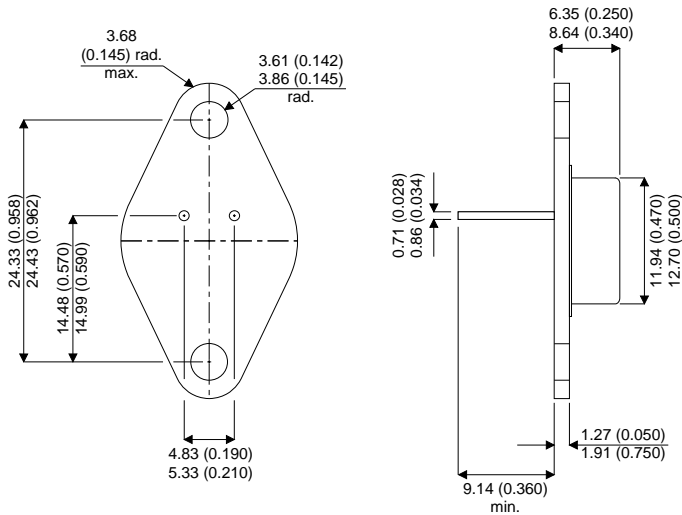


MECHANICAL DATA

Dimensions in mm(inches)

DARLINGTON COMPLEMENTARY SILICON POWER TRANSISTOR



TO-66

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

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 $^{\circ}C/W$
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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 $t_p = 300\mu s$ $\delta \leq 2\%$