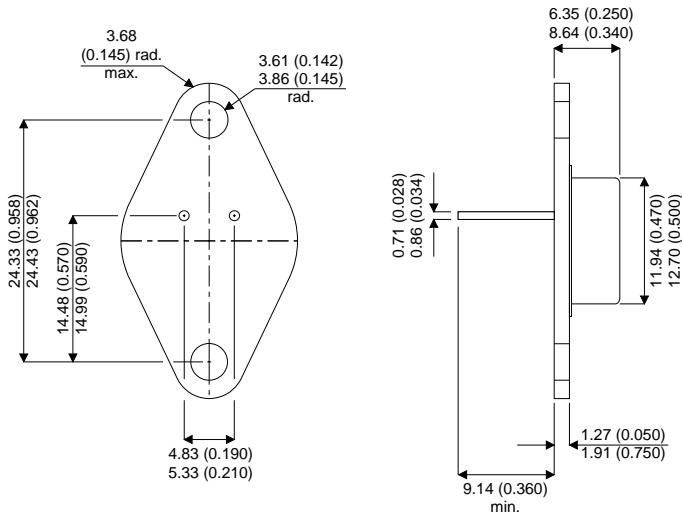


MECHANICAL DATA

Dimensions in mm(inches)



TO-66

PIN 1 — Base PIN 2 — Emitter Case is Collector.

DARLINGTON COMPLEMENTARY SILICON POWER TRANSISTOR

FEATURES

- $LOW V_{CE(SAT)}$
- **HIGH CURRENT**

APPLICATIONS

- **GENERAL PURPOSE AMPLIFIER**
- **LOW FREQUENCY SWITCHING**
- **HAMMER DRIVER APPLICATIONS**

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

| | | |
|----------------|---|-----------------------|
| V_{CEO} | Collector – Emitter Voltage | 80V |
| V_{CB} | Collector – Base Voltage | 80V |
| V_{EB} | Emitter – Base Voltage | 5V |
| I_C | Collector Current – Continuous | 4A |
| | Peak | 8A |
| I_B | Base Current | 80mA |
| P_D | Total Power Dissipation at $T_{case} = 25^{\circ}C$ | 50W |
| | Derate above $25^{\circ}C$ | 0.286 W/ $^{\circ}C$ |
| T_j, T_{stg} | Operating and Storage Junction Temperature Range | -65 to $200^{\circ}C$ |

THERMAL CHARACTERISTICS

| | | |
|-----------------|--------------------------------------|-------------------|
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case | 3.5 $^{\circ}C/W$ |
|-----------------|--------------------------------------|-------------------|

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

| Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|--|--|-----------------|------|------------|------|
| OFF CHARACTERISTICS | | | | | |
| $V_{CEO(sus)}$ Collector - Emitter Sustaining Voltage | $I_C = 50mA$ $I_B = 0$ | 80 | | | V |
| I_{CEO} Collector Cut-off Current | $I_B = 0$ $V_{CE} = 40V$ | 0.5 | | | mA |
| I_{CEX} Collector - Emitter Cut-off Current | $V_{CE} = \text{Rated } V_{CB}$ $V_{EB(off)} = 1.5V$ $T_c = 150^{\circ}C$ | | | 0.5 5.0 | mA |
| I_{EBO} Emitter Cut-off Current | $I_C = 0$ $V_{BE} = 5V$ | | | 2.0 | mA |
| ON CHARACTERISTICS | | | | | |
| h_{FE} DC Current Gain | $I_C = 2A$ $V_{CE} = 3V$ | 750 | | 18000 | — |
| | $I_C = 4A$ $V_{CE} = 3V$ | 100 | | | |
| $V_{CE(sat)}$ Collector - Emitter Saturation Voltage | $I_C = 2A$ $I_B = 8.0mA$ | | | 2.0 | V |
| | $I_C = 4A$ $I_B = 40mA$ | | | 3.0 | |
| $V_{BE(sat)}$ Base - Emitter Saturation Voltage | $I_C = 4A$ $I_B = 40mA$ | | | 4.0 | V |
| $V_{BE(on)}$ Base - Emitter On Voltage | $I_C = 2A$ $V_{CE} = 3V$ | | | 2.8 | V |
| DYNAMIC CHARACTERISTICS | | | | | |
| $ h_{fe} $ Magnitude of Common Emitter Small Signal Short Circuit Forward current Transfer Ratio | $I_C = 1.5A$ $f = 1.0 \text{ MHz}$ | $V_{CE} = 3V$ | 4.0 | | — |
| C_{ob} Output Capacitance | $V_{CB} = 10V$ $f = 0.1 \text{ MHz}$ | $I_E = 0$ | | 120 | pF |
| h_{fe} Small Signal Current Gain | $I_C = 1.5A$ $f = 1.0 \text{ KHz}$ | $V_{CE} = 3.0V$ | 300 | | — |

*Pulse test $t_p = 300\mu s$ $\delta \leq 2\%$