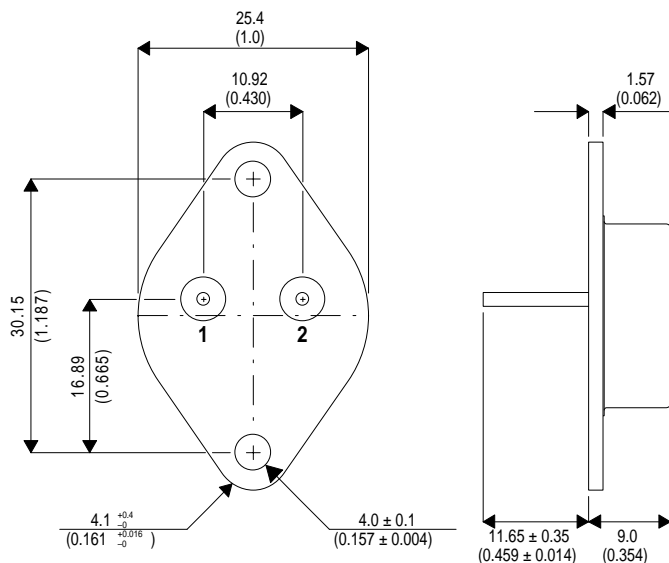


### MECHANICAL DATA

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

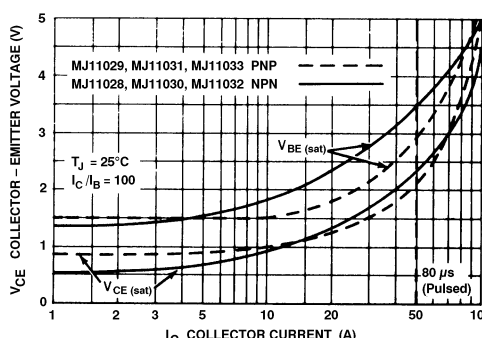
( $T_{case} = 25^\circ C$  unless otherwise stated)

		<b>MJ11028</b>	<b>MJ11030</b>	<b>MJ11032</b>
		<b>MJ11029</b>	<b>MJ11031</b>	<b>MJ11033</b>
$V_{CEO}$	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	

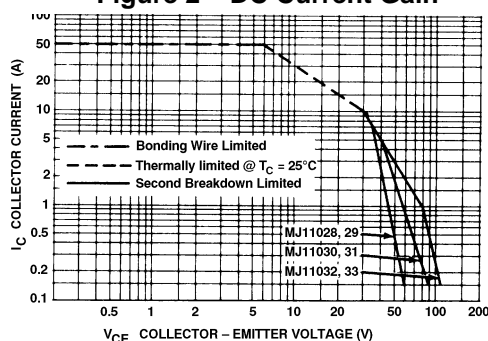
Parameter		Test Conditions		Min.	Typ.	Max.	Unit
<b>OFF CHARACTERISTICS</b>							
$V_{(BR)CEO}^*$	Collector – Emitter Breakdown Voltage	$I_C = 100\text{mA}$ $I_B = 0$	MJ11028 , MJ11029	60			V
			MJ11030 , MJ11031	90			
			MJ11032 , MJ11033	120			
$I_{CER}$	Collector – Emitter Leakage Current	$V_{CE} = 60\text{V}$ $R_{BE} = 1\text{k}\Omega$ $T_C = 150^\circ\text{C}$	MJ11028 , MJ11029			2	mA
			MJ11030 , MJ11031			10	
			MJ11032 , MJ11033			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
<b>ON CHARACTERISTICS</b>							
$h_{FE}^*$	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:  $t_p \leq 300\mu\text{s}$ ,  $\delta \leq 2\%$ .

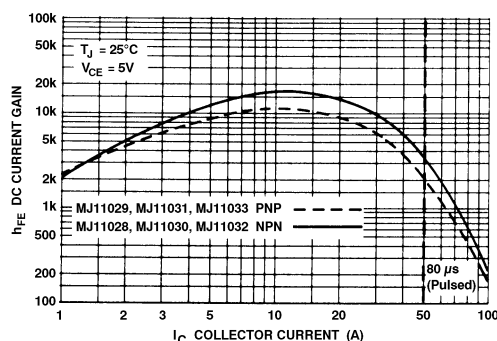
**Figure 1 – DC Safe Operating Area**



**Figure 2 – DC Current Gain**



**Figure 3 – “ON” Voltage**



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