 | NPN | F607 |
| 2N1617A/1 | 10 | 10 | NPN | F607 |
| 2N1617/1 | 10 | 15 | NPN | F607 |
| 2N1618 | 10 | 15 | NPN | F607 |
| 2N1618A | 1.0 | 15 | NPN | F607 |
| 2N1618A/ | 10 | 10 | NPN | F607 |
| 2N1618/1 | 10 | 15 | NPN | F607 |
| 2N1620 | 10 | 15 | NPN | 1902 |
| 2N1620/1 | 10 | 15 | NPN | 1903 |
| 2N1622 | 7.0 | 40 | NPN | T05 |
| 2N1623 | 1.0 | 25 | PNP | T05 |
| 2N1624 | 1.0 | 120 | NPN | T05 |
| 2N1631 | 16 | 80 | PNP | T09 |
| 2N1632 | 16 | 80 | PNP | T09 |
| 2N1633 | 16 | 75 | PNP | T09 |
| 2N1634 | 16 | 75 | PNP | T09 |
| 2N1635 | 16 | 75 | PNP | T09 |
| 2N1636 | 16 | 75 | PNP | T09 |
| 2N1637 | 5.0 | 80 | PNP | T09 |
| 2N1637/33 | 5.0 | 80 | PNP | T033 |
| 2N1638 | 7.0 | 75 | PNP | T01 |
| 2N1638/33 | 7.0 | 75 | PNP | T033 |
| 2N1639 | 7.0 | 75 | PNP | T09 |
| 2N1639/33 | 7.0 | 75 | PNP | T033 |
| 2N1643 | .001 | 18 | PNP | T05 |
| 2N1644 | 1.0 | 75 | NPN | T05 |
| 2N1644A | 1.0 | 75 | NPN | T05 |
| 2N1646 | 100 | 20 | PNP | G718 |
| USAF 2N1646 | 3.0 | 20 | PNP | G718 |
| 2N1647 | .10 | 15 | NPN | F608 |
| 2N1648 | .10 | 15 | NPN | F608 |
| 2N1649 | .10 | 30 | NPN | F608 |
| 2N1650 | .10 | 30 | NPN | F608 |
| 2N1651 | 5.0 | 35 | PNP | T041 |
| USA 2N1651 | 5.0 | 35 | PNP | E521 |
| 2N1652 | 5.0 | 35 | PNP | T041 |
| USA 2N1652 | 5.0 | 35 | PNP | E521 |
| 2N1653 | 5.0 | 35 | PNP | T041 |
| USA 2N1653 | 5.0 | 35 | PNP | E521 |
| 2N1654 | 1.0 | 30 | PNP | T05 |
| 2N1655 | 1.0 | 15 | PNP | T05 |
| 2N1656 | 1.0 | 30 | PNP | T05 |
| 2N1658 | .50 | 30 | PNP | F615 |
| 2N1659 | .50 | 30 | PNP | F615 |
| 2N1666 | .10 | 15 | PNP | E502 |
| 2N1667 | .10 | | PNP | E502 |
| 2N1668 | .10 | | PNP | E502 |
| 2N1669 | .10 | | PNP | E502 |
| 2N1670 | 7.0 | 15 | PNP | T09 |
| 2N1672 | 25 | 50 | NPN | T05 |
| 2N1672A | | 20 | NPN | T05 |
| 2N1673 | 50 | 100 | PNP | T033 |
| 2N1674 | .50 | 50 | NPN | T05 |
| 2N1676 | .10 | 10.5 | PNP | T05 |
| 2N1677 | .10 | 50 | PNP | T05 |
| 2N1678 | 25 | 25 | PNP | T09 |
| 2N1681 | 25 | 75 | PNP | T05 |
| 2N1683 | 3.0 | 85 | PNP | T05 |
| 2N1690 | .015 | 20 | NPN | F603 |
| 2N1691 | .015 | 20 | NPN | F603 |
| 2N1692 | 10 | 10 | PNP | F626 |
| 2N1693 | 10 | 9. | PNP | F626 |
| 2N1694 | 1.5 | 25 | NPN | T05 |
| 2N1700 | 75 | 40 | NPN | T05 |
| 2N1701 | 100 | 20 | NPN | T08 |
| 2N1702 | 200 | 15 | NPN | E504 |
| 2N1703 | 200 | 15 | NPN | T036 |
| 2N1704 | .10 | 50 | NPN | T05 |
| 2N1705 | 10 | 110 | PNP | T05 |
| 2N1706 | 10 | 90 | PNP | T05 |
| 2N1707 | 15 | 95 | PNP | T05 |
| 2N1708 | .025 | 20 | NPN | T046 |
| 2N1708A | .025 | 30 | NPN | T046 |
| 2N1709 | .01 | 7.5 | NPN | T08 |
| 2N1710 | .05 | 7.5 | NPN | T08 |
| 2N1711 | .01 | 130 | NPN | T05 |
| USN 2N1711 | 10 | 100 | NPN | T05 |
| 2N1711A | .002 | 200 | NPN | T05 |
| 2N1711B | .002 | 50 | NPN | T05 |
| 2N1711/KVT | .01 | 130 | NPN | G723 |
| 2N1711/TNT | .01 | 130 | NPN | H812 |
| 2N1711/TPT | .01 | 130 | NPN | G724 |
| 2N1711/46 | .01 | 130 | NPN | T046 |
| 2N1711/51 | .01 | 130 | NPN | T051 |
| 2N1714 | 2.0 | 20 | NPN | T05 |
| USA 2N1714 | 2 | 20 | NPN | T05 |
| 2N1715 | 2.0 | 20 | NPN | T05 |
| USA 2N1715 | 2 | 20 | NPN | T05 |
| 2N1716 | 2.0 | 40 | NPN | T05 |
| USA 2N1716 | 2 | 40 | NPN | T05 |
| 2N1717 | 2.0 | 40 | NPN | T05 |
| USA 2N1717 | 2 | 40 | NPN | T05 |
| 2N1718 | .05 | 20 | NPN | F609 |
| 2N1719 | .05 | 20 | NPN | F609 |
| 2N1720 | .05 | | NPN | F609 |

| TYPE NO. | $I_{CBO}$ (μA) | $h_{fe}$ | PNP NPN | DWG. NO |
|---|---|---|---|---|
| 2N1721 | .05 | 40 | NPN | F609 |
| 2N1722 | 10 | 20 | NPN | TO53 |
| JAN 2N1722 | 10 | 30 | NPN | TO53 |
| 2N1722A | 10 | 20 | NPN | TO53 |
| 2N1722/1 | 10 | 90 | NPN | C303 |
| 2N1723 | 10 | 50 | NPN | TO53 |
| 2N1724 | 10 | 20 | NPN | F607 |
| JAN 2N1724 | 10 | 30 | NPN | F607 |
| 2N1724A | 10 | 20 | NPN | F607 |
| 2N1724/1 | | 20 | NPN | F307 |
| 2N1725 | 10 | 50 | NPN | F607 |
| 2N1726 | 10 | 90 | PNP | TO9 |
| 2N1727 | 10 | 20 | PNP | TO9 |
| 2N1728 | 10 | 40 | PNP | TO9 |
| 2N1742 | 10 | 33 | PNP | TO9 |
| 2N1743 | 10 | 33 | PNP | TO9 |
| 2N1744 | 10 | 33 | PNP | TO9 |
| 2N1745 | 10 | 10 | PNP | TO9 |
| 2N1746 | 10 | 60 | PNP | TO9 |
| 2N1747 | 10 | 60 | PNP | TO9 |
| 2N1748 | 10 | 30 | PNP | TO9 |
| 2N1748A | 10 | 70 | PNP | TO9 |
| 2N1749 | 100 | 45 | PNP | TO9 |
| 2N1751 | 5.0 | 30 | PNP | TO3 |
| 2N1752 | 10 | 30 | PNP | TO9 |
| 2N1754 | 100 | 50 | PNP | TO9 |
| 2N1755 | 3.0 | 30 | PNP | C307 |
| 2N1756 | 3.0 | 30 | PNP | C307 |
| 2N1757 | 3.0 | 30 | PNP | C307 |
| 2N1758 | 3.0 | 30 | PNP | C307 |
| 2N1759 | 3.0 | 60 | PNP | C307 |
| 2N1760 | 3.0 | 60 | PNP | C307 |
| 2N1761 | 3.0 | 60 | PNP | C307 |
| 2N1762 | 2.0 | 60 | PNP | C307 |
| 2N1768 | .015 | 35 | NPN | F603 |
| 2N1769 | .015 | 35 | NPN | F603 |
| 2N1785 | 10 | 40 | PNP | TO9 |
| 2N1786 | 10 | 15 | PNP | TO9 |
| 2N1787 | 10 | 25 | PNP | TO9 |
| 2N1788 | 5.0 | 90 | PNP | TO9 |
| 2N1789 | 7.0 | 20 | PNP | TO9 |
| 2N1790 | 7.0 | 40 | PNP | TO9 |
| 2N1808 | .50 | 125 | NPN | TO5 |
| 2N1809 | 10 | 10 | NPN | F610 |
| 2N1810 | 10 | 10 | NPN | F610 |
| 2N1811 | 10 | 10 | NPN | F610 |
| 2N1812 | 10 | 10 | NPN | F610 |
| 2N1813 | 10 | 10 | NPN | F610 |
| 2N1814 | 10 | 10 | NPN | F610 |
| 2N1816 | 10 | 14 | NPN | F610 |
| 2N1817 | 10 | 14 | NPN | F610 |
| 2N1818 | 10 | 14 | NPN | F610 |
| 2N1819 | 10 | 14 | NPN | F610 |
| 2N1823 | 10 | 10 | NPN | F610 |
| 2N1824 | 10 | 10 | NPN | F610 |
| 2N1825 | 10 | 10 | NPN | F610 |
| 2N1826 | 10 | 10 | NPN | F610 |
| 2N1830 | 10 | 10 | NPN | F610 |
| 2N1831 | 10 | 10 | NPN | F610 |
| 2N1832 | 10 | 10 | NPN | F613 |
| 2N1833 | 10 | 10 | NPN | F613 |
| 2N1837 | .50 | 9. | NPN | TO5 |
| 2N1837A | .50 | 7. | NPN | TO5 |
| 2N1838 | 1.5 | 90 | NPN | TO5 |
| 2N1839 | 1.5 | 9. | NPN | TO5 |
| 2N1840 | | 12 | NPN | TO5 |
| 2N1853 | 4.2 | 30 | PNP | TO5 |
| USN 2N1853 | 4.2 | 30 | PNP | TO5 |
| 2N1853/1A | 4.2 | 30 | PNP | TO18 |
| 2N1854 | 4.2 | 40 | PNP | TO5 |
| USN 2N1854 | 25 | 25 | PNP | TO5 |
| 2N1864 | 10 | 10 | PNP | TO9 |
| 2N1865 | 10 | 70 | PNP | TO9 |
| 2N1866 | 10 | 70 | PNP | TO9 |
| 2N1867 | 10 | 50 | PNP | TO9 |
| 2N1868 | 10 | 33 | PNP | TO9 |
| 2N1886 | .35 | 20 | NPN | F608 |
| 2N1889 | .01 | 75 | NPN | TO5 |
| 2N1890 | .01 | 130 | NPN | TO5 |
| USN 2N1890 | 10 | 100 | NPN | TO5 |
| 2N1891 | 5.0 | 25 | NPN | TO5 |
| 2N1893 | .01 | 80 | NPN | TO5 |
| USN 2N1893 | 10 | 45 | NPN | TO5 |
| 2N1893A | .01 | 30 | NPN | TO5 |
| 2N1893/KVT | .01 | 80 | NPN | G723 |
| 2N1893/TNT | .01 | 90 | NPN | H812 |
| 2N1893/TPT | .01 | 80 | NPN | G724 |
| 2N1893/46 | .01 | 80 | NPN | TO46 |
| 2N1893/51 | .01 | 80 | NPN | TO51 |
| 2N1899 | 25 | 10 | NPN | F635 |
| 2N1900 | 25 | 8. | NPN | F631 |
| 2N1901 | 25 | 20 | NPN | F635 |
| 2N1902 | 25 | 10 | NPN | F634 |
| 2N1903 | 25 | 9. | NPN | F635 |
| 2N1904 | 25 | 20 | NPN | F634 |
| 2N1905 | .50 | 90 | PNP | TO3 |
| 2N1906 | .50 | 75 | PNP | TO3 |
| 2N1907 | 10 | 20 | PNP | TO3 |
| 2N1908 | 10 | 20 | PNP | TO3 |
| 2N1917 | 2.5N | 50 | PNP | TO5 |
| 2N1918 | 2.5N | 50 | PNP | TO5 |
| 2N1919 | | | PNP | TO5 |
| 2N1920 | | | PNP | TO5 |
| 2N1921 | | | PNP | TO5 |
| 2N1922 | | | PNP | TO5 |
| 2N1924 | 10 | | PNP | TO5 |
| 2N1925 | 10 | 44 | PNP | TO5 |
| 2N1926 | 10 | 80 | PNP | TO5 |
| 2N1936 | 10 | 10 | NPN | F614 |
| 2N1937 | 10 | 10 | NPN | F614 |
| 2N1940 | .005 | 5. | PNP | F626 |
| 2N1943 | 10 | 12 | NPN | TO5 |
| 2N1944 | 1.0 | 300 | NPN | TO5 |
| 2N1945 | 1.0 | | NPN | TO5 |
| 2N1946 | 1.0 | 300 | NPN | TO5 |
| 2N1947 | 1.0 | 650 | NPN | TO5 |
| 2N1948 | 1.0 | 650 | NPN | TO5 |
| 2N1949 | 1.0 | 650 | NPN | TO5 |
| 2N1950 | 1.0 | 375 | NPN | TO5 |
| 2N1951 | 1.0 | 375 | NPN | TO5 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG NO |
|---|---|---|---|---|
| 2N1952 | | 375 | NPN | TO5 |
| 2N1953 | .70 | 15 | NPN | TO5 |
| 2N1954 | 20 | 75 | PNP | TO5 |
| 2N1955 | 20 | 125 | PNP | TO5 |
| 2N1956 | 20 | 75 | PNP | TO5 |
| 2N1957 | 20 | 75 | PNP | TO5 |
| 2N1958 | 100 | 40 | NPN | TO5 |
| 2N1958A | .20 | 15 | NPN | TO5 |
| 2N1958/18 | 100 | 40 | NPN | TO18 |
| 2N1959 | 100 | 80 | NPN | TO5 |
| 2N1959A | .20 | 25 | NPN | TO5 |
| 2N1959A/51 | .20 | 25 | NPN | TO51 |
| 2N1959/18 | 100 | 80 | NPN | TO18 |
| 2N1960 | 100 | 25 | PNP | A1 |
| 2N1960/46 | 100 | 25 | PNP | TO46 |
| 2N1961 | 100 | 20 | PNP | H801 |
| 2N1961/46 | 100 | 20 | PNP | TO46 |
| 2N1962 | 100 | 50 | NPN | H801 |
| 2N1962/46 | 100 | 50 | NPN | TO46 |
| 2N1963 | 100 | 25 | NPN | H801 |
| 2N1963/46 | 100 | 25 | NPN | TO46 |
| 2N1964 | 100 | 40 | NPN | H801 |
| 2N1964/46 | 10 | 3. | NPN | TO46 |
| 2N1965 | 100 | 80 | NPN | H801 |
| 2N1965/46 | 100 | 80 | NPN | TO46 |
| 2N1969 | 25 | 125 | PNP | TO5 |
| 2N1970 | 4.0 | 17 | PNP | TO36 |
| 2N1971 | 2.0 | 25 | PNP | E501 |
| 2N1972 | 1.0 | 110 | NPN | TO5 |
| 2N1973 | .025 | 125 | NPN | TO5 |
| 2N1974 | .025 | 65 | NPN | TO5 |
| 2N1975 | .025 | 38 | NPN | TO5 |
| 2N1978 | .10 | 30 | NPN | F621 |
| 2N1980 | 6.0 | 50 | PNP | TO36 |
| 2N1981 | 6.0 | 50 | PNP | TO36 |
| 2N1982 | 6.0 | 50 | PNP | TO36 |
| 2N1983 | 5.0 | 70 | NPN | TO5 |
| 2N1984 | 5.0 | 35 | NPN | TO5 |
| 2N1985 | 5.0 | 15 | NPN | TO5 |
| 2N1986 | 5.0 | 60 | NPN | TO5 |
| 2N1987 | 5.0 | 20 | NPN | TO5 |
| 2N1988 | 5.0 | 35 | NPN | TO5 |
| 2N1989 | 5.0 | 20 | NPN | TO5 |
| 2N1990 | | 20 | NPN | TO5 |
| 2N1991 | 5.0 | 15 | NPN | TO5 |
| 2N1993 | 10 | 50 | NPN | TO5 |
| 2N1997 | 25 | 70 | PNP | TO5 |
| 2N1998 | 25 | 95 | PNP | TO5 |
| 2N1999 | 25 | 150 | PNP | TO5 |
| 2N2000 | 100 | 175 | PNP | TO5 |
| 2N2001 | 100 | 60 | PNP | TO5 |
| 2N2002 | .001 | | PNP | TO5 |
| 2N2003 | .003 | | PNP | TO5 |
| 2N2004 | 50 | | PNP | TO5 |
| 2N2005 | 50 | | PNP | TO5 |
| 2N2006 | 50 | | PNP | TO5 |
| 2N2007 | .005 | | PNP | TO5 |
| 2N2008 | 2.0 | 65 | NPN | TO5 |
| 2N2015 | .05 | 15 | NPN | TO36 |
| 2N2017 | .01 | 35 | NPN | TO5 |
| 2N2018 | .10 | 20 | NPN | F608 |
| 2N2019 | .10 | 20 | NPN | F608 |
| 2N2020 | .10 | 40 | NPN | F608 |
| 2N2021 | .10 | 40 | NPN | F608 |
| 2N2032 | 20 | 20 | NPN | C302 |
| 2N2032/1 | 2.0 | 20 | NPN | C303 |
| 2N2033 | .025 | 20 | NPN | TO5 |
| 2N2034 | .025 | 20 | NPN | TO5 |
| 2N2035 | .025 | 15 | NPN | TO8 |
| 2N2036 | 10 | 15 | NPN | TO37 |
| 2N2038 | 15 | 12 | NPN | TO5 |
| 2N2039 | 15 | 12 | NPN | TO5 |
| 2N2040 | 15 | 30 | NPN | TO5 |
| 2N2041 | 15 | 30 | NPN | TO5 |
| 2N2042 | 25 | 80 | PNP | TO5 |
| 2N2042A | 25 | 80 | PNP | TO5 |
| 2N2043 | 25 | 180 | PNP | TO5 |
| 2N2043A | 25 | 180 | PNP | TO5 |
| 2N2048 | 100 | 125 | PNP | TO9 |
| 2N2048A | 25 | 40 | PNP | TO9 |
| 2N2049 | .01 | 60 | NPN | TO5 |
| 2N2060 | | | | |
| USN 2N2060 | | | | |
| 2N2060A | | | | |
| 2N2061 | 10 | 10 | PNP | TO3 |
| 2N2061A | 2.0 | 20 | PNP | TO3 |
| 2N2062 | 10 | 20 | PNP | TO3 |
| 2N2062A | 2.0 | 50 | PNP | TO3 |
| 2N2063 | 20 | 10 | PNP | TO3 |
| 2N2063A | 2.0 | 20 | PNP | TO3 |
| 2N2064 | 20 | 20 | PNP | TO3 |
| 2N2064A | 2.0 | 50 | PNP | TO3 |
| 2N2065 | 20 | 10 | PNP | TO3 |
| 2N2065A | 5.0 | 20 | PNP | TO3 |
| 2N2066 | 20 | 20 | PNP | TO3 |
| 2N2066A | 5.0 | 50 | PNP | TO3 |
| 2N2067 | 3.0 | 20 | PNP | C307 |
| 2N2067B | 3.0 | 15 | PNP | C307 |
| 2N2067G | 3.0 | 25 | PNP | C307 |
| 2N2067W | 3.0 | 33 | PNP | C307 |
| 2N2068 | 3.0 | 20 | PNP | C307 |
| 2N2068G | 3.0 | 25 | PNP | C307 |
| 2N2068-3 | 3.0 | 20 | PNP | C307 |
| 2N2075 | 4.0 | 20 | PNP | TO36 |
| 2N2075A | 4.0 | 20 | PNP | TO36 |
| 2N2076 | 4.0 | 20 | PNP | TO36 |
| 2N2076A | 4.0 | 20 | PNP | TO36 |
| 2N2077 | 4.0 | 20 | PNP | TO36 |
| 2N2077A | 4.0 | 20 | PNP | TO36 |
| 2N2078 | 4.0 | 20 | PNP | TO36 |
| 2N2078A | 4.0 | 20 | PNP | TO36 |
| 2N2079 | 4.0 | 35 | PNP | TO36 |
| 2N2079A | 4.0 | 35 | PNP | TO36 |
| 2N2080 | 4.0 | 35 | PNP | TO36 |
| 2N2080A | 4.0 | 35 | PNP | TO36 |
| 2N2081 | 4.0 | 35 | PNP | TO36 |
| 2N2081A | 4.0 | 35 | PNP | TO36 |
| 2N2082 | 4.0 | 35 | PNP | TO36 |
| 2N2082A | 4.0 | 35 | PNP | TO36 |
| 2N2084 | 8.0 | 40 | PNP | TO33 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO |
|---|---|---|---|---|
| JSN 2N2084 | 50 | 40 | PNP | TO33 |
| 2N2085 | 5.0 | 100 | NPN | TO5 |
| 2N2086 | 2.0 | 20 | NPN | TO5 |
| 2N2087 | 100 | 65 | NPN | TO5 |
| 2N2089 | 8.0 | 150 | PNP | TO7 |
| 2N2090 | 8.0 | 40 | PNP | TO7 |
| 2N2091 | 8.0 | 40 | PNP | TO7 |
| 2N2092 | 8.0 | 150 | PNP | TO7 |
| 2N2094 | .02 | 25 | NPN | TO5 |
| 2N2094A | .01 | 40 | NPN | TO5 |
| 2N2095 | 15 | | PNP | TO31 |
| 2N2095A | .01 | 100 | NPN | TO5 |
| 2N2096 | 12 | 40 | PNP | TO31 |
| 2N2096A | .01 | 40 | NPN | TO18 |
| 2N2097 | 12 | 70 | PNP | TO31 |
| 2N2097A | .01 | 100 | NPN | TO18 |
| 2N2098 | 15 | | PNP | TO9 |
| 2N2099 | 12 | 40 | PNP | TO9 |
| 2N2100 | 12 | 70 | PNP | TO9 |
| 2N2101 | | 15 | NPN | F607 |
| 2N2102 | .002 | 40 | NPN | TO5 |
| 2N2102A | .002 | 40 | NPN | TO5 |
| 2N2104 | .025 | 60 | PNP | TO5 |
| 2N2105 | .025 | 33 | PNP | TO5 |
| 2N2106 | .20 | 12 | NPN | TO5 |
| 2N2107 | | 30 | NPN | TO5 |
| 2N2108 | | 75 | NPN | TO5 |
| 2N2109 | 10 | 10 | NPN | F613 |
| 2N2110 | 10 | 10 | NPN | F613 |
| 2N2111 | 10 | 10 | NPN | F613 |
| 2N2112 | 10 | 10 | NPN | F613 |
| 2N2113 | 10 | 10 | NPN | F613 |
| 2N2114 | 10 | 10 | NPN | F613 |
| 2N2116 | 10 | 10 | NPN | F613 |
| 2N2117 | 10 | 10 | NPN | F613 |
| 2N2118 | 10 | 10 | NPN | F613 |
| 2N2119 | 10 | 10 | NPN | F613 |
| 2N2123 | 10 | 10 | NPN | F613 |
| 2N2124 | 10 | 10 | NPN | F613 |
| 2N2125 | 10 | 10 | NPN | F613 |
| 2N2126 | 10 | 10 | NPN | F601 |
| 2N2130 | 10 | 10 | NPN | F613 |
| 2N2131 | 10 | 10 | NPN | F613 |
| 2N2132 | 10 | 10 | NPN | F613 |
| 2N2133 | 10 | 10 | NPN | F613 |
| 2N2137 | 2.0 | 10 | PNP | TO3 |
| 2N2137A | 2.0 | 30 | PNP | TO3 |
| 2N2138 | 2.0 | 30 | PNP | TO3 |
| 2N2138A | 2.0 | 30 | PNP | TO3 |
| 2N2139 | 2.0 | 30 | PNP | TO3 |
| 2N2139A | 2.0 | 30 | PNP | TO3 |
| 2N2140 | 2.0 | 30 | PNP | TO3 |
| 2N2140A | 2.0 | 30 | PNP | TO3 |
| 2N2141 | 2.0 | 30 | PNP | TO3 |
| 2N2141A | 2.0 | 30 | PNP | TO3 |
| 2N2142 | 2.0 | 50 | PNP | TO3 |
| 2N2142A | 2.0 | 50 | PNP | TO3 |
| 2N2143 | 2.0 | 50 | PNP | TO3 |
| 2N2143A | 2.0 | 50 | PNP | TO3 |
| 2N2144 | 2.0 | 40 | PNP | TO3 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|
| 2N2144A | 2.0 | 50 | PNP | TO3 |
| 2N2145 | 2.0 | 50 | PNP | TO3 |
| 2N2145A | 2.0 | 50 | PNP | TO3 |
| 2N2146 | 2.0 | 50 | PNP | TO3 |
| 2N2146A | 2.0 | 50 | PNP | TO3 |
| 2N2147 | 1.0 | 100 | PNP | TO3 |
| 2N2148 | 1.0 | 40 | PNP | TO3 |
| 2N2150 | .01 | 20 | NPN | F617 |
| JSA 2N2150 | .50 | 20 | NPN | F617 |
| 2N2151 | .01 | 40 | NPN | F617 |
| JSA 2N2151 | .50 | 40 | NPN | F617 |
| 2N2152 | 4.0 | 50 | PNP | TO36 |
| 2N2152A | 4.0 | 50 | PNP | TO36 |
| 2N2153 | 4.0 | 50 | PNP | TO36 |
| 2N2153A | 4.0 | 50 | PNP | TO36 |
| 2N2154 | 4.0 | 50 | PNP | TO36 |
| 2N2154A | 4.0 | 50 | PNP | TO36 |
| 2N2155 | 4.0 | 50 | PNP | TO36 |
| 2N2155A | 4.0 | 15 | PNP | TO36 |
| 2N2156 | 4.0 | 80 | PNP | TO36 |
| 2N2156A | 4.0 | 80 | PNP | TO36 |
| 2N2157 | 4.0 | 80 | PNP | TO36 |
| 2N2157A | 4.0 | 80 | PNP | TO36 |
| 2N2158 | 4.0 | 80 | PNP | TO36 |
| 2N2158A | 4.0 | 80 | PNP | TO36 |
| 2N2159 | 4.0 | 80 | PNP | TO36 |
| 2N2159A | 4.0 | 15 | PNP | TO36 |
| 2N2162 | .01 | 35 | PNP | TO5 |
| 2N2163 | .01 | 35 | PNP | TO5 |
| 2N2164 | .02 | 40 | PNP | TO5 |
| 2N2165 | .02 | 25 | PNP | TO5 |
| 2N2166 | .02 | 25 | PNP | TO5 |
| 2N2167 | .02 | 38 | PNP | TO5 |
| 2N2168 | 3.0 | 100 | PNP | TO9 |
| 2N2169 | 3.0 | 85 | PNP | TO9 |
| 2N2170 | 5.0 | 70 | PNP | TO9 |
| 2N2171 | 10 | 210 | PNP | TO5 |
| 2N2172 | 6.0 | 65 | PNP | TO5 |
| 2N2173 | 100 | 30 | PNP | TO5 |
| 2N2175 | .001 | 50 | PNP | TO5 |
| 2N2176 | .001 | 90 | PNP | TO18 |
| 2N2177 | | 50 | PNP | TO5 |
| 2N2178 | .001 | 50 | PNP | TO18 |
| 2N2185 | 1.0 | 10 | PNP | TO18 |
| 2N2186 | 1.0 | 10 | PNP | TO18 |
| 2N2187 | 1.0 | 10 | PNP | TO18 |
| 2N2188 | 50 | 90 | PNP | 8228 |
| 2N2189 | 50 | 135 | PNP | 8228 |
| 2N2190 | 50 | 90 | PNP | 8228 |
| 2N2191 | 50 | 135 | PNP | 8228 |
| 2N2192 | .01 | 150 | NPN | TO5 |
| 2N2192A | .01 | 150 | NPN | TO5 |
| 2N2192B | .01 | 75 | NPN | TO5 |
| 2N2193 | .01 | 80 | NPN | TO5 |
| 2N2193A | .01 | 80 | NPN | TO5 |
| 2N2193B | .01 | 30 | NPN | TO5 |
| 2N2194 | .01 | 40 | NPN | TO5 |
| 2N2194A | .01 | 40 | NPN | TO5 |
| 2N2194B | .01 | 40 | NPN | TO5 |
| 2N2195 | | 20 | NPN | TO5 |

| TYPE NO. | $I_{CBO}$ | $h_{fe}$ | PNP-NPN | DWG. NO |
|---|---|---|---|---|
| 2N2195A | .01 | 20 | NPN | TO5 |
| 2N2195B | .01 | 20 | NPN | TO5 |
| 2N2196 | 75 | 30 | NPN | MD14 |
| 2N2197 | 75 | 75 | NPN | MD14 |
| 2N2198 | 15 | 45 | NPN | TO5 |
| 2N2201 | | 30 | NPN | E509 |
| 2N2202 | .05 | 30 | NPN | B229 |
| 2N2203 | .05 | 30 | NPN | B230 |
| 2N2204 | .05 | 30 | NPN | F615 |
| 2N2205 | .025 | 20 | NPN | TO18 |
| 2N2206 | .025 | 90 | NPN | TO46 |
| 2N2207 | | 200 | PNP | TO7 |
| 2N2210 | 4.0 | 25 | PNP | TO36 |
| USA 2N2210 | 4.0 | 25 | PNP | TO36 |
| 2N2212 | 2.0 | 50 | PNP | TO41 |
| 2N2216 | .01 | 73 | PNP | TO5 |
| 2N2217 | .01 | 40 | NPN | TO5 |
| 2N2217/51 | .01 | 40 | NPN | TO51 |
| 2N2218 | .01 | 80 | NPN | TO5 |
| USA 2N2218 | .01 | 20 | NPN | TO5 |
| 2N2218A | .01 | 40 | NPN | TO5 |
| 2N2218/TNT | .01 | 80 | NPN | H812 |
| 2N2218/TPT | .01 | 80 | NPN | G724 |
| 2N2218/51 | .01 | 80 | NPN | TO51 |
| 2N2219 | .01 | 150 | NPN | TO5 |
| USA 2N2219 | .01 | 30 | NPN | TO5 |
| 2N2219A | .01 | 100 | NPN | TO5 |
| 2N2219/TNT | .01 | 150 | NPN | H812 |
| 2N2219/TPT | .01 | 150 | NPN | G724 |
| 2N2219/51 | .01 | 150 | NPN | TO51 |
| 2N2220 | .01 | 40 | NPN | TO18 |
| 2N2221 | .01 | 80 | NPN | TO18 |
| USA 2N2221 | .01 | 40 | NPN | TO18 |
| 2N2221A | .01 | 20 | NPN | TO18 |
| 2N2222 | .01 | 150 | NPN | TO18 |
| USA 2N2222 | .01 | 30 | NPN | TO18 |
| 2N2222A | .01 | 100 | NPN | TO18 |
| 2N2223 | | | | |
| 2N2223A | | | | |
| 2N2226 | | 100 | NPN | F601 |
| 2N2227 | | 100 | NPN | F601 |
| 2N2228 | | 100 | NPN | F601 |
| 2N2229 | 10 | 100 | NPN | F601 |
| 2N2230 | | 400 | NPN | F601 |
| 2N2231 | | 400 | NPN | F601 |
| 2N2232 | | 400 | NPN | F601 |
| 2N2233 | 10 | 400 | NPN | F601 |
| 2N2234 | 1.0 | 15 | NPN | TO3 |
| 2N2235 | 1.0 | 40 | NPN | TO3 |
| 2N2236 | .05 | 35 | NPN | TO5 |
| 2N2237 | .05 | 65 | NPN | TO5 |
| 2N2239 | 10 | 50 | NPN | TO37 |
| 2N2240 | .025 | 40 | NPN | TO5 |
| 2N2241 | .025 | 100 | NPN | TO5 |
| 2N2242 | .10 | 80 | NPN | TO18 |
| 2N2243 | .01 | 80 | NPN | TO5 |
| 2N2243A | .01 | 80 | NPN | TO5 |
| 2N2244 | .01 | 10 | NPN | TO18 |
| 2N2245 | .01 | 20 | NPN | TO18 |
| 2N2246 | .01 | 40 | NPN | TO18 |

| TYPE NO | $I_{CBO}$ ($\mu$A) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|
| 2N2247 | .01 | 10 | NPN | TO18 |
| 2N2248 | .01 | 20 | NPN | TO18 |
| 2N2249 | .01 | 40 | NPN | TO18 |
| 2N2250 | .01 | 10 | NPN | TO18 |
| 2N2251 | .01 | 20 | NPN | TO18 |
| 2N2252 | .01 | 40 | NPN | TO18 |
| 2N2253 | .01 | 10 | NPN | TO18 |
| 2N2254 | .01 | 20 | NPN | TO18 |
| 2N2255 | .01 | 40 | NPN | TO18 |
| 2N2256 | 10 | 30 | NPN | TO18 |
| 2N2257 | 10 | 50 | NPN | TO18 |
| 2N2258 | 10 | 30 | NPN | TO18 |
| 2N2259 | 10 | 50 | PNP | TO18 |
| 2N2266 | 2.0 | 25 | PNP | F632 |
| 2N2267 | 2.0 | 25 | PNP | F632 |
| 2N2268 | 2.0 | 25 | PNP | F632 |
| 2N2269 | 2.0 | 25 | PNP | F632 |
| 2N2270 | .10 | 50 | NPN | TO5 |
| 2N2271 | 500 | 75 | PNP | TO5 |
| 2N2273 | 100 | 20 | PNP | TO18 |
| USA 2N2273 | 10 | 20 | PNP | TO18 |
| 2N2274 | 3.0 | 10 | PNP | TO18 |
| 2N2275 | 3.0 | 10 | PNP | TO18 |
| 2N2276 | 3.0 | 10 | PNP | TO18 |
| 2N2277 | 3.0 | 10 | PNP | TO18 |
| 2N2278 | 1.0 | 10 | PNP | TO18 |
| 2N2279 | 1.0 | 10 | PNP | TO18 |
| 2N2280 | 3.0 | 10 | PNP | TO18 |
| 2N2281 | 3.0 | 10 | PNP | TO18 |
| 2N2282 | .05 | 30 | PNP | TO37 |
| 2N2283 | .05 | 30 | PNP | TO37 |
| 2N2284 | .05 | 30 | PNP | TO37 |
| 2N2285 | 5.0 | 35 | PNP | TO3 |
| 2N2286 | 5.0 | 35 | PNP | TO3 |
| 2N2287 | 5.0 | 35 | PNP | TO3 |
| 2N2288 | 1.0 | 20 | PNP | TO3 |
| 2N2289 | 1.0 | 20 | PNP | TO3 |
| 2N2290 | 2.0 | 20 | PNP | TO3 |
| 2N2291 | 1.0 | 50 | PNP | TO3 |
| 2N2292 | 1.0 | 50 | PNP | TO3 |
| 2N2293 | 2.0 | 50 | PNP | TO3 |
| 2N2294 | 1.0 | 50 | PNP | TO41 |
| 2N2295 | 1.0 | 50 | PNP | TO41 |
| 2N2296 | 2.0 | 50 | PNP | TO41 |
| 2N2297 | .01 | 40 | PNP | TO5 |
| 2N2297/51 | .50 | 20 | NPN | TO5 |
| 2N2303 | 1.0 | 75 | PNP | TO5 |
| 2N2303/KVT | 1.0 | 75 | PNP | G723 |
| 2N2303/TNT | 1.0 | 75 | PNP | H812 |
| 2N2303/TPT | 1.0 | 75 | PNP | G724 |
| 2N2303/46 | 1.0 | 75 | PNP | TO46 |
| 2N2303/51 | 1.0 | 75 | PNP | TO51 |
| 2N2304 | .10 | 20 | NPN | TO8 |
| 2N2305 | .20 | 15 | NPN | TO3 |
| 2N2308 | .05 | 20 | NPN | TO8 |
| 2N2309 | .005 | 50 | NPN | TO5 |
| 2N2310 | 10 | 20 | NPN | TO46 |
| 2N2311 | 10 | 20 | NPN | TO46 |
| 2N2312 | 10 | 60 | NPN | TO46 |
| 2N2313 | 10 | 60 | NPN | TO46 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO |
|---|---|---|---|---|
| 2N2314 | 1.0 | 45 | NPN | TO46 |
| 2N2315 | 1.0 | 70 | NPN | TO46 |
| 2N2316 | 100 | 70 | NPN | TO5 |
| 2N2317 | .01 | 80 | NPN | TO46 |
| 2N2318 | 1.0 | 40 | NPN | TO18 |
| 2N2319 | 1.0 | 40 | NPN | TO46 |
| 2N2320 | 1.0 | 40 | NPN | TO5 |
| 2N2330 | .10 | 80 | NPN | TO5 |
| 2N2331 | .001 | 50 | NPN | TO18 |
| 2N2332 | 50 | | PNP | TO18 |
| 2N2333 | 50 | | PNP | TO18 |
| 2N2334 | 50 | | PNP | TO18 |
| 2N2335 | 50 | | PNP | TO18 |
| 2N2336 | 50 | | PNP | TO18 |
| 2N2337 | 50 | | PNP | TO18 |
| 2N2338 | .20 | 15 | NPN | TO26 |
| 2N2339 | .10 | 20 | NPN | F603 |
| 2N2349 | 1.0 | 120 | NPN | TO5 |
| 2N2350 | .01 | 100 | NPN | TO46 |
| 2N2350A | .01 | 100 | NPN | TO46 |
| 2N2351 | .01 | 40 | NPN | TO46 |
| 2N2351A | .01 | 40 | NPN | TO46 |
| 2N2352 | .01 | 20 | NPN | TO46 |
| 2N2352A | .01 | 20 | NPN | TO46 |
| 2N2353 | .10 | 20 | NPN | TO46 |
| 2N2353A | .10 | 20 | NPN | TO46 |
| 2N2354 | 50 | 50 | NPN | TO22 |
| 2N2356 | 100 | | NPN | J1006 |
| 2N2356A | 100 | | NPN | J1006 |
| 2N2357 | 5.0 | 30 | PNP | TO41 |
| 2N2358 | 5.0 | 30 | PNP | TO41 |
| 2N2359 | 5.0 | 30 | PNP | TO41 |
| 2N2360 | 10 | 33 | PNP | TO12 |
| 2N2361 | 10 | 33 | PNP | TO12 |
| 2N2362 | 10 | 33 | PNP | TO12 |
| 2N2364 | .01 | 40 | PNP | TO46 |
| 2N2364A | .01 | 40 | PNP | TO46 |
| 2N2368 | .0 | 40 | NPN | TO18 |
| 2N2368/51 | .40 | 40 | NPN | TO51 |
| 2N2369 | .40 | 80 | NPN | TO18 |
| 2N2369A | .40 | 40 | NPN | TO18 |
| 2N2369/KVT | .40 | 80 | NPN | G723 |
| 2N2369/TNT | .40 | 80 | NPN | H812 |
| 2N2369/TPT | .40 | 80 | NPN | G724 |
| 2N2369/46 | .40 | 80 | NPN | TO46 |
| 2N2369/51 | .40 | 80 | NPN | TO51 |
| 2N2370 | 50 | 15 | PNP | TO5 |
| 2N2371 | 50 | 20 | PNP | TO5 |
| 2N2372 | 50 | 15 | PNP | TO18 |
| 2N2373 | 50 | 20 | PNP | TO18 |
| 2N2374 | 100 | 140 | PNP | TO5 |
| 2N2375 | 100 | 75 | PNP | TO5 |
| 2N2376 | 100 | 75 | PNP | TO5 |
| 2N2377 | 1.0 | 15 | PNP | TO18 |
| 2N2378 | .10 | 25 | PNP | TO18 |
| USA 2N2378 | .10 | 15 | PNP | TO18 |
| 2N2380 | 100 | 20 | NPN | TO5 |
| 2N2381 | 7.0 | 40 | PNP | TO5 |
| 2N2382 | 7.0 | 40 | PNP | TO5 |
| 2N2383 | 1.0 | 25 | PNP | C303 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO |
|---|---|---|---|---|
| 2N2384 | 1.0 | 25 | PNP | F607 |
| 2N2387 | .10 | 25 | PNP | TO18 |
| 2N2388 | .01 | 150 | NPN | H818 |
| 2N2389 | .01 | 35 | NPN | H818 |
| 2N2390 | .01 | 70 | NPN | H818 |
| 2N2393 | 1.0 | 15 | PNP | H818 |
| 2N2394 | 1.0 | 25 | PNP | H818 |
| 2N2395 | .01 | 20 | NPN | H818 |
| 2N2396 | .01 | 40 | NPN | H818 |
| 2N2397 | .10 | 25 | NPN | TO51 |
| 2N2398 | 1 | 33 | PNP | TO12 |
| 2N2399 | 10 | 33 | PNP | TO12 |
| 2N2400 | | 60 | PNP | TO18 |
| 2N2401 | 100 | 90 | PNP | TO18 |
| 2N2402 | 20 | 170 | PNP | TO18 |
| 2N2405 | .01 | 60 | NPN | TO5 |
| 2N2410 | 100 | 75 | NPN | TO5 |
| 2N2411 | .01 | 35 | PNP | TO18 |
| 2N2412 | .01 | 55 | PNP | TO18 |
| 2N2413 | 10 | 75 | NPN | TO18 |
| 2N2414 | | | | |
| 2N2415 | 5.0 | 45 | PNP | TO18 |
| 2N2416 | 5.0 | 30 | PNP | TO18 |
| 2N2423 | 5.0 | 20 | PNP | TO3 |
| 2N2424 | .10 | 70 | PNP | TO5 |
| 2N2425 | .10 | 25 | PNP | TO5 |
| 2N2427 | .50 | 20 | NPN | TO18 |
| 2N2429 | 10 | 120 | PNP | TO1 |
| 2N2430 | 10 | 100 | NPN | TO1 |
| 2N2431 | 10 | 90 | PNP | TO1 |
| 2N2432 | 10 | 50 | NPN | TO18 |
| 2N2433 | 1 N | 90 | NPN | TO46 |
| 2N2434 | 1 N | 180 | NPN | TO46 |
| 2N2435 | 1 N | 85 | NPN | TO46 |
| 2N2436 | 1 N | 180 | NPN | TO46 |
| 2N2437 | 1 N | 10 | NPN | TO46 |
| 2N2438 | 1 N | 70 | NPN | TO46 |
| 2N2439 | 1 N | 140 | NPN | TO46 |
| 2N2440 | 1 N | 180 | NPN | TO5 |
| 2N2441 | .01 | 50 | NPN | TO5 |
| 2N2444 | 1.0 | 35 | NPN | TO3 |
| 2N2445 | 3.0 | 20 | NPN | TO41 |
| 2N2447 | 10 | 65 | PNP | H806 |
| 2N2448 | 10 | 65 | PNP | H807 |
| 2N2449 | 10 | 125 | PNP | H806 |
| 2N2450 | 10 | 125 | PNP | H807 |
| 2N2451 | 5.0 | 25 | PNP | TO2a |
| 2N2453 | | | | |
| 2N2453a | | | | |
| 2N2455 | 100 | 62 | PNP | TO5 |
| 2N2456 | 100 | 50 | PNP | TO18 |
| 2N2457 | 2 N | 40 | NPN | TO46 |
| 2N2460 | 2 N | 70 | NPN | TO46 |
| 2N2461 | 2 N | 120 | NPN | TO46 |
| 2N2462 | 2 N | 170 | NPN | TO46 |
| 2N2463 | | 40 | NPN | TO18 |
| 2N2464 | | 70 | NPN | TO18 |
| 2N2465 | | 120 | NPN | TO18 |
| 2N2466 | | 170 | NPN | TO18 |
| 2N2467 | .10 | 15 | PNP | TO18 |

| TYPE NO. | $I_{CBO}$ (μA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|
| 2N2468 | .10 | 30 | PNP | B234 |
| 2N2469 | .15 | 30 | PNP | B234 |
| 2N2474 | | | | T05 |
| 2N2475 | 10 | 50 | NPN | B244 |
| 2N2475/46 | 10 | 50 | NPN | T046 |
| 2N2475/51 | 10 | 50 | NPN | T051 |
| 2N2476 | 10 | 20 | NPN | T05 |
| 2N2477 | 10 | 40 | NPN | T05 |
| 2N2478 | 2.0 | 30 | NPN | T05 |
| 2N2479 | 4.0 | 30 | NPN | T05 |
| 2N2481 | | 40 | NPN | T018 |
| USN 2N2481 | .05 | 40 | NPN | T018 |
| 2N2482 | 100 | 25 | NPN | T018 |
| 2N2483 | .01 | 40 | NPN | T018 |
| 2N2484 | .01 | 100 | NPN | T018 |
| 2N2485 | 1.0 | 10 | NPN | T05 |
| 2N2486 | 1.0 | 10 | NPN | T05 |
| 2N2487 | 3.0 | 20 | PNP | T018 |
| 2N2488 | 3.0 | 20 | PNP | T018 |
| 2N2489 | 2.5 | 20 | PNP | T018 |
| 2N2490 | 3.0 | 20 | PNP | T036 |
| 2N2491 | 3.0 | 35 | PNP | T036 |
| 2N2492 | 2.0 | 25 | PNP | T036 |
| 2N2493 | 3.0 | 25 | PNP | T036 |
| 2N2494 | 50 | 70 | PNP | T07 |
| 2N2495 | 50 | 70 | PNP | T012 |
| 2N2496 | 50 | 70 | PNP | T012 |
| 2N2501 | | 150 | NPN | T018 |
| 2N2509 | 10 | 40 | NPN | T018 |
| 2N2510 | 10 | 150 | NPN | T018 |
| 2N2511 | 10 | 240 | NPN | T018 |
| 2N2512 | 5.0 | 200 | PNP | T037 |
| 2N2515 | 5.N | 40 | NPN | T046 |
| 2N2516 | 5.N | 80 | NPN | T046 |
| 2N2518 | 5.N | 40 | NPN | T046 |
| 2N2519 | 5.N | 80 | NPN | T046 |
| 2N2520 | 5.N | 18 | NPN | T046 |
| 2N2521 | 5.N | 36 | NPN | T046 |
| 2N2522 | 5.N | 76 | NPN | T046 |
| 2N2523 | 2.N | 60 | NPN | T046 |
| 2N2524 | 2.N | 150 | NPN | T046 |
| 2N2525 | | 10 | NPN | F635 |
| 2N2526 | 3.0 | 20 | PNP | T03 |
| 2N2527 | 3.0 | 20 | PNP | T03 |
| 2N2528 | 3.0 | 20 | PNP | T03 |
| 2N2529 | .05 | 18 | NPN | T018 |
| 2N2530 | .05 | 30 | NPN | T018 |
| 2N2531 | .05 | 60 | NPN | T018 |
| 2N2532 | .05 | 150 | NPN | T018 |
| 2N2533 | .05 | 35 | NPN | T018 |
| 2N2534 | .05 | 100 | NPN | T018 |
| 2N2535 | .25 | 40 | PNP | F639 |
| 2N2536 | .25 | 40 | PNP | F639 |
| 2N2537 | .25 | 150 | NPN | T05 |
| 2N2538 | .25 | 300 | NPN | T05 |
| 2N2539 | .25 | 150 | NPN | T018 |
| 2N2540 | .25 | 300 | NPN | T018 |
| 2N2551 | .10 | 15 | NPN | T05 |
| 2N2552 | .125 | 20 | PNP | F623 |
| 2N2553 | .125 | 20 | PNP | F623 |
| JAN 2N2553 | .07 | 20 | PNP | F623 |
| 2N2554 | .125 | 20 | PNP | F623 |
| 2N2555 | .125 | 20 | PNP | F623 |
| JAN 2N2555 | .07 | 20 | PNP | F623 |
| 2N2556 | .125 | 20 | PNP | F624 |
| 2N2557 | .125 | 20 | PNP | F624 |
| JAN 2N2557 | .07 | 20 | PNP | F624 |
| 2N2558 | .125 | 20 | PNP | F624 |
| 2N2559 | .125 | 20 | PNP | F624 |
| JAN 2N2559 | .07 | 20 | PNP | F624 |
| 2N2560 | .125 | 20 | PNP | F623 |
| 2N2561 | .125 | 20 | PNP | F623 |
| 2N2562 | .125 | 20 | PNP | F623 |
| 2N2563 | .125 | 20 | PNP | F623 |
| 2N2564 | 125 | 20 | PNP | B243 |
| 2N2564/5 | .65 | 20 | PNP | T05 |
| 2N2565 | 125 | 20 | PNP | B243 |
| 2N2565/5 | .65 | 20 | PNP | T05 |
| 2N2566 | 125 | 20 | PNP | B243 |
| 2N2566/5 | .65 | 20 | PNP | T05 |
| 2N2567 | 125 | 20 | PNP | B243 |
| 2N2567/5 | .65 | 20 | PNP | T05 |
| 2N2569 | 100 | 100 | NPN | |
| 2N2570 | 100 | 100 | NPN | |
| 2N2580 | | 10 | NPN | T036 |
| 2N2581 | | 25 | NPN | T036 |
| 2N2582 | | 10 | NPN | T036 |
| 2N2583 | | 25 | NPN | T036 |
| 2N2586 | .002 | 80 | NPN | T018 |
| 2N2590 | 25.N | 40 | PNP | T046 |
| 2N2591 | 25.N | 70 | PNP | T046 |
| 2N2592 | 25.N | 115 | PNP | T046 |
| 2N2593 | 25.N | 160 | PNP | T046 |
| 2N2594 | .10 | 50 | NPN | T05 |
| 2N2594/TNT | .40 | 80 | NPN | H812 |
| 2N2594/TPT | .40 | 80 | NPN | G724 |
| 2N2595 | 25.N | 20 | PNP | T046 |
| 2N2596 | 25.N | 40 | PNP | T046 |
| 2N2597 | 25.N | 80 | PNP | T046 |
| 2N2598 | 25.N | 20 | PNP | T046 |
| 2N2599 | 25.N | 40 | PNP | T046 |
| 2N2599A | .025 | 75 | PNP | T046 |
| 2N2600 | 25.N | 80 | PNP | T046 |
| 2N2600A | .025 | 150 | PNP | T046 |
| 2N2601 | 25.N | 18 | PNP | T046 |
| 2N2602 | 25.N | 36 | PNP | T046 |
| 2N2603 | 25.N | 76 | PNP | T046 |
| 2N2604 | 10.N | 60 | PNP | T046 |
| 2N2605 | 10.N | 150 | PNP | T046 |
| 2N2610 | 2.0 | 9. | NPN | A107 |
| 2N2611 | .05 | 12 | NPN | E509 |
| 2N2613 | 5.0 | 120 | PNP | T01 |
| 2N2614 | 5.0 | 100 | PNP | T01 |
| 2N2615 | .001 | 20 | NPN | T018 |
| 2N2616 | .01 | 50 | NPN | T018 |
| 2N2617 | .10 | 25 | PNP | B205 |
| 2N2618 | .25 | 30 | NPN | T05 |
| 2N2618/46 | .25 | 30 | NPN | T046 |
| 2N2630 | 5.0 | 25 | PNP | T018 |
| 2N2631 | .01 | 7.5 | NPN | T08 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO |
|---|---|---|---|---|
| USN 2N2631 | .100 | 30 | NPN | TO5 |
| 2N2632 | .1U | 40 | NPN | F620 |
| 2N2633 | .1U | 40 | NPN | F620 |
| 2N2634 | .1U | 40 | NPN | F620 |
| 2N2635 | | 45 | PNP | TO18 |
| 2N2636 | 10 | 35 | PNP | TO41 |
| 2N2637 | 10 | 35 | PNP | TO41 |
| 2N2638 | 10 | 35 | PNP | TO41 |
| 2N2639 | | | | |
| 2N2640 | | | | |
| 2N2641 | | | | |
| 2N2642 | | | | |
| 2N2643 | | | | |
| 2N2644 | | | | |
| 2N2645 | .01 | 100 | NPN | TO18 |
| 2N2648 | 100 | 200 | PNP | TO5 |
| 2N2649 | 1.0 | 10 | NPN | TO5 |
| 2N2650 | 1.0 | 10 | NPN | TO5 |
| 2N2651 | 10 | 25 | NPN | TO18 |
| 2N2652 | | | | |
| 2N2652A | | | | |
| 2N2654 | 8.0 | 50 | PNP | TO12 |
| 2N2656 | .50 | 40 | NPN | TO18 |
| 2N2657 | .1U | 40 | NPN | TO5 |
| 2N2658 | .1U | 40 | NPN | TO5 |
| 2N2659 | .125 | 30 | PNP | B243 |
| 2N2660 | .125 | 30 | PNP | B243 |
| 2N2661 | .125 | 30 | PNP | B243 |
| 2N2662 | .125 | 30 | PNP | B243 |
| 2N2663 | .125 | 30 | PNP | B243 |
| 2N2664 | .125 | 30 | PNP | B243 |
| 2N2665 | .125 | 50 | PNP | B243 |
| 2N2666 | .125 | 50 | PNP | B243 |
| 2N2667 | .125 | 50 | PNP | B243 |
| 2N2668 | .125 | 50 | PNP | B243 |
| 2N2669 | .125 | 50 | PNP | B243 |
| 2N2670 | .125 | 50 | PNP | B243 |
| 2N2671 | 8.0 | 150 | PNP | TO12 |
| 2N2672 | 8.0 | 150 | PNP | TO39 |
| 2N2672A | 8.0 | 40 | PNP | TO39 |
| 2N2692 | .01 | 90 | NPN | TO18 |
| 2N2693 | .01 | 80 | NPN | TO18 |
| 2N2694 | .01 | 40 | NPN | TO18 |
| 2N2695 | .025 | 30 | NPN | TO18 |
| 2N2696 | .025 | 30 | NPN | TO18 |
| 2N2697 | .1U | 40 | NPN | F606 |
| 2N2698 | .1U | 40 | NPN | F606 |
| 2N2706 | 10 | 115 | PNP | TO1 |
| 2N2707 | | | | |
| 2N2708 | .01 | 200 | NPN | B225 |
| 2N2710 | .03 | 40 | NPN | TO18 |
| 2N2711 | .50 | 30 | NPN | B246 |
| 2N2712 | .50 | 75 | NPN | B246 |
| 2N2713 | .50 | 30 | NPN | B246 |
| 2N2714 | .50 | 75 | NPN | B246 |
| 2N2715 | .50 | 30 | NPN | B246 |
| 2N2716 | .50 | 75 | NPN | B246 |
| 2N2717 | 1.4 | 50 | PNP | TO18 |
| 2N2718 | 7.0 | 25 | PNP | TO5 |
| 2N2719 | | 30 | NPN | TO18 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|
| 2N2720 | | | | |
| 2N2721 | | | | |
| 2N2722 | | | | |
| 2N2723 | | | | |
| 2N2724 | | | | |
| 2N2725 | | | | |
| 2N2726 | 1.0 | 60 | NPN | TO5 |
| 2N2727 | 1.0 | 110 | NPN | TO5 |
| 2N2728 | 20 | 40 | PNP | TO36 |
| 2N2729 | .01 | 50 | NPN | TO46 |
| 2N2730 | 5.0 | 15 | PNP | TO36 |
| 2N2731 | 5.0 | 15 | PNP | TO36 |
| 2N2732 | 5.0 | 15 | PNP | TO36 |
| 2N2733 | 3.0 | 15 | PNP | F619 |
| 2N2734 | 5.0 | 15 | PNP | F619 |
| 2N2735 | 5.0 | 15 | PNP | F619 |
| 2N2736 | 5.0 | 15 | PNP | F618 |
| 2N2737 | 5.0 | 15 | PNP | F618 |
| 2N2738 | 5.0 | 15 | PNP | F618 |
| 2N2739 | | 10 | NPN | F601 |
| 2N2740 | | 10 | NPN | F601 |
| 2N2741 | | 10 | NPN | F601 |
| 2N2742 | | 10 | NPN | F601 |
| 2N2745 | | 10 | NPN | F601 |
| 2N2746 | | 10 | NPN | F601 |
| 2N2747 | | 10 | NPN | F601 |
| 2N2748 | | 10 | NPN | F601 |
| 2N2751 | | 10 | NPN | F601 |
| 2N2752 | | 10 | NPN | F601 |
| 2N2753 | | 10 | NPN | F601 |
| 2N2754 | | 10 | NPN | F601 |
| 2N2757 | | 10 | NPN | F629 |
| 2N2758 | | 10 | NPN | F629 |
| 2N2759 | | 10 | NPN | F629 |
| 2N2760 | | 10 | NPN | F629 |
| 2N2761 | | 10 | NPN | F629 |
| 2N2763 | | 10 | NPN | F629 |
| 2N2764 | | 10 | NPN | F629 |
| 2N2765 | | 10 | NPN | F629 |
| 2N2766 | | 10 | NPN | F629 |
| 2N2769 | | 10 | NPN | F629 |
| 2N2770 | | 10 | NPN | F629 |
| 2N2771 | | 10 | NPN | F629 |
| 2N2772 | | 10 | NPN | F629 |
| 2N2781 | .50 | 7.5 | NPN | TO8 |
| 2N2782 | .50 | 7.5 | NPN | TO8 |
| 2N2783 | .50 | 7.5 | NPN | TO8 |
| 2N2784 | 5 N | 120 | NPN | TO18 |
| 2N2784/KVT | 5 N | 120 | NPN | G723 |
| 2N2784/TNT | 5 N | 120 | NPN | HB12 |
| 2N2784/TPT | 5 N | 120 | NPN | G724 |
| 2N2784/46 | .005 | 120 | NPN | TO46 |
| 2N2784/51 | 5 N | 120 | NPN | TO51 |
| 2N2785 | | | | |
| 2N2786 | 10 | 33 | PNP | TO39 |
| 2N2786A | 10 | 33 | PNP | TO39 |
| 2N2787 | .01 | 40 | NPN | TO5 |
| 2N2788 | .01 | 80 | NPN | TO5 |
| 2N2789 | .01 | 200 | NPN | TO5 |
| 2N2790 | .01 | 40 | NPN | TO18 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO |
|---|---|---|---|---|
| 2N2791 | .01 | 80 | NPN | TO18 |
| 2N2792 | .01 | 200 | NPN | TO18 |
| 2N2793 | | 50 | PNP | TO36 |
| 2N2795 | | 100 | PNP | TO18 |
| 2N2796 | | 60 | PNP | TO18 |
| 2N2797 | | 80 | PNP | TO9 |
| 2N2798 | | 50 | PNP | TO9 |
| 2N2799 | | 50 | PNP | TO9 |
| 2N2800 | .10 | 30 | PNP | TO5 |
| 2N2800/46 | .10 | 30 | PNP | TO46 |
| 2N2800/51 | .10 | 30 | PNP | TO51 |
| | .10 | 75 | PNP | TO5 |
| 2N2801/46 | .10 | 75 | PNP | TO46 |
| 2N2801/51 | .10 | 75 | PNP | TO51 |
| 2N2802 | | | | |
| 2N2803 | | | | |
| 2N2804 | | | | |
| 2N2805 | | | | |
| 2N2806 | | | | |
| 2N2807 | | | | |
| 2N2808A | .01 | 20 | NPN | B225 |
| 2N2809 | .01 | 20 | NPN | B225 |
| 2N2809A | .01 | 20 | NPN | B225 |
| 2N2810 | .01 | 20 | NPN | B225 |
| 2N2810A | .01 | 20 | NPN | B225 |
| 2N2811 | .10 | 20 | NPN | F625 |
| 2N2812 | .10 | 40 | NPN | F625 |
| 2N2813 | .10U | 20 | NPN | F625 |
| 2N2814 | .10U | 40 | NPN | F625 |
| | | 10 | NPN | F614 |
| 2N2816 | | 10 | NPN | F614 |
| 2N2817 | | 10 | NPN | F614 |
| 2N2818 | | 10 | NPN | F614 |
| 2N2819 | | 10 | NPN | F614 |
| 2N2820 | | 10 | NPN | F614 |
| 2N2821 | | 10 | NPN | F614 |
| 2N2822 | | 10 | NPN | F614 |
| 2N2823 | | 10 | NPN | F614 |
| 2N2824 | | 10 | NPN | F614 |
| 2N2825 | | 10 | NPN | F614 |
| 2N2828 | 50 | 20 | NPN | F621 |
| 2N2829 | | 20 | NPN | F621 |
| 2N2831 | .03 | 40 | NPN | TO18 |
| 2N2832 | 10 | 25 | PNP | TO3 |
| 2N2833 | 10 | 25 | PNP | TO3 |
| 2N2834 | 10 | 25 | PNP | TO3 |
| 2N2835 | | 30 | PNP | E512 |
| 2N2836 | .05 | 30 | PNP | TO3 |
| 2N2837 | .10 | 30 | PNP | TO18 |
| 2N2838 | .10 | 75 | PNP | TO18 |
| 2N2845 | .20 | 30 | NPN | TO18 |
| 2N2846 | .20 | 30 | NPN | TO5 |
| 2N2847 | .20 | 40 | NPN | TO18 |
| 2N2848 | .20 | 40 | NPN | TO5 |
| 2N2849 | | 100 | NPN | B242 |
| 2N2849-1 | | 100 | NPN | TO5 |
| 2N2849-2 | | 100 | NPN | TO26 |
| 2N2849-3 | | 100 | NPN | F628 |
| 2N2850 | | 40 | NPN | B242 |
| 2N2850-1 | | 40 | NPN | F622 |
| 2N2850-2 | | 40 | NPN | F622 |
| 2N2850-3 | | 40 | NPN | F628 |
| 2N2851 | | 40 | NPN | B242 |
| 2N2851-1 | | 40 | NPN | TO5 |
| 2N2851-2 | | 40 | NPN | F622 |
| 2N2851-3 | | 40 | NPN | F628 |
| 2N2852 | | 20 | NPN | B242 |
| 2N2852-1 | | 20 | NPN | TO5 |
| 2N2852-2 | | 20 | NPN | F628 |
| 2N2852-3 | | 20 | NPN | F628 |
| 2N2853 | | 40 | NPN | B242 |
| 2N2853-1 | | 40 | NPN | TO5 |
| 2N2853-2 | | 40 | NPN | F622 |
| 2N2853-3 | | 40 | NPN | F628 |
| 2N2854 | | 100 | NPN | B242 |
| 2N2854-1 | | 100 | NPN | TO5 |
| 2N2854-2 | | 100 | NPN | F622 |
| 2N2854-3 | | 100 | NPN | F628 |
| 2N2855 | | 40 | NPN | B242 |
| 2N2855-1 | | 40 | NPN | TO5 |
| 2N2855-2 | | 40 | NPN | F622 |
| 2N2855-3 | | 40 | NPN | F628 |
| 2N2856 | | 20 | NPN | B242 |
| 2N2856-1 | | 20 | NPN | TO5 |
| 2N2856-2 | | 20 | NPN | F622 |
| 2N2856-3 | | 20 | NPN | F628 |
| 2N2857 | .01 | 50 | NPN | TO18 |
| 2N2858 | | 20 | NPN | TO5 |
| 2N2859 | | 20 | NPN | TO5 |
| 2N2860 | | 40 | PNP | TO18 |
| 2N2861 | .01 | 50 | PNP | TO18 |
| 2N2862 | .01 | 25 | PNP | TO18 |
| 2N2863 | .50 | 30 | NPN | TO5 |
| 2N2864 | .50 | 20 | NPN | TO5 |
| 2N2865 | .01 | 20 | NPN | B225 |
| 2N2866 | | 20 | NPN | F617 |
| 2N2867 | | 40 | NPN | F617 |
| 2N2868 | | 30 | NPN | TO5 |
| 2N2869 | | 50 | PNP | TO3 |
| 2N2870 | | 50 | PNP | TO3 |
| 2N2874 | .01 | 7.5 | NPN | TO8 |
| 2N2875 | .001 | 15 | PNP | F617 |
| 2N2876 | .10U | | NPN | TO60 |
| SN 2N2876 | .10U | 30 | NPN | F627 |
| 2N2877 | .10U | 20 | NPN | F621 |
| 2N2878 | .10U | 40 | NPN | F621 |
| 2N2879 | .10U | 20 | NPN | F621 |
| 2N2880 | .10U | 40 | NPN | F621 |
| 2N2881 | | 20 | PNP | TO5 |
| 2N2882 | | 20 | PNP | TO5 |
| 2N2883 | .50 | 20 | NPN | TO5 |
| | .50 | 20 | NPN | TO5 |
| 2N2885 | .025 | 30 | NPN | TO51 |
| 2N2886 | .10 | 22 | NPN | TO5 |
| 2N2887 | | 15 | NPN | MTJ9 |
| 2N2890 | 100 | 30 | NPN | TO5 |
| 2N2891 | 100 | 50 | NPN | TO5 |
| 2N2892 | .1U | 30 | NPN | F621 |
| 2N2893 | .1U | 50 | NPN | F621 |
| 2N2894 | .08 | 40 | PNP | TO18 |

| | TYPE NO. | $I_{CBO}$ (μA) | $h_{fe}$ | PNP-NPN | DWG. NO |
|---|---|---|---|---|---|
| | 2N2895 | 2 N | 50 | NPN | TO18 |
| | 2N2896 | .01 | 50 | NPN | TO18 |
| | 2N2897 | .05 | 50 | NPN | TO18 |
| | 2N2898 | 2 N | 50 | NPN | TO46 |
| | 2N2899 | .01 | 50 | NPN | TO46 |
| | 2N2900 | .05 | 50 | NPN | TO46 |
| | 2N2903 | | | | |
| | 2N2903A | | | | |
| | 2N2904 | .02 | 40 | PNP | TO5 |
| USA | 2N2904 | .02 | 40 | PNP | TO5 |
| | 2N2904A | .01 | 40 | PNP | TO5 |
| | 2N2904/TNT | 1.0 | 75 | PNP | HB12 |
| | 2N2904/TPT | 10 | 40 | PNP | G72A |
| | 2N2905 | .02 | 100 | PNP | TO5 |
| USA | 2N2905 | .02 | 100 | PNP | TO5 |
| | 2N2905 | .01 | 100 | PNP | TO5 |
| | 2N2906 | .02 | 40 | PNP | TO18 |
| USA | 2N2906 | .02 | 40 | PNP | TO18 |
| | 2N2906A | .01 | 40 | PNP | TO18 |
| | 2N2907 | .02 | 100 | PNP | TO18 |
| USA | 2N2907 | .02 | 100 | PNP | TO18 |
| | 2N2907A | .01 | 100 | PNP | TO18 |
| | 2N2908 | | 12 | NPN | TO53 |
| | 2N2909 | .01 | 85 | NPN | TO46 |
| | 2N2910 | | | | |
| | 2N2911 | | 20 | NPN | TO5 |
| | 2N2912 | .20 | 75 | PNP | B283 |
| | 2N2913 | | | | |
| | 2N2914 | | | | |
| | 2N2915 | | | | |
| | 2N2916 | | | | |
| | 2N2917 | | | | |
| | 2N2918 | | | | |
| | 2N2919 | | | | |
| | 2N2920 | | | | |
| | 2N2923 | .50 | 90 | NPN | B246 |
| | 2N2924 | .50 | | NPN | B246 |
| | 2N2925 | .50 | 215 | NPN | B246 |
| | 2N2926 | .50 | 35 | NPN | B246 |
| | 2N2927 | .025 | 30 | PNP | TO5 |
| | 2N2927/46 | .025 | 30 | PNP | TO46 |
| | 2N2927/51 | | 30 | PNP | TO51 |
| | 2N2928 | 5.0 | 8. | PNP | B225 |
| | 2N2929 | .005 | 10 | PNP | TO5 |
| | 2N2931 | .015 | 30 | NPN | HB14 |
| | 2N2932 | .015 | 70 | NPN | HB14 |
| | 2N2933 | .015 | 45 | NPN | HB14 |
| | 2N2934 | .015 | 30 | NPN | HB14 |
| | 2N2935 | .015 | 70 | NPN | HB14 |
| | 2N2938 | | 125 | NPN | TO52 |
| | 2N2939 | | 60 | NPN | TO5 |
| | 2N2940 | .025 | 60 | NPN | TO5 |
| | 2N2941 | | 60 | NPN | TO5 |
| | 2N2942 | 25 | 85 | PNP | TO9 |
| | 2N2943 | 25 | 45 | PNP | TO9 |
| | 2N2944 | .10N | | PNP | TO46 |
| | 2N2945 | .20N | 100 | PNP | TO46 |
| | 2N2946 | .50N | 70 | PNP | TO46 |
| | 2N2947 | 1.0U | 2.5 | NPN | TO3 |
| | 2N2948 | 1.0U | 2.5 | NPN | TO3 |

| | TYPE NO. | $I_{CBO}$ (μA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|---|
| | 2N2949 | .100 | 5. | NPN | H269 |
| | 2N2950 | .100 | 5. | NPN | F678 |
| | 2N2951 | .10 | 20 | NPN | TO5 |
| | 2N2952 | .50 | 20 | NPN | TO5 |
| | 2N2953 | 5.0 | 200 | PNP | TO1 |
| | 2N2955 | | 45 | PNP | TO18 |
| | 2N2956 | | 75 | PNP | TO18 |
| | 2N2957 | | 150 | PNP | TO18 |
| | 2N2958 | .025 | 40 | NPN | TO5 |
| | 2N2959 | .025 | 100 | NPN | TO5 |
| | 2N2962 | 5.0 | 4. | PNP | F633 |
| | 2N2963 | 5.0 | 4. | PNP | F633 |
| | 2N2964 | 5.0 | 6. | PNP | F633 |
| | 2N2965 | 5.0 | 6. | PNP | F633 |
| | 2N2966 | | | | |
| | 2N2969 | | | | |
| | 2N2970 | | | | |
| | 2N2971 | | | | |
| | 2N2972 | | | | |
| | 2N2973 | | | | |
| | 2N2974 | | | | |
| | 2N2975 | | | | |
| | 2N2976 | | | | |
| | 2N2977 | | | | |
| | 2N2978 | | | | |
| | 2N2979 | | | | |
| | 2N2980 | | | | |
| | 2N2981 | | | | |
| | 2N2982 | | | | |
| | 2N2983 | 10 N | 20 | NPN | TO8 |
| | 2N2984 | 10 N | 20 | NPN | TO5 |
| | 2N2985 | 10 N | 40 | NPN | TO5 |
| | 2N2986 | 10 N | 40 | NPN | TO8 |
| | 2N2987 | .10 | 20 | NPN | TO5 |
| | 2N2988 | 25 N | 25 | NPN | TO5 |
| | 2N2989 | 25 N | 60 | NPN | TO8 |
| | 2990 | 25 N | 60 | NPN | TO8 |
| | 2N2991 | 25 N | 25 | NPN | F609 |
| | 2N2992 | 25 N | 25 | NPN | F609 |
| | 2N2993 | 25 N | 60 | NPN | F609 |
| | 2N2994 | 25 N | 60 | NPN | F609 |
| | 2N2995 | 50 | 25 | NPN | F616 |
| | 2N2996 | 100 | 200 | NPN | B225 |
| | 2N299 | 100 | 200 | PNP | B225 |
| | 2N2998 | 100 | 200 | PNP | B225 |
| | 2999 | 100 | 100 | PNP | H225 |
| | 2N3009 | | 30 | NPN | TO52 |
| | 2N3010 | | 25 | NPN | TO18 |
| | 2N3011 | | 30 | NPN | TO18 |
| | 2N3012 | | 30 | PNP | TO18 |
| | 2N3013 | .30 | 30 | NPN | TO52 |
| ISN | 2N3013 | .30 | 35 | NPN | TO52 |
| | 2N3014 | .30 | 30 | NPN | TO52 |
| | 2N3015 | | 30 | NPN | TO5 |
| | 2N3016 | .10 | 60 | NPN | TO5 |
| | 2N3017 | .10 | 30 | NPN | F623 |
| | | .10 | 40 | NPN | F607A |
| | 2N3019 | .01 | 80 | NPN | TO5 |
| | 2N3020 | .01 | 30 | NPN | TO5 |
| | 2N3021 | .20 | 20 | PNP | TO3 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP - DWG NPN NO |
|---|---|---|---|
| 2N3022 | .20 | 20 | PNP T03 |
| 2N3023 | .20 | 20 | PNP T03 |
| 2N3024 | .20 | 50 | PNP T03 |
| 2N3025 | .20 | 50 | PNP T03 |
| 2N3026 | .20 | 50 | PNP T03 |
| 2N3036 | .01 | 40 | NPN T05 |
| 2N3037 | .01 | 30 | NPN T050 |
| 2N3038 | .01 | 60 | NPN T050 |
| 2N3039 | .025 | 20 | NPN T050 |
| 2N3040 | .025 | 40 | NPN T050 |
| 2N3043 | | | |
| 2N3044 | | | |
| 2N3045 | | | |
| 2N3046 | | | |
| 2N3047 | | | |
| 2N3048 | | | |
| 2N3049 | | | |
| 2N3050 | | | |
| 2N3051 | | | |
| 2N3052 | | | |
| 2N3053 | | 50 | NPN T05 |
| 2N3054 | 1.0 | 25 | NPN T066 |
| 2N3055 | 5.0 | 20 | NPN T03 |
| 2N3056 | .01 | 40 | NPN T046 |
| 2N3057 | .01 | 100 | NPN T046 |
| 2N3058 | .10M | 40 | PNP T046 |
| 2N3059 | .10M | 100 | PNP T046 |
| 2N3060 | .005 | 30 | PNP T046 |
| 2N3061 | .005 | 60 | PNP T046 |
| 2N3062 | .01 | 20 | PNP T046 |
| 2N3063 | .01 | 50 | PNP T046 |
| 2N3064 | .01 | 15 | PNP T046 |
| 2N3065 | .01 | | PNP T046 |
| 2N3066 | | | |
| 2N3067 | | | |
| 2N3068 | | | |
| 2N3069 | | | |
| 2N3070 | | | |
| 2N3071 | | | |
| 2N3072 | .01 | 30 | PNP T05 |
| 2N3073 | .01 | 30 | PNP T018 |
| 2N3074 | 10 | 14 | PNP T012 |
| 2N3075 | 10 | 20 | PNP T012 |
| 2N3076 | | 30 | PNP F634 |
| 2N3077 | .01 | 80 | NPN T018 |
| 2N3078 | .01 | 25 | NPN T018 |
| 2N3079 | 5.0 | 10 | NPN T036 |
| 2N3080 | 5.0 | 10 | NPN T036 |
| 2N3081 | .01 | 30 | PNP T05 |
| 2N3081/46 | .10 | 30 | PNP T046 |
| 2N3081/51 | .01 | 30 | PNP T051 |
| 2N3082 | .01 | 100 | NPN J1001 |
| 2N3083 | .01 | | NPN J1001 |
| 2N3084 | | | |
| 2N3085 | | | |
| 2N3086 | | | |
| 2N3087 | | | |
| 2N3088 | | | |
| 2N3088A | | | |
| 2N3089 | | | |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP - DWG. NPN NO. |
|---|---|---|---|
| 2N3089A | | | |
| 2N3107 | .01 | 60 | NPN T05 |
| 2N3108 | .01 | 40 | NPN T05 |
| 2N3109 | .01 | 60 | NPN T05 |
| 2N3110 | .01 | 40 | NPN T05 |
| 2N3112 | | | |
| 2N3113 | | | |
| 2N3114 | .01 | 30 | NPN T05 |
| 2N3115 | 25 N | 25 | NPN T046 |
| 2N3116 | .025 | 100 | NPN T018 |
| 2N3117 | .01 | 250 | NPN T018 |
| 2N3118 | .10U | 50 | NPN T05 |
| 2N3119 | .05U | 50 | NPN T05 |
| 2N3120 | .01 | 30 | NPN T05 |
| 2N3121 | .01 | 30 | PNP T018 |
| 2N3123 | .01 | 100 | NPN T05 |
| 2N3124 | 20 | 50 | PNP T041 |
| 2N3125 | 15 | 30 | PNP T041 |
| 2N3126 | 3.0 | 10 | PNP T041 |
| 2N3127 | 10 | 26 | PNP B226 |
| 2N3128 | .01 | 25 | NPN G710 |
| 2N3129 | .01 | 100 | NPN G710 |
| 2N3130 | .01 | 60 | NPN G710 |
| 2N3131 | 25 N | 30 | NPN G710 |
| 2N3132 | 5.0 | 40 | PNP T03 |
| 2N3133 | .05 | 40 | PNP T05 |
| 2N3134 | .05 | 100 | PNP T05 |
| 2N3135 | .05 | 40 | PNP T018 |
| 2N3136 | .05 | 100 | PNP T018 |
| 2N3137 | .05 | 70 | NPN T05 |
| 2N3138 | .10 | 10 | NPN F620 |
| 2N3139 | .10 | 10 | NPN F620 |
| 2N3140 | .10 | 10 | NPN F620 |
| 2N3141 | .10 | 10 | NPN F620 |
| 2N3142 | .10 | 10 | NPN F641 |
| 2N3143 | .10 | 10 | NPN F641 |
| 2N3144 | .10 | 10 | NPN F641 |
| 2N3145 | .10 | 10 | NPN F641 |
| 2N3146 | 10 | 30 | PNP T03 |
| 2N3147 | 10 | 30 | PNP T03 |
| 2N3149 | 2.0 | 10 | NPN F644 |
| 2N3150 | 2.0 | 10 | NPN F644 |
| 2N3151 | 2.0 | 10 | NPN F644 |
| 2N3152 | .05 | 40 | NPN F626 |
| 2N3153 | .01 | | NPN T018 |
| 2N3154 | .10 | 60 | PNP C307 |
| 2N3155 | .10 | 60 | PNP C307 |
| 2N3156 | .10 | 60 | PNP C307 |
| 2N3157 | .10 | 60 | PNP C307 |
| 2N3158 | .10 | 30 | PNP C307 |
| 2N3159 | .10 | 30 | PNP C307 |
| 2N3160 | .10 | 30 | PNP C307 |
| 2N3161 | .10 | 30 | PNP C307 |
| 2N3163 | 10 | 12 | PNP F607 |
| 2N3164 | 10 | 12 | PNP F607 |
| 2N3165 | 10 | 12 | PNP F607 |
| 2N3166 | 10 | 12 | PNP F607 |
| 2N3167 | 10 | 12 | PNP T053 |
| 2N3168 | 10 | 12 | PNP T053 |
| 2N3169 | 10 | 12 | PNP T053 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO |
|---|---|---|---|---|
| 2N3170 | 10 | 12 | PNP | TO53 |
| 2N3171 | 10 | 12 | PNP | TO3 |
| 2N3172 | 10 | 12 | PNP | TO3 |
| 2N3173 | 10 | 12 | PNP | TO3 |
| 2N3174 | 10 | 12 | PNP | TO3 |
| 2N3175 | 10 | 10 | PNP | F607 |
| 2N3176 | 10 | 10 | PNP | F607 |
| 2N3177 | 10 | 10 | PNP | F607 |
| 2N3178 | 10 | 10 | PNP | F607 |
| | 10 | 10 | PNP | TO53 |
| | 10 | 10 | PNP | TO53 |
| 2N3181 | 10 | 10 | PNP | TO53 |
| 2N3182 | 10 | 10 | PNP | TO53 |
| | 10 | 10 | PNP | TO3 |
| 2N3184 | 10 | 10 | PNP | TO3 |
| 2N3185 | 10 | 10 | PNP | TO3 |
| | 10 | 10 | PNP | TO3 |
| 2N3187 | 10 | 10 | PNP | F607 |
| 2N3188 | 10 | 10 | PNP | F607 |
| | 10 | 10 | PNP | F607 |
| 2N3190 | 10 | 10 | PNP | F607 |
| 2N3191 | 10 | 10 | PNP | TO53 |
| 2N3192 | 10 | 10 | PNP | TO53 |
| 2N3193 | 10 | 10 | PNP | TO53 |
| 2N3194 | 10 | 10 | PNP | TO53 |
| 2N3195 | 10 | 10 | PNP | TO3 |
| 2N3196 | 10 | 10 | PNP | TO3 |
| 2N3197 | 10 | 10 | PNP | TO3 |
| 2N3198 | 10 | 10 | PNP | TO3 |
| 2N3199 | .075 | 20 | PNP | F621 |
| 2N3200 | .075 | 20 | PNP | F621 |
| 2N3201 | .075 | 20 | PNP | F621 |
| 2N3202 | .075 | 20 | PNP | TO5 |
| 2N3203 | .075 | 20 | PNP | TO5 |
| 2N3204 | .075 | 20 | PNP | TO5 |
| 2N3205 | .075 | 20 | PNP | F621 |
| 2N3206 | .075 | 20 | PNP | F621 |
| 2N3207 | .075 | 20 | PNP | F621 |
| 2N3208 | .075 | 20 | PNP | TO5 |
| 2N3209 | .08 | 75 | PNP | TO18 |
| 2N3210 | .01 | 30 | NPN | TO18 |
| 2N3211 | 25.M | 50 | NPN | TO18 |
| 2N3212 | 1.0 | 30 | PNP | TO37 |
| 2N3213 | 1.0 | 30 | PNP | TO37 |
| 2N3214 | 1.0 | 30 | PNP | TO37 |
| 2N3215 | 1.0 | 25 | PNP | TO37 |
| 2N3216 | 2.0 | 60 | PNP | TO5 |
| 2N3217 | 1.0N | | PNP | TO46 |
| 2N3218 | 1.0N | | PNP | TO46 |
| 2N3219 | 1.0N | | PNP | TO46 |
| 2N3220 | .01 | 20 | NPN | F642 |
| 2N3221 | .01 | 40 | NPN | F642 |
| 2N3222 | .01 | 20 | NPN | F642 |
| 2N3223 | .01 | 40 | NPN | F642 |
| 2N3224 | .10 | 20 | PNP | TO5 |
| 2N3225 | .10 | 40 | PNP | TO5 |
| 2N3226 | .20 | 20 | NPN | TO3 |
| 2N3227 | .40 | 100 | NPN | TO18 |
| | | 5. | NPN | F627 |
| 2N3232 | 1.0 | 18 | NPN | E516 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|
| 2N3233 | 1.0 | 18 | NPN | E516 |
| 2N3234 | 1.0 | 18 | NPN | E516 |
| 2N3235 | 5.0 | 20 | NPN | E516 |
| 2N3236 | 2.0 | 17 | NPN | E516 |
| 2N3237 | 2.0 | 12 | NPN | E516 |
| 2N3238 | 5.0 | 8.5 | NPN | E516 |
| 2N3239 | 5.0 | 8.5 | NPN | E516 |
| 2N3240 | 5.0 | 8.5 | NPN | E516 |
| 2N3241 | .10 | 150 | NPN | B269 |
| 2N3242 | .01 | 150 | NPN | B269 |
| 2N3244 | .05 | 50 | PNP | TO5 |
| 2N3245 | .05 | 30 | PNP | TO5 |
| 2N3246 | .001 | 150 | NPN | TO18 |
| 2N3247 | .001 | 150 | NPN | G710 |
| 2N3248 | .05 | 50 | PNP | TO18 |
| 2N3249 | .05 | 100 | PNP | TO18 |
| 2N3250 | .02 | 50 | PNP | TO18 |
| 2N3250A | .02 | 50 | PNP | TO18 |
| 2N3251 | .02 | 100 | PNP | TO18 |
| 2N3251A | .02 | | PNP | TO18 |
| 2N3252 | .50 | 30 | NPN | TO5 |
| 2N3253 | .50 | 25 | NPN | TO5 |
| 2N3260 | 2.0 | 10 | NPN | F645 |
| 2N3262 | .001 | 40 | NPN | TO39 |
| 2N3263 | 4.0 | 25 | NPN | F643 |
| 2N3264 | 10 | 20 | NPN | F643 |
| 2N3265 | 4.0 | 25 | NPN | G714 |
| 2N3266 | 10 | 20 | NPN | G714 |
| 2N3267 | 5.0 | 15 | PNP | B225 |
| 2N3268 | .50 | 40 | NPN | TO5 |
| 2N3279 | 5.0 | 10 | PNP | B225 |
| 2N3280 | 5.0 | 10 | PNP | B225 |
| 2N3281 | 5.0 | 10 | PNP | B225 |
| 2N3282 | 5.0 | 10 | PNP | B225 |
| 2N3283 | 10 | 10 | PNP | B225 |
| 2N3284 | 10 | 10 | PNP | B225 |
| 2N3285 | 10 | 5. | PNP | B225 |
| 2N3286 | 10 | 5. | PNP | TO33 |
| 2N3287 | .01 | 15 | NPN | B225 |
| 2N3288 | .01 | 15 | NPN | B225 |
| 2N3289 | .01 | 10 | NPN | B225 |
| 2N3290 | .01 | 10 | NPN | B225 |
| 2N3291 | .10 | 10 | NPN | B225 |
| 2N3292 | .10 | 10 | NPN | B225 |
| 2N3293 | .10 | 10 | NPN | B225 |
| 2N3294 | .10 | 10 | NPN | B225 |
| 2N3295 | .10 | 20 | NPN | TO5 |
| 2N3296 | .10 | 5. | NPN | F626 |
| 2N3297 | | 2.5 | NPN | TO3 |
| 2N3298 | .50 | 80 | NPN | TO18 |
| 2N3299 | .01 | 75 | NPN | TO5 |
| 2N3300 | .01 | 220 | NPN | TO5 |
| 2N3301 | .01 | 75 | NPN | TO18 |
| 2N3302 | .01 | 220 | NPN | TO18 |
| 2N3303 | 100 | 60 | NPN | B260A |
| 2N3304 | .01 | 63 | PNP | TO18 |
| 2N3305 | .05 | 40 | PNP | TO5 |
| 2N3306 | .05 | 100 | PNP | TO5 |
| 2N3307 | .01 | 20 | PNP | B260 |
| 2N3308 | | 10 | PNP | B260 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|
| 2N3309 | .50 | 5. | NPN | T05 |
| 2N3310 | .01 | 10 | NPN | B260 |
| 2N3311 | 5.0 | 60 | PNP | T036 |
| 2N3312 | 5.0 | 60 | PNP | T036 |
| 2N3313 | 5.0 | 60 | PNP | T036 |
| 2N3314 | 5.0 | 100 | PNP | T036 |
| 2N3315 | 5.0 | 100 | PNP | T036 |
| 2N3316 | 5.0 | 100 | PNP | T036 |
| 2N3317 | 1.N | 1.6 | PNP | B275 |
| 2N3318 | 1.N | 1.9 | PNP | B275 |
| 2N3319 | 3.0N | 3. | PNP | B275 |
| 2N3320 | 5.0 | 50 | PNP | T018 |
| 2N3321 | 5.0 | 100 | PNP | T018 |
| 2N3322 | 5.0 | 100 | PNP | T018 |
| 2N3323 | 10 | 30 | PNP | T018 |
| 2N3324 | 10 | 30 | PNP | T018 |
| 2N3325 | 10 | 30 | PNP | T018 |
| 2N3326 | .01 | 40 | NPN | T05 |
| 2N3327 | .50 | 10 | NPN | F627 |
| 2N3337 | .025 | 30 | NPN | T038 |
| 2N3338 | .025 | 30 | NPN | B225 |
| 2N3339 | .025 | 30 | NPN | B225 |
| 2N3340 | 1.N | 40 | NPN | T046 |
| 2N3341 | .01 | 40 | PNP | T046 |
| 2N3342 | .02 | 30 | PNP | T05 |
| 2N3343 | .003 | 20 | PNP | T05 |
| 2N3344 | .002 | 25 | PNP | T05 |
| 2N3345 | .005 | 15 | PNP | T05 |
| 2N3346 | .005 | 25 | PNP | T05 |
| 2N3347 | | | | |
| 2N3348 | | | | |
| 2N3349 | | | | |
| 2N3350 | | | | |
| 2N3351 | | | | |
| 2N3352 | | | | |
| 2N3371 | 7.0 | 25 | PNP | T018 |
| 2N3374 | 50.N | 10 | NPN | T05 |
| 2N3375 | 9.0 | 5. | NPN | T060 |
| 2N3388 | 2.0 | 1.8 | NPN | T05 |
| 2N3389 | 2.0 | 1.8 | NPN | T05 |
| 2N3390 | .10 | 500 | NPN | B246 |
| 2N3391 | .10 | 250 | NPN | B246 |
| 2N3391A | .10 | 250 | NPN | B246 |
| 2N3392 | .10 | 150 | NPN | B246 |
| 2N3393 | .10 | 90 | NPN | B246 |
| 2N3394 | .10 | 55 | NPN | B246 |
| 2N3395 | .10 | 150 | NPN | B246 |
| 2N3396 | .10 | 90 | NPN | B246 |
| 2N3397 | .10 | 55 | NPN | B246 |
| 2N3398 | .10 | 55 | NPN | B246 |
| 2N3399 | 8.0 | 10 | PNP | B225 |
| 2N3400 | 5.0 | 35 | PNP | T09 |
| 2N3401 | .10 | 4. | PNP | T05 |
| 2N3402 | .10 | 150 | NPN | G721 |
| 2N3403 | .10 | 350 | NPN | G721 |
| 2N3404 | .10 | 150 | NPN | G721 |
| 2N3405 | .10 | 350 | NPN | G721 |
| 2N3407 | .20 | 10 | NPN | B225 |
| 2N3408 | .400 | | PNP | F626 |
| 2N3409 | | | | |
| 2N3410 | | | | |
| 2N3411 | | | | |
| 2N3413 | .10 | 10 | PNP | T05 |
| 2N3414 | .10 | 150 | NPN | B246 |
| 2N3415 | .10 | 300 | NPN | B246 |
| 2N3416 | .10 | 150 | NPN | B246 |
| 2N3417 | .10 | 300 | NPN | B246 |
| 2N3418 | .03 | 20 | NPN | T05 |
| 2N3419 | .03 | 30 | NPN | T05 |
| 2N3420 | .03 | 40 | NPN | T05 |
| 2N3421 | .03 | 40 | NPN | T05 |
| 2N3423 | | | | |
| 2N3424 | | | | |
| 2N3425 | | | | |
| 2N3426 | .10 | 30 | NPN | B271 |
| 2N3427 | 50 | 100 | PNP | T05 |
| 2N3428 | 50 | 150 | PNP | T05 |
| 2N3429 | 1.0 | 10 | NPN | F647 |
| 2N3430 | 1.0 | 10 | NPN | F647 |
| 2N3431 | 1.0 | 10 | NPN | F647 |
| 2N3432 | 1.0 | 10 | NPN | F647 |
| 2N3433 | 1.0 | 10 | NPN | F647 |
| 2N3434 | 1.0 | 10 | NPN | F647 |
| 2N3435 | .050 | 50 | NPN | T05 |
| 2N3439 | .02 | 40 | NPN | T05 |
| 2N3440 | .02 | 40 | NPN | T05 |
| 2N3441 | 5.0 | 20 | NPN | T066 |
| 2N3442 | 30 | 20 | NPN | T03 |
| 2N3443 | 5.0 | 20 | PNP | T05 |
| 2N3444 | .50U | 20 | NPN | T05 |
| 2N3445 | .10 | 20 | NPN | T03 |
| 2N3446 | .10 | 20 | NPN | T03 |
| 2N3447 | .10 | 40 | NPN | T03 |
| 2N3448 | .10 | 40 | NPN | T03 |
| 2N3449 | 3.0 | 20 | PNP | T018 |
| 2N3450 | .20 | 40 | NPN | T05 |
| 2N3461 | 3.0 | 90 | PNP | T05 |
| 2N3462 | 10 | 150 | NPN | T018 |
| 2N3463 | .002 | 150 | NPN | T018 |
| 2N3467 | .10U | 40 | PNP | T05 |
| 2N3468 | .10U | 25 | PNP | T05 |
| 2N3469 | .10U | 100 | NPN | T05 |
| 2N3470 | 20 | 100 | NPN | F629 |
| 2N3471 | 20 | 100 | NPN | F629 |
| 2N3472 | 20 | 100 | NPN | F629 |
| 2N3473 | 20 | 100 | NPN | F629 |
| 2N3474 | 20 | 350 | NPN | F629 |
| 2N3475 | 20 | 350 | NPN | F629 |
| 2N3476 | 20 | 350 | NPN | F629 |
| 2N3477 | 20 | 350 | NPN | F629 |
| 2N3478 | .02 | 25 | NPN | B269A |
| 2N3485 | .02 | 40 | PNP | T046 |
| 2N3485A | .01 | 40 | PNP | T0.6 |
| 2N3486 | .02 | 100 | PNP | T046 |
| 2N3486A | .01 | 100 | PNP | T046 |
| 2N3487 | .10 | 20 | NPN | T061 |
| 2N3488 | .10 | 20 | NPN | T061 |
| 2N3489 | .10 | 15 | NPN | T061 |
| 2N3490 | .10 | 40 | NPN | T061 |
| 2N3491 | .10 | 40 | NPN | T061 |

| TYPE NO | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO |
|---|---|---|---|---|
| 2N3492 | .10 | 30 | NPN | TO61 |
| 2N3493 | 5 | 40 | NPN | B225 |
| 2N3494 | .10 | 40 | PNP | TO5 |
| 2N3495 | .10 | 40 | PNP | TO5 |
| 2N3496 | .10 | 40 | PNP | TO18 |
| 2N3497 | .10 | 40 | PNP | TO18 |
| | .05U | 40 | NPN | TO5 |
| 2N3499 | .05U | 100 | NPN | TO5 |
| 2N3500 | .05U | 40 | NPN | TO5 |
| 2N3501 | .05U | 100 | NPN | TO5 |
| 2N3502 | .01 | 100 | PNP | TO5 |
| 2N3503 | .01 | 100 | PNP | TO5 |
| 2N3504 | .01 | 100 | PNP | TO18 |
| | .01 | 100 | PNP | TO5 |
| 2N3506 | 1.0 | 40 | NPN | TO5 |
| 2N3507 | 1.0 | 30 | NPN | TO5 |
| 2N3508 | .20 | 40 | NPN | TO46 |
| 2N3509 | .20 | 100 | NPN | TO46 |
| 2N3510 | 25 N | 25 | NPN | TO52 |
| 2N3511 | 25 N | 30 | NPN | TO52 |
| 2N3512 | .50 | 10 | NPN | TO5 |
| 2N3513 | | | | |
| 2N3514 | | | | |
| 2N3515 | | | | |
| 2N3516 | | | | |
| 2N3517 | | | | |
| 2N3518 | | | | |
| 2N3519 | | | | |
| 2N3520 | | | | |
| 2N3521 | | | | |
| 2N3522 | | | | |
| 2N3523 | | | | |
| 2N3524 | | | | |
| 2N3526 | 1.0 | 30 | NPN | TO5 |
| 2N3527 | .1N | 40 | PNP | TO46 |
| 2N3543 | .01 | 10 | NPN | TO3 |
| 2N3544 | .10 | 50 | NPN | TO18 |
| 2N3545 | .01 | 40 | PNP | TO18 |
| 2N3546 | .01 | 30 | PNP | TO18 |
| 2N3547 | .025 | 100 | PNP | TO18 |
| 2N3548 | .01 | 100 | PNP | TO18 |
| 2N3549 | .01 | 100 | PNP | TO18 |
| 2N3550 | .001 | 200 | PNP | TO18 |
| 2N3551 | 10 | 20 | NPN | G709 |
| 2N3552 | 10 | 20 | NPN | G709 |
| 2N3553 | 1.0 | 5. | NPN | TO39 |
| 2N3554 | .50 | 20 | NPN | TO5 |
| 2N3563 | .05 | 20 | NPN | B274A |
| 2N3564 | .05 | 20 | NPN | B274A |
| 2N3565 | .05 | 120 | NPN | B274A |
| 2N3566 | .05 | 150 | NPN | B274 |
| 2N3567 | .05 | 40 | NPN | B274 |
| 2N3568 | .05 | 40 | NPN | B274 |
| 2N3569 | .05 | 100 | NPN | B274 |
| 2N3570 | .01 | 20 | NPN | B225 |
| 2N3571 | .01 | 20 | NPN | B225 |
| 2N3572 | .01 | 20 | NPN | B225 |
| 2N3576 | .01 | 40 | PNP | B225 |
| 2N3577 | .10 | 12 | NPN | TO53 |
| 2N3579 | .05 | 75 | PNP | TO46 |

| TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO |
|---|---|---|---|---|
| 2N3580 | .05 | 150 | PNP | TO46 |
| 2N3581 | .02 | 100 | PNP | TO46 |
| 2N3582 | .02 | 200 | PNP | TO46 |
| 2N3583 | 10 | 40 | NPN | TO66 |
| 2N3584 | 1.0 | 8. | NPN | TO66 |
| 2N3585 | 1.0 | 8. | NPN | TO66 |
| 2N3588 | 8.0 | 30 | PNP | B273 |
| 2N3589 | .001 | 30 | NPN | F610 |
| 2N3590 | .001 | 75 | NPN | F610 |
| 2N3591 | .001 | 30 | NPN | B230 |
| 2N3592 | .001 | 75 | NPN | B230 |
| 2N3593 | .001 | 30 | NPN | F616 |
| 2N3594 | .001 | 75 | NPN | F616 |
| 2N3595 | .001 | 30 | NPN | F616A |
| 2N3596 | .001 | 75 | NPN | F616A |
| 2N3597 | .10U | 75 | NPN | TO63 |
| 2N3598 | .10U | 75 | NPN | TO63 |
| 2N3599 | .10U | 75 | NPN | TO63 |
| 2N3600 | .01 | 20 | NPN | B225 |
| 2N3601 | 200 | 60 | PNP | B258 |
| 2N3602 | 200 | 60 | PNP | B258 |
| 2N3603 | 200 | 60 | PNP | B258 |
| 2N3604 | 200 | 60 | PNP | F650 |
| 2N3605 | .50 | 30 | NPN | B246 |
| 2N3606 | .50 | 30 | NPN | B246 |
| 2N3607 | .50 | 30 | NPN | B246 |
| 2N3611 | 5.0 | 35 | PNP | TO3 |
| 2N3612 | 5.0 | 35 | PNP | TO3 |
| 2N3613 | 5.0 | 60 | PNP | TO3 |
| 2N3614 | 5.0 | 60 | PNP | TO3 |
| 2N3615 | 5.0 | 30 | PNP | TO3 |
| 2N3616 | 5.0 | 30 | PNP | TO3 |
| 2N3617 | 5.0 | 45 | PNP | TO3 |
| 2N3618 | 5.0 | 45 | PNP | TO3 |
| 2N3619 | .025 | 40 | NPN | TO5 |
| 2N3620 | .025 | 30 | NPN | ES21 |
| 2N3621 | .025 | 40 | NPN | TO61 |
| 2N3622 | .025 | 40 | NPN | TO61 |
| 2N3623 | .001 | 40 | NPN | TO5 |
| 2N3624 | .001 | 30 | NPN | ES21 |
| 2N3625 | .001 | 40 | NPN | TO61 |
| 2N3626 | .001 | 40 | NPN | TO61 |
| 2N3627 | .001 | 40 | NPN | TO5 |
| 2N3628 | .001 | 30 | NPN | ES21 |
| 2N3629 | .001 | 40 | NPN | TO61 |
| 2N3630 | .001 | 40 | NPN | TO61 |
| 2N3632 | 5.0 | 10 | NPN | TO60 |
| 2N3633 | .005 | 50 | NPN | TO18 |
| 2N3633/KVT | 5 N | 150 | NPN | G723 |
| 2N3633/TNT | 5 N | 150 | NPN | MB12 |
| 2N3633/TPT | 5 N | 150 | NPN | G724 |
| 2N3633/46 | 5 N | 150 | NPN | TO46 |
| 2N3633/51 | 5 N | 150 | NPN | TO51 |
| 2N3634 | .10U | 50 | PNP | TO5 |
| 2N3635 | .10U | 100 | PNP | TO5 |
| 2N3636 | .10U | 100 | PNP | TO5 |
| 2N3637 | .10U | 100 | PNP | TO5 |
| 2N3638 | .035 | 30 | PNP | B274 |
| 2N3639 | .01 | 30 | PNP | B274A |
| 2N3640 | .01 | 30 | PNP | B274A |

| | TYPE NO. | $I_{CBO}$ (uA) | $h_{fe}$ | PNP-NPN | DWG. NO. |
|---|---|---|---|---|---|
| | 2N3641 | .05 | 40 | NPN | B274 |
| | 2N3642 | .05 | 40 | NPN | B274 |
| | 2N3643 | .05 | 100 | NPN | B274 |
| | 2N3644 | .035 | 100 | PNP | B274 |
| | 2N3645 | .035 | 100 | PNP | B274 |
| | 2N3646 | .50 | 30 | NPN | B274A |
| | 2N3647 | 25 N | 25 | NPN | T046 |
| | 2N3648 | 25 N | 30 | NPN | T046 |
| | 2N3659 | .01 | 20 | NPN | T05 |
| | 2N3660 | .001 | 25 | PNP | T08 |
| | 2N3661 | .001 | 25 | PNP | T08 |
| | 2N3665 | .05 | 40 | NPN | T05 |
| | 2N3666 | .05 | 100 | NPN | T05 |
| USA | 2N5591 | 3.0 | 25 | PNP | T028 |
| USA | 2N5592 | 3.0 | 25 | PNP | T028 |
| USA | 2N5593 | 3.0 | 25 | PNP | T028 |

# OUTLINE DRAWINGS

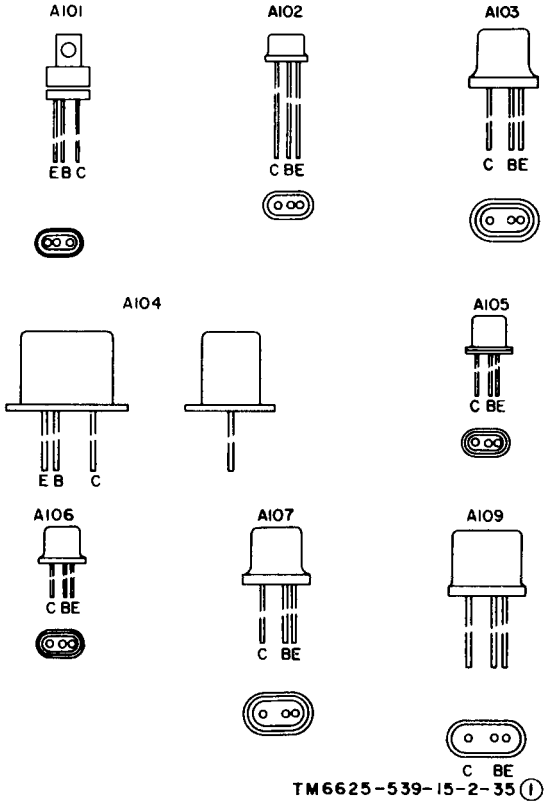



*Figure E-1①. Transistor outline drawings (part 1 of 20).*

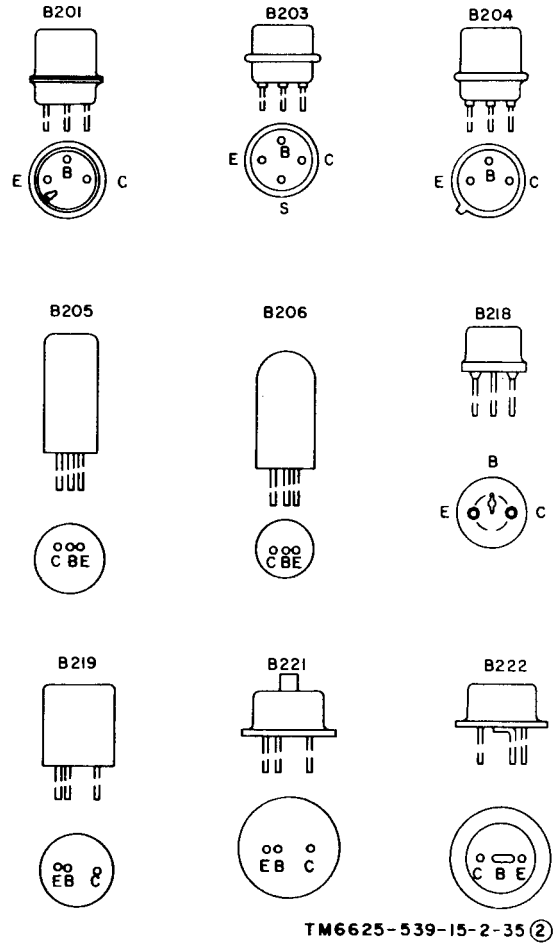



*Figure E-1②. Transistor outline drawings (part 2 of 20).*

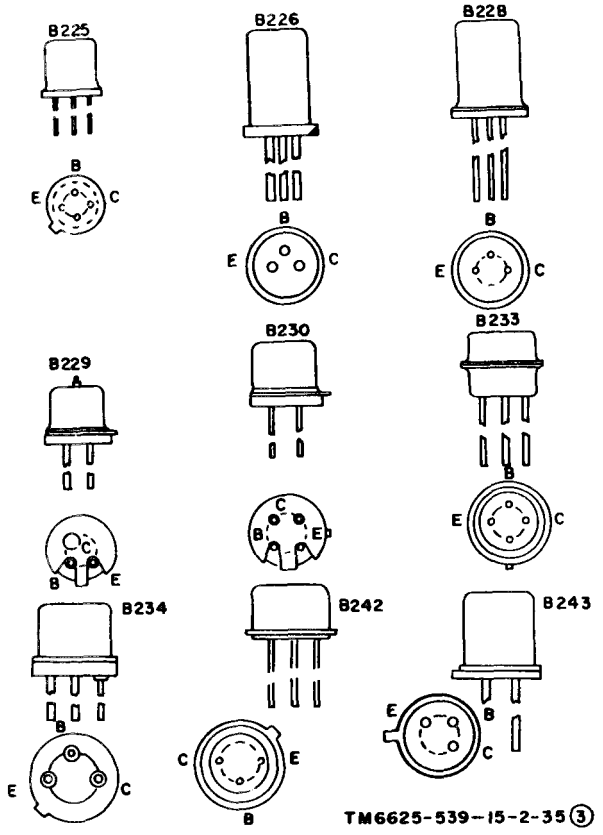



*Figure E-1.③. Transistor outline drawings (part 3 of 20).*

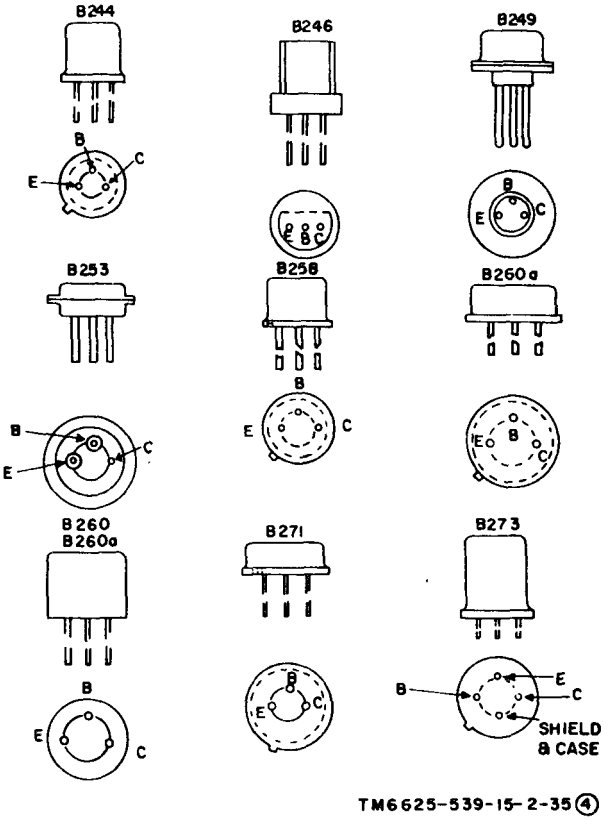



*Figure E-1④.Transistor outline drawings (part 4 of 20).*

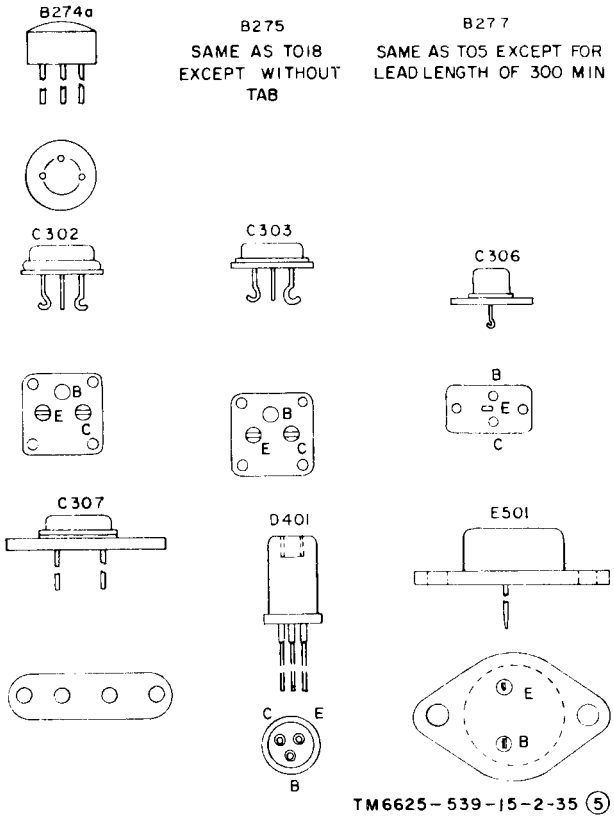



*Figure E-1⑤ Transistor outline drawings (part 5 of 20).*

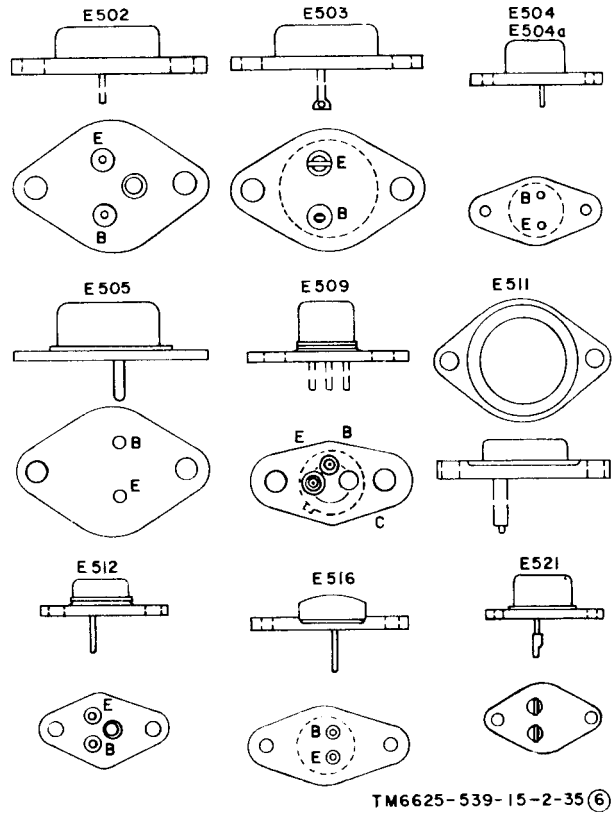



*Figure E-1⑥.Transistor outline drawings (Part 6 of 20).*

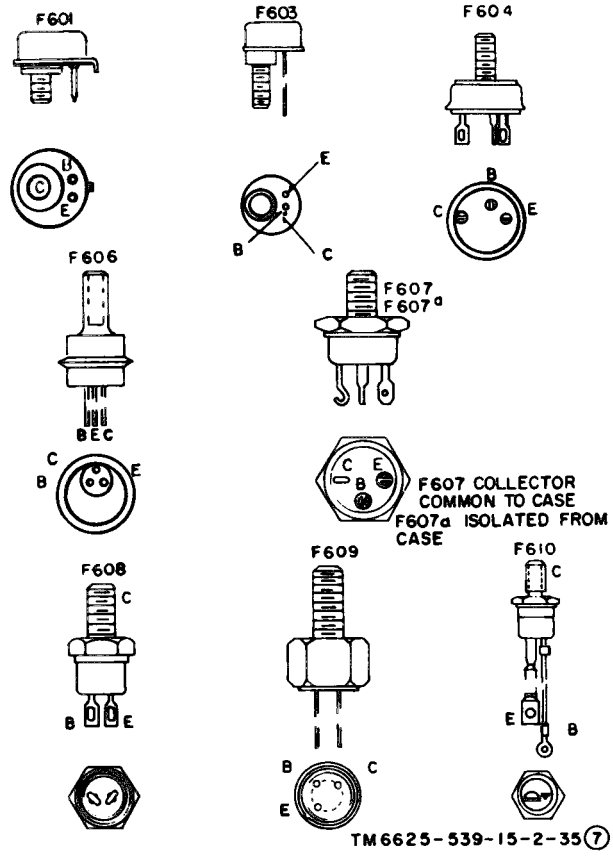



*Figure E-1 (7). Transistor outline drawings (part 7 of 20).*

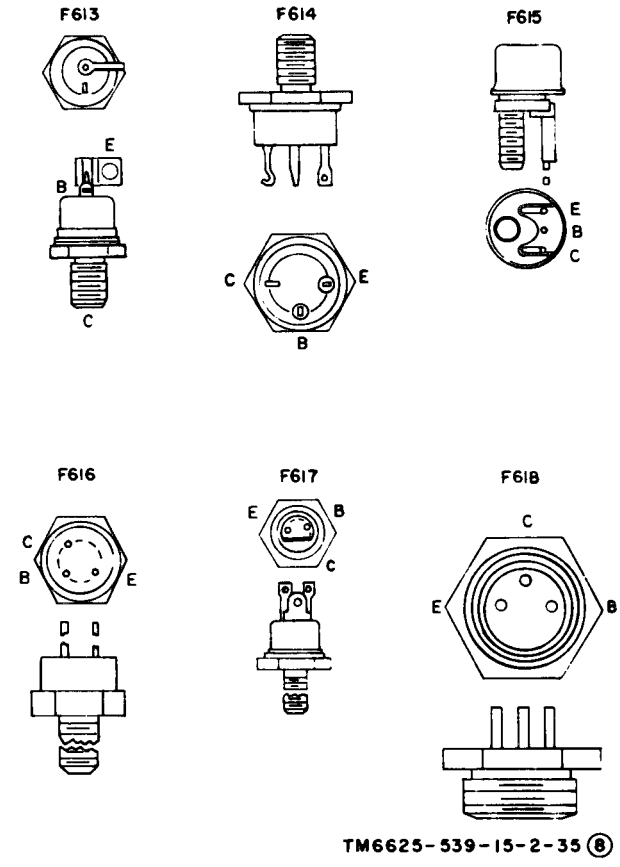



*Figure E-1 (8). Transistor outline drawings (part 8 of 20).*

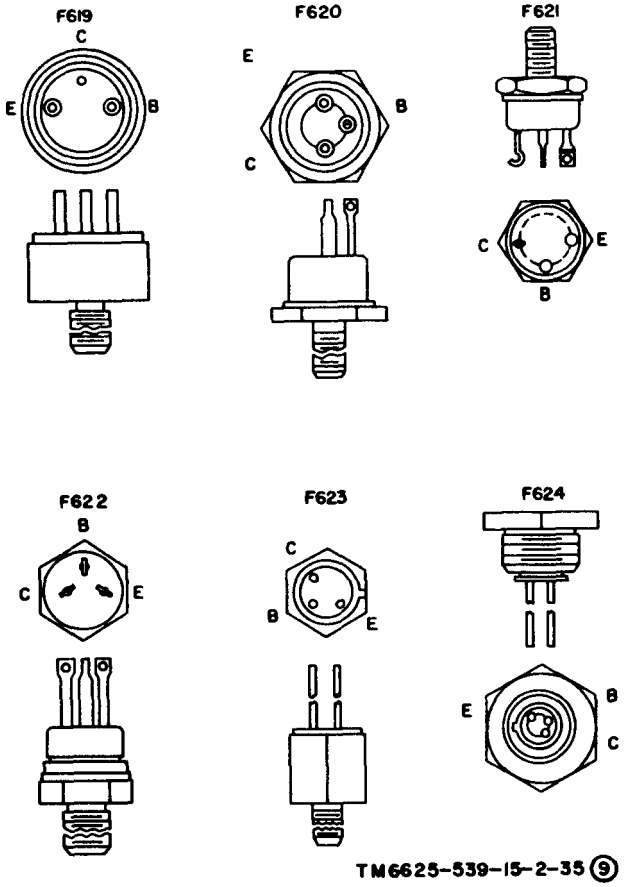



*Figure E-1 (9). Transistor of outline diagram (part 9 of 20).*

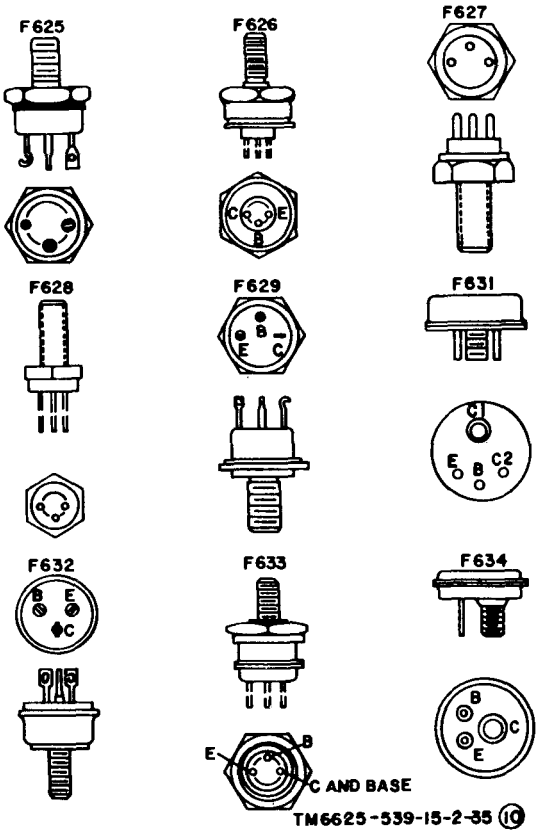



*Figure E-1 (10). Transistor outline diagrams (part 10 of 20.)*

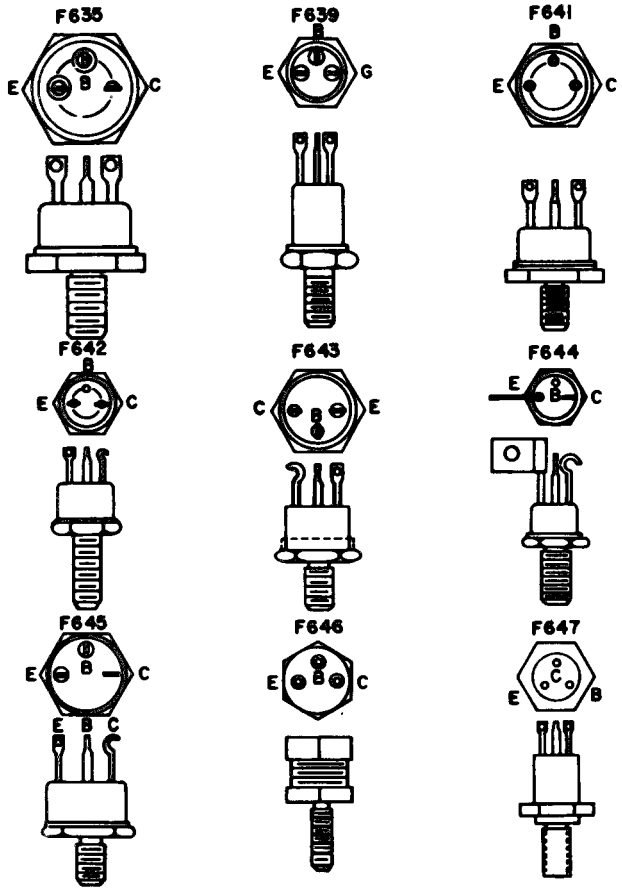



*Figure E-1⑪. Transistor outline drawings (part 11 of 20).*

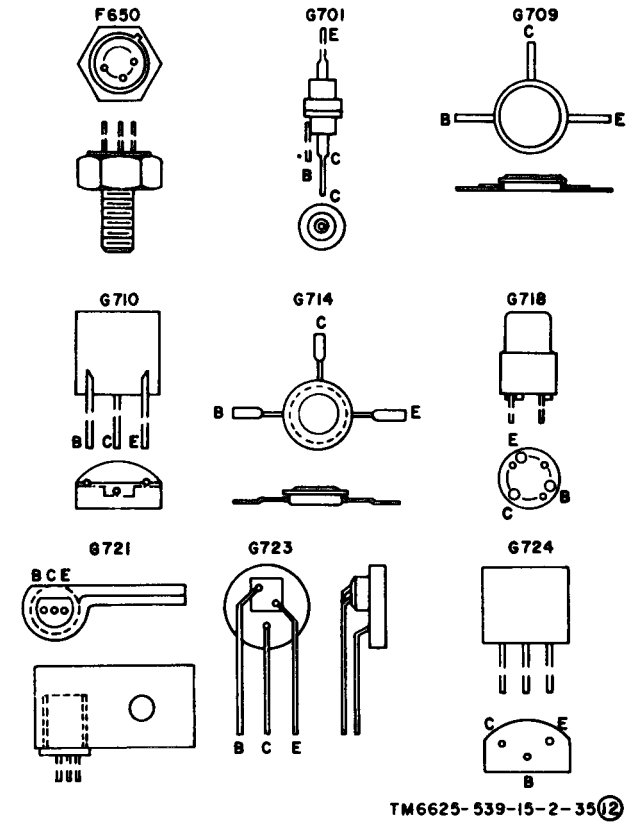



*Figure E-1⑫. Transistor outline drawings (part 12 of 20).*

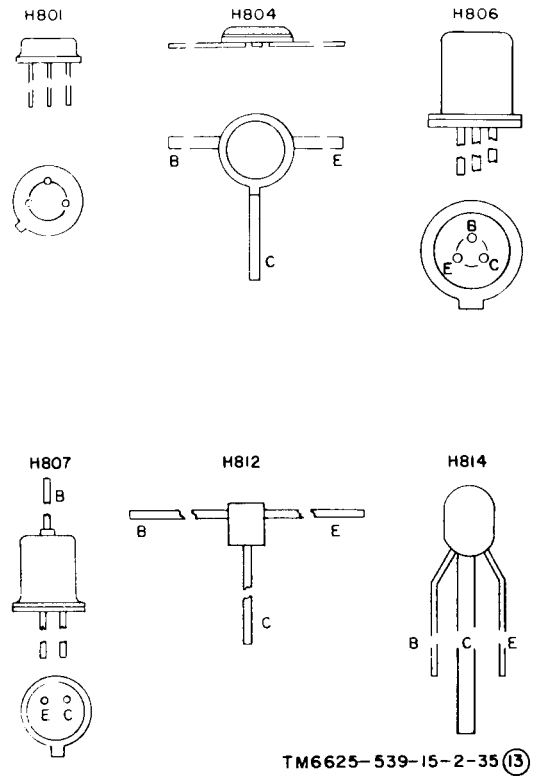
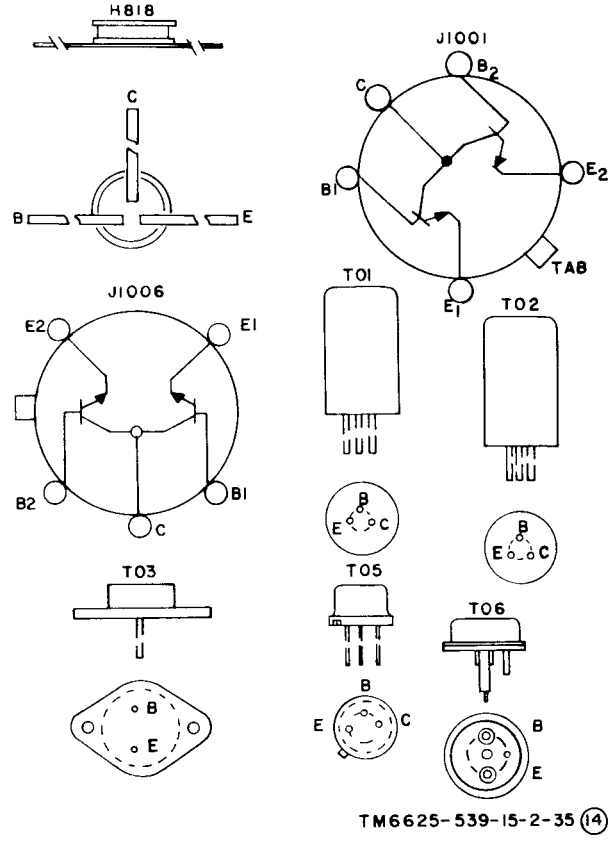



*Figure E-1⑬. Transistor outline drawings (part 13 of 20).*




TM6625-539-15-2-35 (14)

*Figure E-1⑭. Transistor outline drawings (part 14 of 20).*

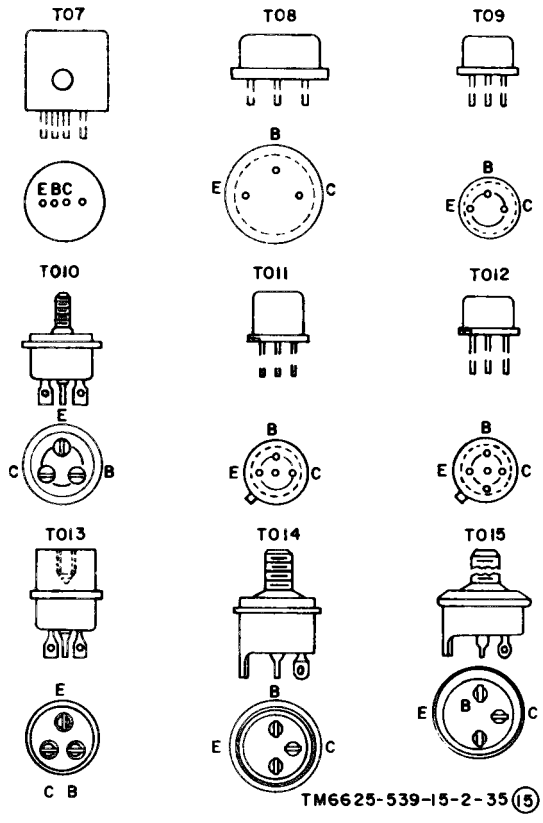



*Figure E-1⑮. Transistor outline drawings (part 15 of 20).*

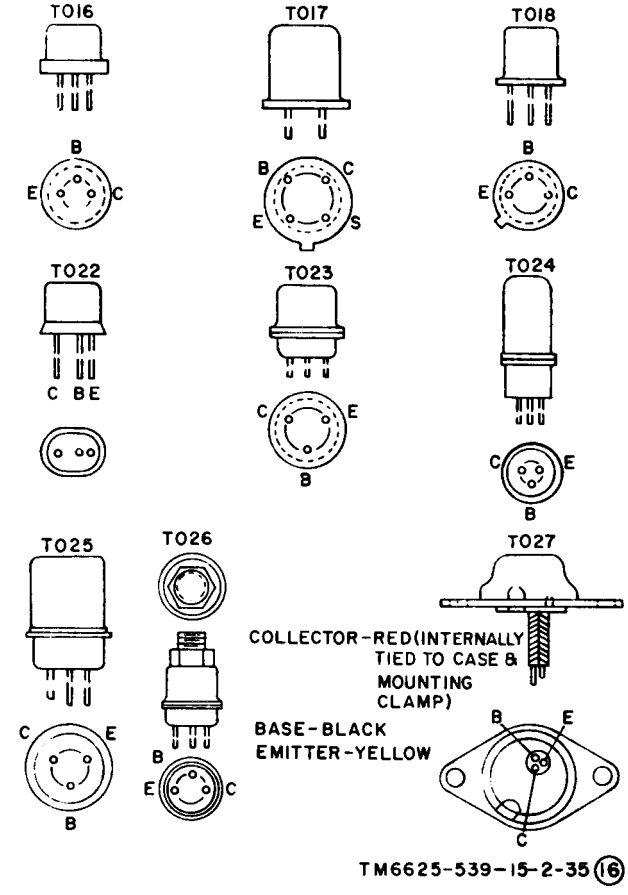



*Figure E-1⑯. Transistor outline drawings (part 16 of 20).*

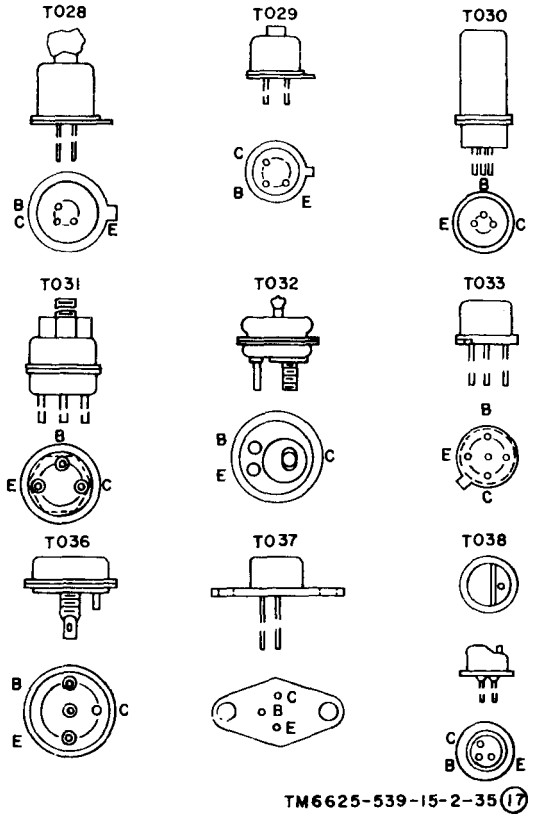



*Figure E-1⑰. Transistor outline drawings (part 17 of 20).*

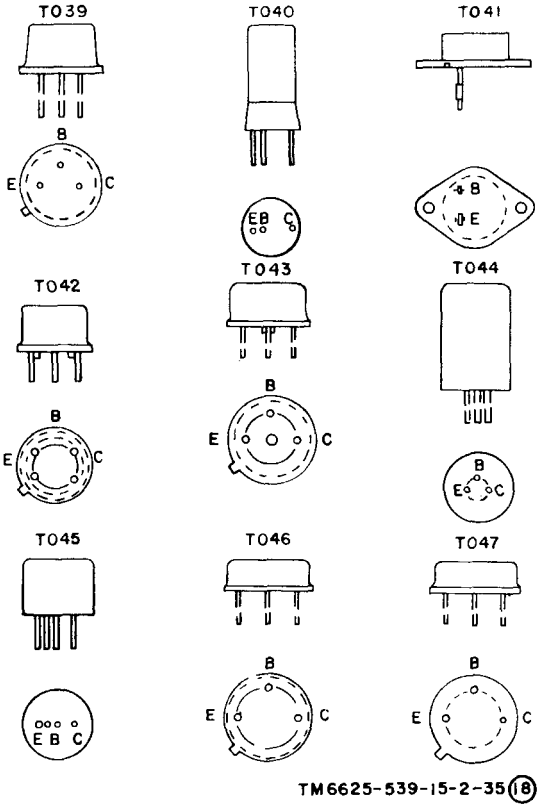



*Figure E-1⑱. Transistor outline drawings (part 18 of 20).*

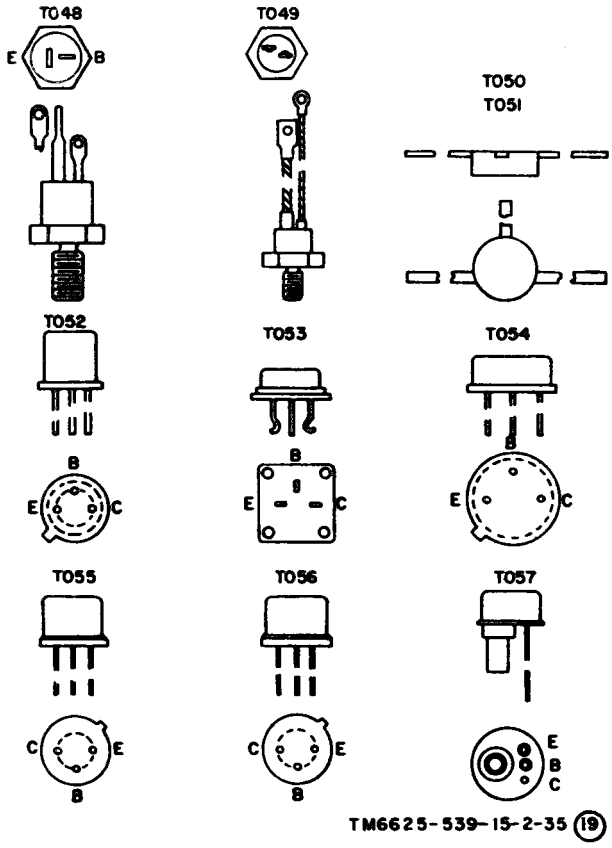



*Figure E-1⑲. Transistor outline drawings (part 19 of 20).*

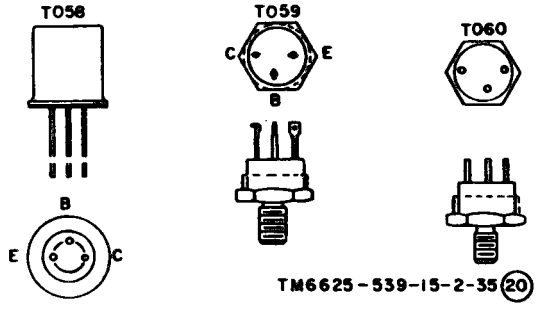



*Figure E-1⑳. Transistor outline drawings (part 20 of 20)*

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Gen Deps (2)
Sig Sec Gen Deps (5)
Sig Dep (12)
Sig FLDMS (2)
AMS (1)
USAERDAA (2)
USAERDAW (13)
USACRREL (2)
MAAG (2)
USARMIS (2)
Edgewood Arsenal (5)
Redstone Arsenal (5)
507th USASA Gp (5)
508th USASA Gp (5)
318th USASA Bn (5)
319th USASA Bn (5)
2nd USASA Fld Sta (5)
3rd USASA Fld Sta (5)
4th USASA Fld Sta (5)
5th USASA Fld Sta (5)
12th USASA Fld Sta (5)
9th USASA Fld Sta (5)
13th USASA Fld Sta (5)
14th USASA Fld Sta (5)
15th USASA Fld Sta (5)
102nd USASA Det (5)
75th USASA Co (5)
600th USASA Co (5)
177th USASA Co (5)
182nd USASA Co (5)
183rd USASA Co (5)
184th USASA Co (5)
52nd USASA Sp Op Comd (5)
Units organized under following TOE's (2 copies each):

| | |
|---|---|
| 1-100 | 29-26 |
| 1-101 | 29-27 |
| 6-615 | 29-35 |
| 6-616 | 29-36 |
| 7 | 29-37 |
| 11-38 | 29-500 |
| 11-68 | (FZ, KH) |
| 11-57 | 30-34 |
| 11-85 | 32-52 |
| 11-86 | 32-56 |
| 11-87 | 32-57 |
| 11-97 | 32-58 |
| 11-98 | 32-77 |
| 11-117 | 32-78 |
| 11-155 | 37 |
| 11-127 | 39-51 |
| 11-157 | 44-2 |
| 11-158 | 44-12 |
| 11-237 | 44-236 |
| 11-500 (AA-AC, | 44-536 |
| KA-KD, NA- | 44-568 |
| NC, RD, RL, | 47 |
| RM, RO, RQ, | 55-50 |
| RR, RS, RV, | 55-89 |
| RX, TE, FT, | 55-99 |
| TG) | 55-405 |
| 11-587 | 55-406 |
| 11-592 | 55-407 |
| 11-597 | 55-457 |
| 17 | 55-458 |
| 29-1 | 55-459 |
| 29-11 | 55-479 |
| 29-15 | 55-510 |
| 29-16 | 57 |
| 29-17 | 57-100 |
| 29-21 | 67 |
| 29-25 | 77-100 |

*NG:* State AG (3).
*USAR:* None.
For explanation of abbreviat ions used, see AR 320-50.



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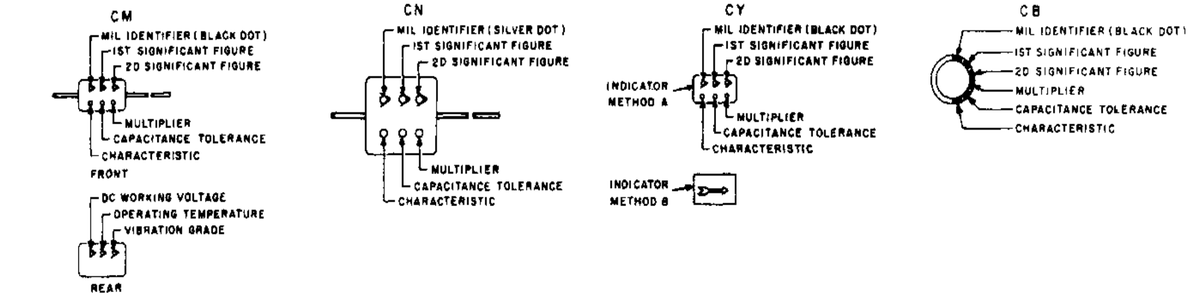
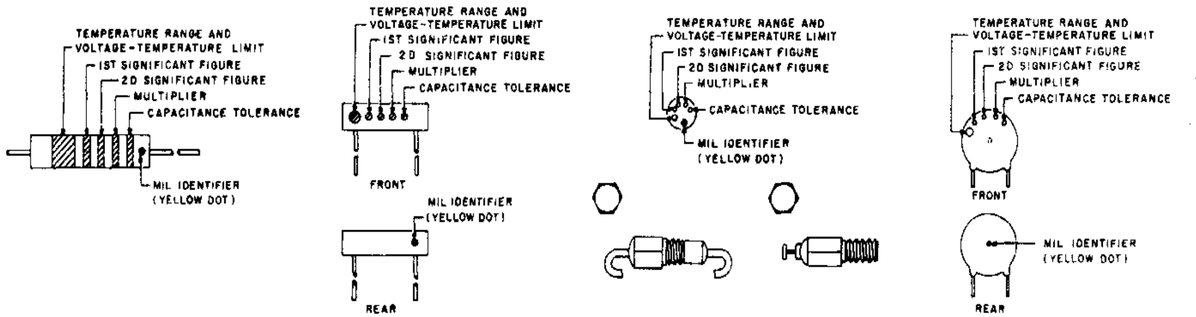
## CCLOR CODE MARKING FOR MILITARY STANDARD CAPACITORS

### GROUP I Capacitors, Fixed, Various-Dielectrics, Styles CM, CN, CY, and CB



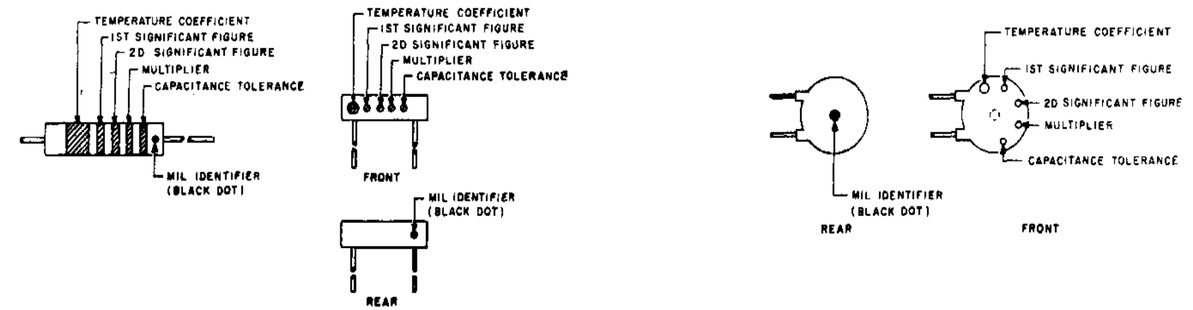

MICA-DIELECTRIC | PAPER-DIELECTRIC | GLASS-DIELECTRIC, GLASS CASE | MICA, BUTTON TYPE

### GROUP II Capacitors, Fixed Ceramic-Dielectric (General Purpose) Style CK




AXIAL LEAD | RADIAL LEAD | FEED-THROUGH | STAND-OFF | DISK-TYPE

### GROUP III Capacitors, Fixed, Ceramic-Dieletric (Temperature Compensating) Style CC




AXIAL LEAD | RADIAL LEAD | DISK-TYPE

*Figure 10-2. Color-code marking for MIL-STD capacitors.*

## COLOR CODE TABLES

TABLE I – For use with Group I, Styles CM, CN, CY and CB

| COLOR | MIL ID | 1st SIG FIG | 2nd SIG FIG | MULTIPLIER[1] | CAPACITANCE TOLERANCE | | | | CHARACTERISTIC[2] | | | | DC WORKING VOLTAGE | OPERATING TEMP. RANGE | VIBRATION GRADE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CM | CN | CY | CB | CM | CN | CY | CB | CM | CM | CM |
| BLACK | CM, CY CB | 0 | 0 | 1 | | | ± 20% | ± 20% | | A | | | | −55° to +70°C | 10–55 cps |
| BROWN | | 1 | 1 | 10 | | | | | B | E | | B | | | |
| RED | | 2 | 2 | 100 | ± 2% | | ± 2% | ± 2% | C | | C | | | −55° to +85°C | |
| ORANGE | | 3 | 3 | 1,000 | | ± 30% | | | D | | | D | 300 | | |
| YELLOW | | 4 | 4 | 10,000 | | | | | E | | | | | −55° to +125°C | 10–2,000 cps |
| GREEN | | 5 | 5 | | ± 5% | | | | F | | | | 500 | | |
| BLUE | | 6 | 6 | | | | | | | | | | | −55° to +150°C | |
| PURPLE (VIOLET) | | 7 | 7 | | | | | | | | | | | | |
| GREY | | 8 | 8 | | | | | | | | | | | | |
| WHITE | | 9 | 9 | | | | | | | | | | | | |
| GOLD | | | | 0.1 | | | ± 5% | ± 5% | | | | | | | |
| SILVER | CN | | | | ± 10% | ± 10% | ± 10% | ± 10% | | | | | | | |

TABLE II – For use with Group II, General Purpose, Style CK

| COLOR | TEMP. RANGE AND VOLTAGE – TEMP LIMITS[3] | 1st SIG FIG | 2nd SIG FIG | MULTIPLIER[1] | CAPACITANCE TOLERANCE | MIL ID |
|---|---|---|---|---|---|---|
| BLACK | | 0 | 0 | 1 | ± 20% | |
| BROWN | AW | 1 | 1 | 10 | ± 10% | |
| RED | AX | 2 | 2 | 100 | | |
| ORANGE | BX | 3 | 3 | 1,000 | | |
| YELLOW | AV | 4 | 4 | 10,000 | | CK |
| GREEN | CZ | 5 | 5 | | | |
| BLUE | BV | 6 | 6 | | | |
| PURPLE (VIOLET) | | 7 | 7 | | | |
| GREY | | 8 | 8 | | | |
| WHITE | | 9 | 9 | | | |
| GOLD | | | | | | |
| SILVER | | | | | | |

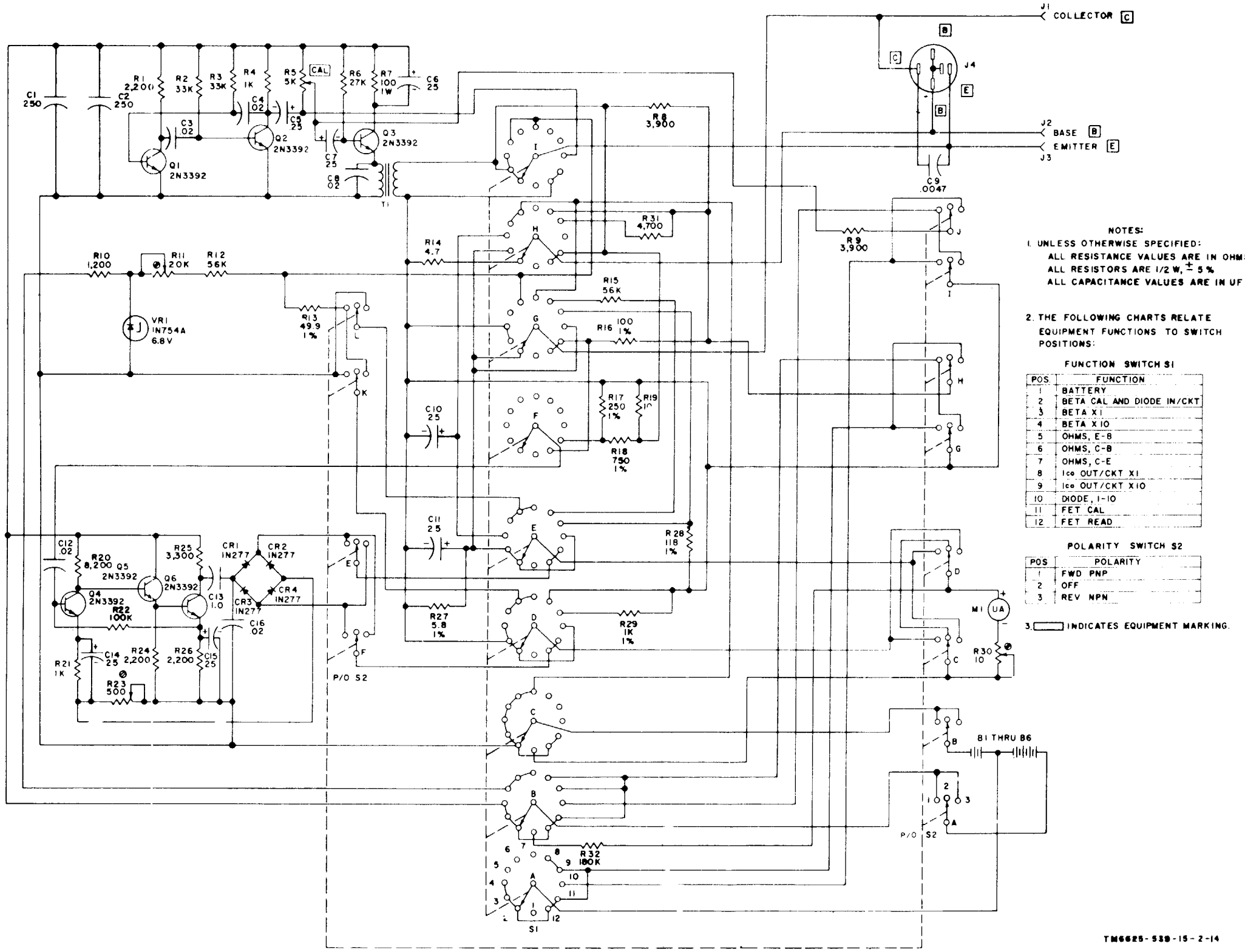
TABLE III – For use with Group III, Temperature Compensating, Style CC

| COLOR | TEMPERATURE COEFFICIENT[4] | 1st SIG FIG | 2nd SIG FIG | MULTIPLIER[1] | CAPACITANCE TOLERANCE | | MIL ID |
|---|---|---|---|---|---|---|---|
| | | | | | Capacitances over 10uuf | Capacitances 10uuf or less | |
| BLACK | 0 | 0 | 0 | 1 | | ± 2.0uuf | CC |
| BROWN | 30 | 1 | 1 | 10 | ± 1% | | |
| RED | 80 | 2 | 2 | 100 | ± 2% | ± 0.25uuf | |
| ORANGE | 150 | 3 | 3 | 1,000 | | | |
| YELLOW | −220 | 4 | 4 | | | | |
| GREEN | −330 | 5 | 5 | | ± 5% | ± 0.5uuf | |
| BLUE | 470 | 6 | 6 | | | | |
| PURPLE (VIOLET) | −750 | 7 | 7 | | | | |
| GREY | | 8 | 8 | 0.01 | | | |
| WHITE | | 9 | 9 | 0.1 | ± 10% | | |
| GOLD | −100 | | | | | ± 1.0uuf | |
| SILVER | | | | | | | |

1. The multiplier is the number by which the two significant (SIG) figures are multiplied to obtain the capacitance in uuf.
2. Letters indicate the Characteristics designated in applicable specifications: MIL-C-5, MIL-C-91, MIL-C-11272, and MIL-C-10950 respectively.
3. Letters indicate the temperature range and voltage-temperature limits designated in MIL-C-11015.
4. Temperature coefficient in parts per million per degree centigrade.

STD-C2

**FIGURE 10-2.**




NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   ALL RESISTANCE VALUES ARE IN OHMS
   ALL RESISTORS ARE 1/2 W, ± 5 %
   ALL CAPACITANCE VALUES ARE IN UF

2. THE FOLLOWING CHARTS RELATE EQUIPMENT FUNCTIONS TO SWITCH POSITIONS:

FUNCTION SWITCH S1

| POS. | FUNCTION |
|---|---|
| 1 | BATTERY |
| 2 | BETA CAL AND DIODE IN/CKT |
| 3 | BETA X1 |
| 4 | BETA X10 |
| 5 | OHMS, E-B |
| 6 | OHMS, C-B |
| 7 | OHMS, C-E |
| 8 | Ico OUT/CKT X1 |
| 9 | Ico OUT/CKT X10 |
| 10 | DIODE, 1-10 |
| 11 | FET CAL |
| 12 | FET READ |

POLARITY SWITCH S2

| POS | POLARITY |
|---|---|
| 1 | FWD PNP |
| 2 | OFF |
| 3 | REV NPN |

3. ☐ INDICATES EQUIPMENT MARKING.

TM6625-539-15-2-14

*Figure 10-3. Test Set, Transistor, TS-1836B/U, schematic diagram*

**FIGURE 10-3.**

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

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# THE METRIC SYSTEM AND EQUIVALENTS

## LINEAR MEASURE

. Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

## WEIGHTS

Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

## LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

## SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

## CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

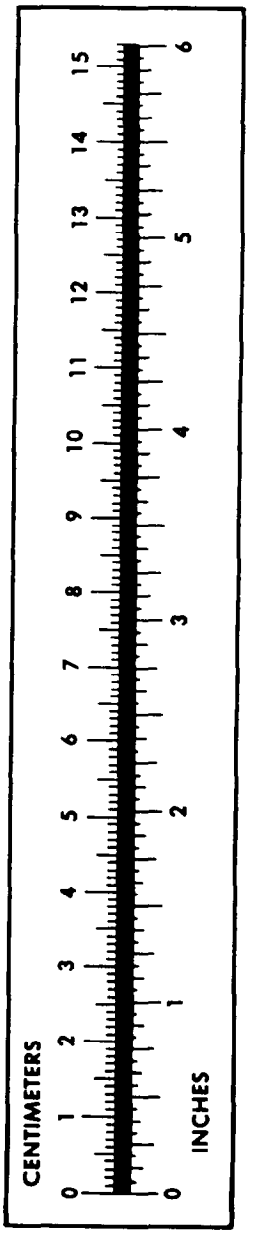
## TEMPERATURE

5/9(°F - 32) = °C
212° Fahrenheit is evuivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5C° + 32 =°F

## APPROXIMATE CONVERSION FACTORS

| TO CHANGE | TO | MULTIPLY BY |
|---|---|---|
| Inches | Centimeters | 2.540 |
| Feet | Meters | 0.305 |
| Yards | Meters | 0.914 |
| Miles | Kilometers | 1.609 |
| Square Inches | Square Centimeters | 6.451 |
| Square Feet | Square Meters | 0.093 |
| Square Yards | Square Meters | 0.836 |
| Square Miles | Square Kilometers | 2.590 |
| Acres | Square Hectometers | 0.405 |
| Cubic Feet | Cubic Meters | 0.028 |
| Cubic Yards | Cubic Meters | 0.765 |
| Fluid Ounces | Milliliters | 29.573 |
| ıts | Liters | 0.473 |
| arts | Liters | 0.946 |
| allons | Liters | 3.785 |
| Ounces | Grams | 28.349 |
| Pounds | Kilograms | 0.454 |
| Short Tons | Metric Tons | 0.907 |
| Pound-Feet | Newton-Meters | 1.356 |
| Pounds per Square Inch | Kilopascals | 6.895 |
| Miles per Gallon | Kilometers per Liter | 0.425 |
| Miles per Hour | Kilometers per Hour | 1.609 |

| TO CHANGE | TO | MULTIPLY BY |
|---|---|---|
| Centimeters | Inches | 0.394 |
| Meters | Feet | 3.280 |
| Meters | Yards | 1.094 |
| Kilometers | Miles | 0.621 |
| Square Centimeters | Square Inches | 0.155 |
| Square Meters | Square Feet | 10.764 |
| Square Meters | Square Yards | 1.196 |
| Square Kilometers | Square Miles | 0.386 |
| Square Hectometers | Acres | 2.471 |
| Cubic Meters | Cubic Feet | 35.315 |
| Cubic Meters | Cubic Yards | 1.308 |
| Milliliters | Fluid Ounces | 0.034 |
| Liters | Pints | 2.113 |
| Liters | Quarts | 1.057 |
| ers | Gallons | 0.264 |
| ms | Ounces | 0.035 |
| ograms | Pounds | 2.205 |
| Metric Tons | Short Tons | 1.102 |
| Newton-Meters | Pounds-Feet | 0.738 |
| Kilopascals | Pounds per Square Inch | 0.145 |
| lometers per Liter | Miles per Gallon | 2.354 |
| meters per Hour | Miles per Hour | 0.621 |



**PIN: 017255-003**