

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Rating	Symbol	MJ11011	MJ11013	MJ11015	Unit
Collector emitter voltage	V_{CEO}	60	90	120	V
Collector base voltage	V_{CBO}	60	90	120	V
Emitter base voltage	V_{EBO}	5			V
Collector current	I_C	30			A
Base current	I_B	1			A
Total device dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	200			W
		1.15			W/ $^\circ\text{C}$
Operating and storage temperature range	T_J, T_{stg}	-55 to +200			$^\circ\text{C}$
Thermal resistance, junction to case	$R_{\theta JC}$	0.87			$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector emitter breakdown voltage ⁽¹⁾ $I_C = 100\text{mA}, I_B = 0$	MJ11011 MJ11013 MJ11015	$V_{(BR)CEO}$	60 90 120	- - -
Collector emitter leakage current $V_{CE} = 60\text{V}, R_{BE} = 1\text{k}\Omega$ $V_{CE} = 90\text{V}, R_{BE} = 1\text{k}\Omega$ $V_{CE} = 120\text{V}, R_{BE} = 1\text{k}\Omega$ $V_{CE} = 60\text{V}, R_{BE} = 1\text{k}\Omega, Y_C = 125^\circ\text{C}$ $V_{CE} = 90\text{V}, R_{BE} = 1\text{k}\Omega, T_C = 125^\circ\text{C}$ $V_{CE} = 120\text{V}, R_{BE} = 1\text{k}\Omega, T_C = 125^\circ\text{C}$	MJ11011 MJ11013 MJ11015 MJ11011 MJ11013 MJ11015	I_{CER}	- - - - - -	1 1 1 5 5 5
Emitter cutoff current $V_{BE} = 5\text{V}, I_C = 0$		I_{EBO}	-	5
Collector emitter leakage current $V_{CE} = 50\text{V}, I_B = 0$		I_{CEO}	-	1
ON CHARACTERISTICS ⁽¹⁾				
DC current gain $I_C = 20\text{A}, V_{CE} = 5\text{V}$ $I_C = 30\text{A}, V_{CE} = 5\text{V}$		h_{FE}	1000 200	- -
Collector emitter saturation voltage $I_C = 20\text{A}, I_B = 200\text{mA}$ $I_C = 30\text{A}, I_B = 300\text{mA}$		$V_{CE(sat)}$	- -	3 4
Base emitter saturation voltage $I_C = 20\text{A}, I_B = 200\text{mA}$ $I_C = 30\text{A}, I_B = 300\text{mA}$		$V_{BE(sat)}$	- -	3.5 5

MJ11011, MJ11013, MJ11015

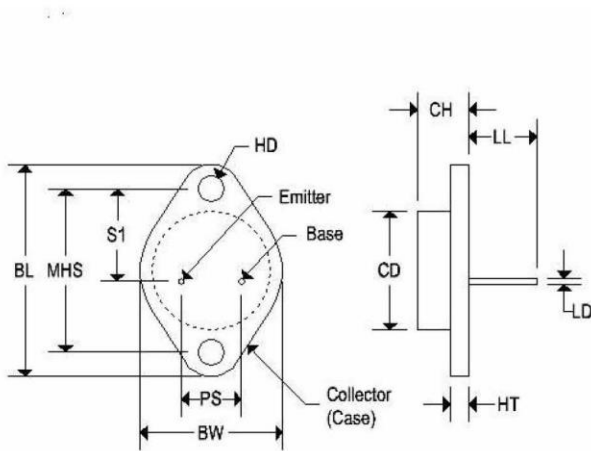
PNP SILICON POWER DARLINGTON TRANSISTORS

Characteristic	Symbol	Min	Max	Unit
DYNAMIC CHARACTERISTICS				
Current gain bandwidth product $I_C = 10A, V_{CE} = 3V, f = 1MHz$	h_{fe}	4	-	MHz

Note 1: Pulse test: Pulse width = 300 μ s, duty cycle \leq 2.0%.
Note 2: $f_r = |h_{fe}| * f_{test}$

MECHANICAL CHARACTERISTICS

Case	TO-3
Marking	Alpha-numeric
Polarity	See below



	TO-3			
	Inches		Millimeters	
	Min	Max	Min	Max
CD	-	0.875	-	22.220
CH	0.250	0.380	6.860	9.650
HT	0.060	0.135	1.520	3.430
BW	-	1.050	-	26.670
HD	0.131	0.188	3.330	4.780
LD	0.038	0.043	0.970	1.090
LL	0.312	0.500	7.920	12.700
BL	1.550 REF		39.370 REF	
MHS	1.177	1.197	29.900	30.400
PS	0.420	0.440	10.670	11.180
S1	0.655	0.675	16.640	17.150