

SYMBOLS & CODES EXPLAINED

IN TYPE No. CROSS-INDEX & TECHNICAL SECTIONS

- Δ } Indicators of separate manufacturers producing same type number (non-JEDEC) whose characteristics are not the same.
- \square } This manufacturer-identifying symbol (assigned by D.A.T.A.) is an integral part of the type number (in Type No. Cross Index, Technical Data Sections) to avoid the possibility of confusing the devices of one manufacturer with the devices of others.
- $\%$ } Technical Data Sections)
- RT ... Replacement Type; consult manufacturer.

SYMBOLS & CODES COMMON TO MORE THAN ONE TECHNICAL SECTION

LINE No.

- ∇ - New Type
- \blacklozenge - Revised Specifications
- # - Non-JEDEC Type manufactured outside U.S.A.

TYPE No.

- \dagger - Switching type, also listed in Section 12
- \emptyset - Chopper, also listed in Section 13, Category 10
- * - These types also included elsewhere with other characteristics. See Type No. Cross Index for alternate line no.
- \S - Radiation Resistant Devices, also listed in Section 13, Category 13.

STRUCTURE (All Sections)

- A - Alloy Except 6 & 7)
- AN - Annular
- D - Diffused or drift
- DM - Diffused mesa
- E - Epitaxial
- EA - Epitaxial annular
- EM - Epitaxial mesa
- F - Fused
- G - Grown
- GA - Gallium Arsenide
- H - Hometaxial
- MA - Mico alloy
- MD - Micro alloy diffused
- ME - Mesa
- MOS - Metal oxide silicon
- PA - Precision alloy
- PC - Point contact
- PD - Precision alloy diffused
- PE - Planar epitaxial
- PL - Planar
- S - Surface barrier
- * - Matched pair
- Δ - Switching, other uses
- \square - Chopper, other uses
- \emptyset - Noise figure 8db or below
- \dagger - Plastic package
- $\%$ - Overlay

2. GERMANIUM PNP 3. GERMANIUM NPN 4. SILICON PNP 5. SILICON NPN -- Low Power Transistors

| LINE No. | TYPE No. | MAX. COLL. DISS. @25°C (W) | DERATE IN FREE AIR W/°C | TEMP. RANGES @25°C | ABS. MAX. RATINGS @25°C | MAX. ICBO @MAX Vcb (A) | MAX. Vcb (V) | BIAS | COMMON EMITTER | Cob | STRUC-TURE | DWG # | LEAD |
|----------|----------|----------------------------|-------------------------|--------------------|-------------------------|------------------------|--------------|------|----------------|-----|------------|-------|------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |

\emptyset - With infinite heat sink
Following symbols indicate temperature at which derating starts:

| | | |
|------------------|------------------|------------------------|
| \dagger - 40°C | \square - 60°C | \S - 100°C |
| * - 45°C | \S - 70°C | \blacklozenge - Min. |
| # - 50°C | Δ - 85°C | |

\dagger - f_{ae}
 \S - Gain bandwidth product (f_t)
* - Maximum frequency of oscillation
 \emptyset - Figure of merit (frequency for unity power gain)
 Δ - Minimum
 \square - Maximum

\emptyset - With infinite heat sink

| | |
|-----------------------------|--------------|
| * - 50-65°C | A - Ambient |
| \emptyset - 70-80°C | C - Case |
| # - 85-100°C | J - Junction |
| \blacklozenge - 110-125°C | S - Storage |
| \dagger - 130-135°C | |
| \S - 140-165°C | |
| \S - 170-200°C | |
| ∇ - Over 200°C | |

\emptyset - I_C Δ - I_B

\emptyset - V_{CE}

\emptyset - At $V_{CB} < \text{Max. } V_{CB}$ (See Mfr. Spec.)
- I_{CEX} \S - Typical
 \S - I_{CES} * - I_{CER}
 \dagger - At Temp. $> 25^\circ\text{C}$ Δ - I_{CEO}
 \blacklozenge - At Temp. 25°C Case

- Pulsed or Peak
 \S - Minimum

- BV_{CEX} or punch-through
 \emptyset - BV_{CES} \square - $BV_{ce0(sus)}$
 \S - BV_{CER} * - Pulsed
 \S - Indicates min. values given for BV_{cbo} , BV_{ceo} , and BV_{ebo} .

b - h parameters are h_{ob} , h_{ib} , h_{rb}
 \square - Maximum

\dagger - h_{FE} Δ - Minimum
- Pulsed \square - Maximum
 \S - h_{FC}
* - Available in selected ranges

\square - Maximum \S - C_{cb} \dagger - C_{re}

\S - Tetrode
- Radiation Resistant Device (Also See Above)

2. GERMANIUM PNP - LOW POWER TRANSISTORS

IN ORDER OF (1) MAX COLLECTOR DISSIPATION
(2) fab & (3) TYPE No.

| LINE No. | TYPE No. | 1] MAX. COLL. DISS. @25°C (W) | 2] fab (Hz) | DERATE | | ABS MAX RATINGS @25°C | | | | MAX. lcbp @MAX (Vc) | TYPICAL 'h' PARAMETERS | | | Cob (F) | STRUC-TURE | DWG #/s/a TO200 Ser. | #C O D E | | |
|----------|------------|-------------------------------|-------------|-----------------|-------------|-----------------------|--------|--------|-------|---------------------|------------------------|--------|----------------|---------|------------|----------------------|----------|------------|---------|
| | | | | IN FREE AIR W/C | TEMPERATURE | VbVcbj | VbVceo | VbVbeo | Ic | | BIAS | | COMMON EMITTER | | | | | | |
| | | | | MAX (°C) | (°C) | (V) | (V) | (V) | (A) | | Vcb (V) | Ic (A) | hfe | | | | | hoe (mhos) | hie (Ω) |
| 1 | T1320 | 100m | 400kΔ | | | 30 | | | 20 | 5.0 | 1.0m | 34 † | 850nb | 38 | 5.4 | 40p | A | R44 | |
| 2 | 2N199 | 100m | 500k | 1.5m | # | 30 | | | 30 | 5.0 | 1.0m | 25 | | | | | | | |
| 3 | GT758 | 100m | 500k | 2.0m | #S | 20 | | | 200m | 25 | 4.5 | 15 | 700nb | 30 | 3.0 | 14p | AΔ | TO5 | |
| 4 | OC71N | 100m | 500k | 2.2m | ∅ | 30 | | | 10m | 5.0 | 2.0 | 3.0 | 80 | 800 | 5.4 | | A | TO1 | |
| 5 | T1321 | 100m | 500kΔ | 1.7 | ∅ | 30 | | | 50m | 5.0 | 1.0m | 95 † | 830nb | 38 | 8.0 | | A | R44 | |
| 6 | 2N198 | 100m | 600k | 1.5m | # | 30 | | | 30 | 5.0 | 1.0m | 40 | | | | 40p | | | |
| 7 | 2N197 | 100m | 700k | 1.5m | # | 30 | | | 30 | 5.0 | 1.0m | 50 | | | | 40p | | | |
| 8 | 2N196 | 100m | 800k | 1.5m | # | 30 | | | 30 | 5.0 | 1.0m | 65 | | | | 40p | | | |
| 9# | 2SB134 | 100m | 800k | 1.7 | #J | 30 | | | 30 ∅ | 10 | 1.5 | 500 | 19u | 3.2k | 5.3 | | A∅ | TO1 | |
| 10# | 2SB135 | 100m | 800k | 1.7m | #J | 30 | | | 15 | 100m | 1.0 | 70 | 21u | 2.1k | 3.2 | | A | TO1 | |
| 11# | 2SB135A | 100m | .80M | 1.7m | #J | 110 | | | 110 ∅ | 12 | 1.0 | 50 † | | | | 40p | A | TO1 | |
| 12 | 2N195 | 100m | 1.0M | 1.5m | ∅ | 15 | | | 10 | 3.0 | 1.0m | 180 | | | | 40p | | | |
| 13 | 2N200 | 100m | 1.0M | 1.5m | # | 36 | | | 12 | 100m | 4.0 | 45 | | | | 40p | | | |
| 14# | 2SB110 | 100m | 1.0M | 1.4m | ∅ | 25 | | | 10 | 50m | 6.0 | 30 | 50ub | 30 | 2.5 | | A | TO1 | |
| 15# | 2SB111 | 100m | 1.0M | 1.4m | ∅ | 25 | | | 10 | 50m | 6.0 | 45 | 50ub | 30 | 2.5 | | A | TO1 | |
| 16# | 2SB112 | 100m | 1.0M | 1.4m | ∅ | 25 | | | 10 | 50m | 6.0 | 60 | 50ub | 30 | 2.5 | | A | TO1 | |
| 17# | 2SB113 | 100m | 1.0M | 1.4m | ∅ | 25 | | | 10 | 50m | 6.0 | 80 | 50ub | 30 | 2.5 | | A | TO1 | |
| 18# | 2SB100 | 100m | 1.2M | 2.5m | ∅ | 30 | | | 10 | 50m | 6.0 | 60 | 300nb | 30 | 2.5 | | A∅ | TO5 | |
| 19 | CK754 | 100m | 1.2M | 1.7m | #J | | 10 | | 20 | 100m | 6.0 | 300 | | | | | A | | |
| 20# | 2SB114 | 100m | 1.5M | 1.4m | ∅ | 25 | | | 10 | 50m | 1.0 | 65 † | | | | 15p | A | TO1 | |
| 21# | 2SB115 | 100m | 1.5M | 1.4m | ∅ | 25 | | | 10 | 50m | 1.0 | 85 † | | | | 15p | A | TO1 | |
| 22# | 2SB116 | 100m | 1.5M | 1.4m | ∅ | 25 | | | 10 | 50m | 1.0 | 110 † | | | | 15p | A | TO1 | |
| 23# | 2SB117 | 100m | 1.5M | 1.4m | ∅ | 25 | | | 10 | 50m | 1.0 | 140 † | | | | 15p | A | TO1 | |
| 24 | 2N30 | 100m | 2.0M | | *A | 30 | | | 50 | 7.0m | 25 | 50m | 17 ‡ | | | | PC | | |
| 25# | 322T1 | 100m | 2.0M | 2.0m | | 20 | | | 20 | 100m | 16u | 1.0 | 5.0m | | | 25 Δ | | TO1 | |
| 26 | AC107M | 100m | 2.0M§ | | | 20 | | | 15 | 5.0 | 30m | 60 | | | | | ∅ | TO5 | |
| 27# | ASY61/TK33 | 100m | 2.0M§Δ | | | 20 | | | | 60 | 8.0u | 25 †Δ | | | | 30p | D | | |
| 28# | TK21A | 100m | 2.0M | 4.0m | *J | 30 | | | 30 | | 30 | 50m | 23 | | | | AB | | |
| 29# | TK26A | 100m | 2.0M | 4.0m | *J | 30 | | | 30 | | 30 | 23 | | | | | AB | | |
| 30# | 2SB443A | 100m | 2.5M | 1.7m | #J | 18 | | | 18 ∅ | 12 | 10m | 110 | 43u | 3.0k | 6.5 | | A∅ | TO1 | |
| 31# | 2SB444A | 100m | 2.5M | 1.7m | #J | 18 | | | 18 ∅ | 12 | 10m | 120 | 50u | 3.3k | 6.8 | | A∅ | TO1 | |
| 32# | 323T1 | 100m | 2.5M | 2.0m | | 20 | | | 20 | 5.0 | 100m | 40 Δ | | | | | A | TO1 | |
| 33# | TK24A | 100m | 2.5M | 4.0m | *J | 30 | | | 30 | | 5.0 | 40m | | | | | AB | | |
| 34# | TK27A | 100m | 2.5M | 4.0m | *J | 30 | | | 30 | | 5.0 | 40m | | | | | AB | | |
| 35 | 2N31 | 100m | 3.0M | | *A | 30 | | | 30 | | 7.0m | 800 | | | | | PCΔ | | |
| 36# | 2SB443 | 100m | 3.0M | | | 18 | | | 18 ∅ | 12 | 10m | 150 | 53u | 3.9k | 7.4 | | A | TO1 | |
| 37# | 2SB444 | 100m | 3.0M | | | 18 | | | 18 ∅ | 12 | 10m | 160 | 59u | 3.9k | 7.7 | | A | TO1 | |
| 38# | 324T1 | 100m | 3.0M | 2.0m | | 20 | | | 20 | 5.0 | 100m | 65 Δ | | | | | A | TO1 | |
| 39# | OC3H | 100m | 3.0MΔ | 1.7m | #S | 15 | | | 15 | 12 | 5.0 | 50 Δ | | | | 14p | A | TO9 | |
| 40# | OC4H | 100m | 3.0MΔ | 1.7m | #S | 15 | | | 15 | 12 | 10 | 80 Δ | | | | 14p | A | TO9 | |
| 41# | 2SB443B | 100m | 3.5M | 1.7m | #J | 18 | | | 18 ∅ | 12 | 10m | 190 | 63u | 4.8k | 8.3 | | A∅ | TO1 | |
| 42# | 2SP444B | 100m | 3.5M | 1.7m | #J | 18 | | | 18 ∅ | 12 | 10m | 200 | 68u | 5.2k | 8.7 | | A∅ | TO1 | |
| 43# | 325T1 | 100m | 3.5M | 2.0m | | 20 | | | 20 | 5.0 | 100m | 90 Δ | | | | | A | TO1 | |
| 44# | GET883 | 100m | 3.5M | 1.7m | #J | 15 | | | 15 | 10 | 10m | 50 | | | | | A† | TO5 | |
| 45# | 326T1 | 100m | 4.0M | 2.0m | | 20 | | | 20 | 5.0 | 100m | 140 Δ | | | | | A | TO1 | |
| 46 | 2N53 | 100m | 5.0M | | *A | 50 | | | 50 | 8.0m | | 67 | | | | | PCΔ | | |
| 47 | 4JD1A73 | 100m | 5.0M | | #S | | 2.0 | | 5.0 | 50m | 6.0 | 32 | | | | 12 | | | |
| 48 | AF202 | 100m* | 5.0M§ | 2.2m | #J | 25 | | | 30 | 30m | 40u | 85 | | | | | ME | R96 | |
| 49 | AF202S | 100m* | 5.0M§ | 2.2m | #J | 32 | | | 30 | 30m | 40u | 85 | | | | | ME | R96 | |
| 50# | TK20A | 100m | 6.3M | 4.0m | *J | 30 | | | 30 | | 4.5 | 1.0m | | | | | A | | |
| 51# | GET884 | 100m | 7.5M | 1.7m | #J | 15 | | | 10 | 10m | 5.0 | 70 | | | | | A† | TO5 | |
| 52 | 2N1684 | 100m | 8.0M | 1.3m | # | 25 | | | 12 | 100m | 20u | | | | | 15p | A | u1 | |
| 53 | 2N1782 | 100m | 8.0M | 1.3m | # | 30 | | | 20 | 100m | | | | | | 15p | AΔ | u1 | |
| 54# | OC3K | 100m | 8.0MΔ | 1.7m | #S | 15 | | | 10 | | 2.0 | 50 Δ | | | | 14p | A | TO9 | |
| 55# | OC4K | 100m | 8.0MΔ | 1.7m | #S | 15 | | | 10 | | 2.0 | 80 Δ | | | | 14p | A | TO9 | |
| 56# | OC5K | 100m | 8.0MΔ | 1.7m | #S | 15 | | | 10 | | 2.0 | 120 Δ | | | | 14p | A | TO9 | |
| 57# | TK25A | 100m | 1.0M | 4.0m | *J | 20 | | | 20 | | 4.5 | 1.0m | | | | 17p | A | ABΔ | |
| 58# | TK34C | 100m | 1.0M | 2.0m | ∅ | 20 | | | 6.0 | 15 | 250m | 60 † | | | | 3.0p | AΔ | R47a | |
| 59 | 2N624 | 100m | 1.2MΔ | 1.3m | #J | 30 | | | 20 ∅ | | 10m | 20 Δ | | | | 15p | D | R4 | |
| 60 | 2N1784 | 100m | 1.2M | 1.3m | # | 30 | | | 12 | 100m | 25u | 40 † | | | | 3.0p | AΔ | u1 | |
| 61# | OC3N | 100m | 1.5MΔ | 1.7m | #S | 15 | | | 8.0 | 10 | | 50 Δ | | | | 14p | A | TO9 | |
| 62# | OC4N | 100m | 1.5MΔ | 1.7m | #S | 15 | | | 8.0 | 10 | | 80 Δ | | | | 14p | A | TO9 | |
| 63# | OC5N | 100m | 1.5MΔ | 1.7m | #S | 15 | | | 8.0 | 10 | | 120 Δ | | | | 14p | A | TO9 | |
| 64 | GT1607 | 100m | 1.8M | 1.7m | #S | 10 | | | | | 25 | 60 Δ | | | | 14p | A | TO9 | |
| 65# | AFY15 | 100m | 2.0M | | # | 22 | | | 12 | 8.0 | 50m | 80 | | | | 10p | A | R60 | |
| 66# | OC4-O | 100m | 2.1MΔ | 1.7m | #S | 15 | | | 6.0 | 10 | | 80 Δ | | | | 14p | A | TO9 | |
| 67# | OC5-O | 100m | 2.1MΔ | 1.7m | #S | 15 | | | 6.0 | 10 | | 120 Δ | | | | 14p | A | TO9 | |
| 68# | OC40 | 100m | 2.1MΔ | 1.7m | #S | 15 | | | 6.0 | 10 | | 80 Δ | | | | 14p | A | TO9 | |
| 69# | OC50 | 100m | 2.1MΔ | 1.7m | #S | 15 | | | 6.0 | 10 | | 120 Δ | | | | 14p | A | TO9 | |
| 70# | 2SA228 | 100m | 3.0M | | ∅ | 80 | | | 50 | 10m | 50 | 70 | | | | 20p | D | TO17 | |
| 71# | NKT618 | 100m | 3.0MΔ | | ∅ | 50 | | | 50 ∅ | | 30m | 35 Δ | | | | 2.0p | ME | TO1 | |
| 72# | 2SA427 | 100m | 4.5M | | ∅ | 20 | | | | | 15m | 60 | | | | 5p | D | TO44 | |
| 73# | 2SA428 | 100m | 5.0M | | ∅ | 20 | | | | | 15m | 80 | | | | 5p | D | TO44 | |
| 74 | 2N1517A | 100m | 7.0M§ | 1.6m | ∅ | 40 | | | 20 | 1.0 | 10m | 150 | 350u | 43 | 140 | 2.5p | AD | TO7 | |
| 75 | PADT29 | 100m | 7.0M§ | 588u | #J | 25 | | | 15 | | 10m | 150 | | | | AD∅ | ∅ | TO7 | |
| 76 | 2N2093 | 100m | 7.5M§ | 1.7m | #J | 25 | | | 25 § | 2.0 | 10m | 150 | 1.0u | 4.0k | 160 | 4.0p | AD∅ | TO7 | |
| 77# | 2G417 | 100m | 90M§ | 1.7m | #J | 20 | | | 20 § | 1.0 | 10m | 50 Δ | | | | 3.5p | AD† | TO18 | |
| 78# | 2G413 | 100m | 100M§ | 1.5m | | | | | | | | | | | | | | | |