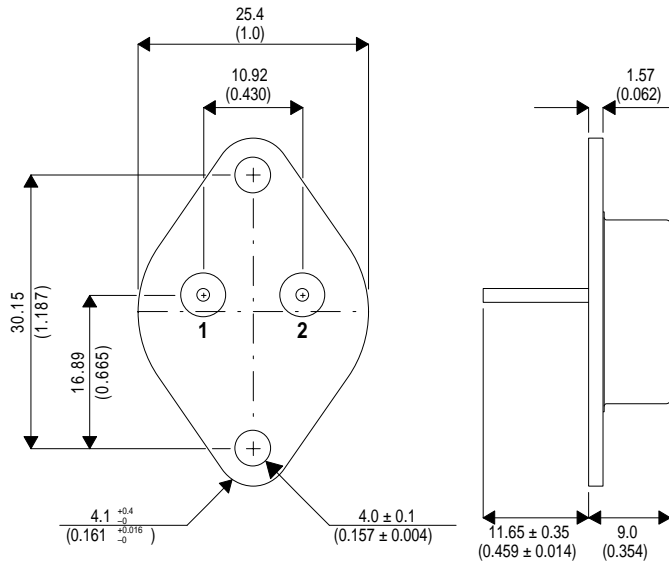


MECHANICAL DATA

Dimensions in mm (inches)



Tolerance ± 0.127 (0.005) unless otherwise stated

TO-3

Pin 1 – Base Pin 2 – Emitter Case – Collector

**COMPLEMENTARY
DARLINGTON
POWER TRANSISTOR**

FEATURES

- **HIGH DC CURRENT GAIN**
 $H_{FE} = 1000 \text{ Min @ } I_C = 25A$
 $H_{FE} = 400 \text{ Min @ } I_C = 50A$
- **CURVES TO 100A (Pulsed)**
- **DIODE PROTECTION TO RATED I_C**
- **MONOLITHIC CONSTRUCTION WITH BUILT-IN BASE – EMITTER SHUNT RESISTOR**
- **JUNCTION TEMPERATURE TO +200°C**

APPLICATIONS

For use as output devices in complementary general purpose amplifier applications.

ABSOLUTE MAXIMUM RATINGS

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

		MJ11028	MJ11030	MJ11032
		MJ11029	MJ11031	MJ11033
V_{CEO}	Collector – Emitter Voltage	60V	90V	120V
V_{CBO}	Collector – Base Voltage	60V	90V	120V
V_{EBO}	Emitter – Base Voltage		5V	
I_C	Continuous Collector Current		50A	
I_{CM}	Peak Collector Current		100A	
I_B	Base Current		2A	
P_{tot}	Total Dissipation at $T_{case} = 25^\circ C$		300W	
	Derate above 25°C		1.71W/°C	
T_{STG}, T_J	Operating and Storage Junction Temperature Range		-55 to +175°C	

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS							
$V_{(BR)CEO}^*$	Collector – Emitter Breakdown Voltage	$I_C = 100\text{mA}$ $I_B = 0$	MJ11028 , MJ11029	60			V
			MJ11030 , MJ11031	90			
			MJ11032 , MJ11033	120			
I_{CER}	Collector – Emitter Leakage Current	$V_{CE} = 60\text{V}$ $R_{BE} = 1\text{k}\Omega$ $T_C = 150^\circ\text{C}$	MJ11028 , MJ11029			2	mA
			MJ11030 , MJ11031			10	
			MJ11030 , MJ11031			2	
			MJ11032 , MJ11033			10	
I_{EBO}	Emitter Cut-Off Current	$V_{BE} = 5\text{V}$ $I_C = 0$				5	mA
I_{CEO}	Collector – Emitter Leakage Current	$V_{CE} = 50\text{V}$ $I_B = 0$				2	mA
ON CHARACTERISTICS							
h_{FE}^*	DC Current Gain	$V_{CE} = 5\text{V}$	$I_C = 25\text{A}$	1000		18000	—
		$V_{CE} = 5\text{V}$	$I_C = 50\text{A}$	400			
$V_{CE(sat)}^*$	Collector – Emitter Saturation Voltage	$I_C = 25\text{A}$	$I_B = 250\text{mA}$			2.5	V
		$I_C = 50\text{A}$	$I_B = 500\text{mA}$			3.5	
$V_{BE(sat)}^*$	Base – Emitter Saturation Voltage	$I_C = 25\text{A}$	$I_B = 200\text{mA}$			3.0	V
		$I_C = 50\text{A}$	$I_B = 300\text{mA}$			4.5	

* Pulse Test: $t_p \leq 300\mu\text{s}$, $\delta \leq 2\%$.

Figure 1 – DC Safe Operating Area

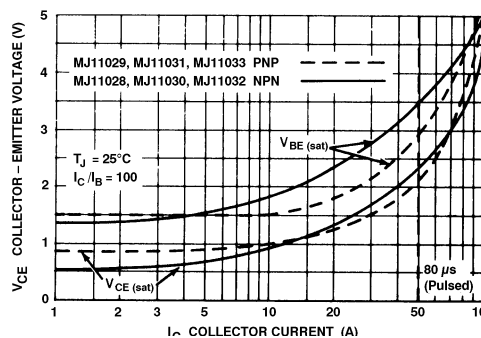


Figure 2 – DC Current Gain

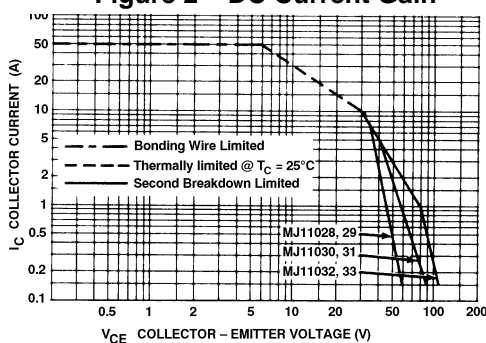


Figure 3 – “ON” Voltage

