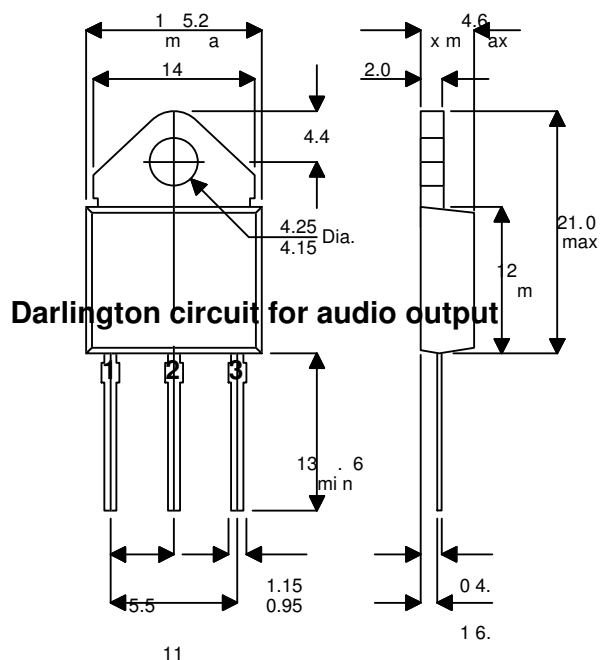


**MECHANICAL DATA**

Dimensions in mm



**SILICON DARLINGTON POWER TRANSISTORS**

Complementary epitaxial base transistors in monolithic stages and general amplifier and switching applications.

The T64 is PNP and the T65 is NPN

**SOT 93**

- Pin 1 ? Base
- Pin 2 ? Collector
- Pin 3 ? Emitter

| <b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_{case} = 25^{\circ}C$ unless otherwise stated) |  | T64   | T65          |
|---|--|-------|--------------|
| $V_{CBO}$   | Collector ? Base Voltage (Open Emitter)              | ?120V | 120V         |
| $V_{CEO}$   | Collector ? Emitter Voltage (Open Base)              | ?120V | 120V         |
| $V_{EBO}$   | Emitter ? Base Voltage (Open Collector)              | ?5V   | 5V           |
| $I_C$   | Collector Current (d.c)                              |       | 12A          |
| $I_{CM}$  | Peak Collector Current                               |       | 20A          |
| $I_B$   | Base Current (d.c)                                   |       | 0.5A         |
| $P_{tot}$   | Total Power Dissipation up to $T_{mb} = 25^{\circ}C$ |       | 125W         |
| $T_{stg}$   | Storage Temperature Range                            |       | ?65 to 150°C |
| $T_j$   | Maximum Junction Temperature                         |       | 150°C        |

**ELECTRICAL CHARACTERISTICS** ( $T_j = 25^\circ\text{C}$  unless otherwise stated)

| Parameter  | Test Conditions   | Min. | Typ. | Max. | Unit |
|--|---|------|------|------|------|
| $V_{BE}^*$ Base ? Emitter Voltage                      | $I_C = 5A$ $V_{CE} = 4V$  |      |      | 2.5  | V    |
| $V_{CE(sat)}^*$ Collector ? Emitter Saturation Voltage | $I_C = 5A$ $I_B = 20mA$   |      |      | 2    | V    |
| $I_{CBO}$ Collector ? Base Cut-off Current             | $I_E = 0$ $V_{CB} = V_{CBO(max)}$                               |      |      | 400  | mA   |
|  | $I_E = 0$ $V_{CB} = -V_{CBO(max)}$<br>$T_j = 150^\circ\text{C}$ |      |      | 2    | mA   |
|  | $I_B = 0$ $V_{CB} = -V_{CBO(max)}$                              |      |      | 1    | mA   |
| $I_{EBO}$ Emitter Cut-off Current                      | $I_C = 0$ $V_{EB} = 5V$   |      |      | 5    | mA   |
| $h_{FE}^*$ DC Current Gain                             | $I_C = 1A$ $V_{CE} = 4V$  |      | 1500 |      | ?    |
|  | $I_C = 5A$ $V_{CE} = 4V$  | 1000 |      |      |      |
|  | $I_C = 10A$ $V_{CE} = 4V$                                       |      | 1750 |      |      |
| $C_C$ Collector Capacitance                            | $I_E = I_e = 0$ $V_{CB} = 10V$<br>$f = 1\text{ MHz}$            |      | 150  |      | pF   |
| $f_{hfe}$ Cut-off Frequency                            | $I_C = 5A$ $V_{CE} = 4V$  |      | 70   |      | kHz  |
| $V_F$ Diode Forward Voltage                            | $I_F = 5A$  |      | 1.2  |      | V    |
|  | $I_F = 12A$   |      | 2    |      |      |

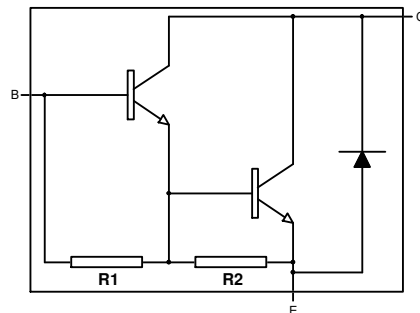
\* Pulse test  $t_p < 300ms$ ,  $d < 2\%$

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

| Parameter               | Test Conditions  | Min. | Typ. | Max. | Unit |
|-------------------------|--|------|------|------|------|
| $t_{on}$ Turn-On Time   | $I_{C(on)} = 5A$ $V_{CC} = 16V$<br>$I_{B(on)} = ?$ $I_{B(off)} = 20mA$ |      | 1    |      | ms   |
| $t_f$ Fall Time         |  |      | 3    |      |      |
| $t_{off}$ Turn-Off Time |  |      | 6    |      |      |

**THERMAL DATA**

|              |   |              |
|--------------|---|--------------|
| $R_{THj?mb}$ | Thermal Resistance Junction ? Mounting Base | Max. 1 K / W |
|--------------|---|--------------|



R1 typical 5k\*  
R2 typical 80\*