DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

# 2SD1357-2SD1359

## NPN POWER TRANSISTORS

**FEATURES**

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

**MAXIMUM RATINGS**

| Characteristic | Symbol | 2SD1357 | 2SD1358 | 2SD1359 | Unit |
|---|---|---|---|---|---|
| **Collector-Emitter Voltage** | $V_{CEO}$ | 100 | 80 | 60 | V |
| **Collector-Emitter Voltage** | $V_{CBO}$ | 100 | 80 | 60 | V |
| **Emitter-Base Voltage** | $V_{EBO}$ | 5.0 | | | V |
| **Collector Current – continuous** | $I_C$ | 7.0 | | | A |
| **Base Current** | $I_B$ | 0.2 | | | A |
| **Total Power Dissipation @ $T_C$ = 25°C** | $P_D$ | 40 | | | W |
| **Operating and Storage Temperature Range** | $T_J$, $T_{stg}$ | -55 to +150 | | | °C |

**ELECTRICAL CHARACTERISTICS** ($T_C$ = 25°C unless otherwise specified)

| Characteristic | | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Collector Cutoff Current** | | | | | | |
| ($V_{CB}$ = 100V, $I_E$ = 0) | 2SD1357 | $I_{CBO}$ | - | - | 100 | µA |
| ($V_{CB}$ = 80V, $I_E$ = 0) | 2SD1358 | | - | - | 100 | |
| ($V_{CB}$ = 60V, $I_E$ = 0) | 2SD1359 | | - | - | 100 | |
| **Emitter Cutoff Current** | | | | | | |
| ($V_{EB}$ = 5V, $I_C$ = 0) | | $I_{EBO}$ | - | - | 3.0 | mA |
| **Collector Emitter Breakdown Voltage** | 2SD1357 | | 100 | - | - | |
| ($I_C$ = 50mA, $I_B$ = 0) | 2SD1358 | $V_{(BR)CEO}$ | 80 | - | - | V |
| | 2SD1359 | | 60 | - | - | |
| **DC Current Gain** | | | | | | |
| ($I_C$ = 3.0A, $V_{CE}$ = 3.0V) | | $h_{FE}$ | 2000 | - | 15000 | - |
| ($I_C$ =7.0A, $V_{CE}$ = 3.0V) | | | 1000 | - | - | |
| **Collector-Emitter Saturation Voltage** | | | | | | |
| ($I_C$ = 3.0A, $I_B$ = 6mA) | | $V_{CE(sat)}$ | - | 0.9 | 1.5 | V |
| ($I_C$ = 7.0A, $I_B$ = 14mA) | | | - | 1.2 | 2.0 | |
| **Base-Emitter Saturation Voltage** | | | | | | |
| ($I_C$ = 3.0A, $I_B$ = 6mA) | | $V_{BE(sat)}$ | - | 1.5 | 2.5 | V |
| **Turn-On Time** | $I_{B1}$ = $I_{B2}$ = 6mA, $V_{CC}$ = 45V, Duty cycle ≤ 1%. | $t_{on}$ | - | 0.8 | - | pF |
| **Storage Time** | | $t_s$ | - | 3.0 | - | |
| **Fall Time** | | $t_f$ | - | 2.5 | 1.0 | |

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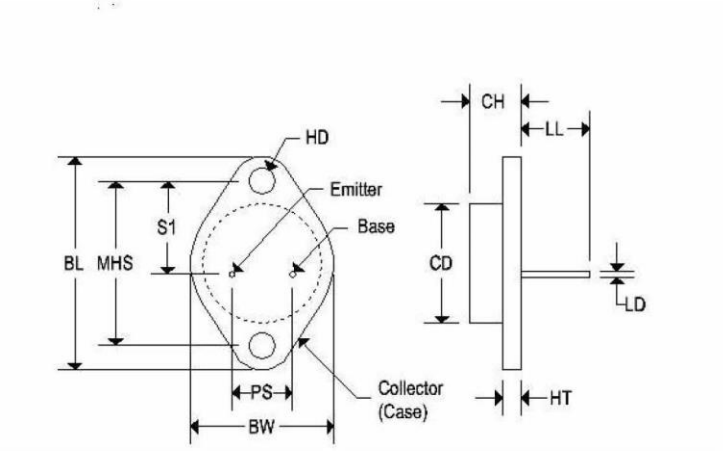
NPN POWER TRANSISTORS

**MECHANICAL CHARACTERISTICS**

| | |
|---|---|
| **Case:** | TO-3 |
| **Marking:** | Alpha-Numeric |
| **Polarity:** | See below |




| | TO-3 | | | |
|---|---|---|---|---|
| | Inches | | Millimeters | |
| | Min | Max | Min | Max |
| CD | - | 0.875 | - | 22.220 |
| CH | 0.250 | 0.380 | 6.860 | 9.650 |
| HT | 0.060 | 0.135 | 1.520 | 3.430 |
| BW | - | 1.050 | - | 26.670 |
| HD | 0.131 | 0.188 | 3.330 | 4.780 |
| LD | 0.038 | 0.043 | 0.970 | 1.090 |
| LL | 0.312 | 0.500 | 7.920 | 12.700 |
| BL | 1.550 REF | | 39.370 REF | |
| MHS | 1.177 | 1.197 | 29.900 | 30.400 |
| PS | 0.420 | 0.440 | 10.670 | 11.180 |
| S1 | 0.655 | 0.675 | 16.640 | 17.150 |