

### 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

Characteristic	Symbol	MJ15011	MJ15012	Unit
Collector-Emitter Voltage	$V_{CEO}$	250	140	V
Collector-Emitter Voltage	$V_{CEX}$	250	250	V
Emitter-Base Voltage	$V_{EBO}$	5.0		V
Collector Current – continuous	$I_C$	10		A
Peak		15		
Base Current -continuous	$I_B$	2		A
Peak		5		
Total Power Dissipation @ $T_C = 25^\circ\text{C}$	$P_D$	200		W
Derate Above $25^\circ\text{C}$		1.14		W/ $^\circ\text{C}$
Operating and Storage Temperature Range	$T_J, T_{stg}$	-65 to +200		$^\circ\text{C}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.875		$^\circ\text{C}/\text{W}$
Maximum Lead Temperature for Soldering: 1/16” from case for $\leq 10\text{s}$	$T_L$	265		$^\circ\text{C}$

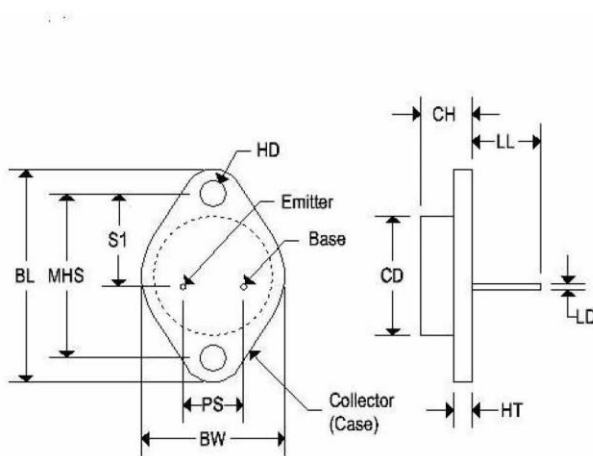
### ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ unless otherwise specified)

Characteristic	Symbol	Min	Max	Unit
Collector-Emitter Breakdown Voltage <sup>(1)</sup> ( $I_C = 100\text{mA}$ )	$V_{(BR)CEO}$	250	-	V
Collector Cutoff Current ( $V_{CE} = 200\text{V}$ )	$I_{CEO}$	-	1	mA
Collector Cutoff Current ( $V_{CE} = 250\text{V}, V_{BE(off)} = 15\text{V}$ )	$I_{CEX}$	-	500	$\mu\text{A}$
Emitter Cutoff Current ( $V_{EB} = 5.0\text{V}$ )	$I_{EBO}$	-	500	$\mu\text{A}$
DC Current Gain ( $I_C = 2.0\text{A}, V_{CE} = 2.0\text{V}$ ) ( $I_C = 4.0\text{A}, V_{CE} = 2.0\text{V}$ )	$h_{FE}$	20 5	100 -	-
Collector-Emitter Saturation Voltage ( $I_C = 2.0\text{A}, I_B = 0.2\text{A}$ ) ( $I_C = 4.0\text{A}, I_B = 0.4\text{A}$ )	$V_{CE(sat)}$	- -	0.8 2.5	V
Base-Emitter On-Voltage ( $I_C = 4.0\text{A}, V_{CE} = 2\text{V}$ )	$V_{BE(on)}$	-	2.0	V
Output Capacitance ( $V_{CB} = 10\text{V}, f = 1.0\text{MHz}$ )	$C_{ob}$	-	750	pF
Second Breakdown Collector Current with Base Forward Biased ( $V_{CE} = 40\text{V}, t = 0.5\text{s}$ ) ( $V_{CE} = 100\text{V}, t = 0.5\text{s}$ )	$I_{S/b}$	5 1.4	- -	A

Note 1: Pulse test: Pulse width  $\leq 300\mu\text{s}$ . Duty cycle  $\leq 2\%$ .

**MECHANICAL CHARACTERISTICS**

<b>Case:</b>	TO-3
<b>Marking:</b>	Alpha-Numeric
<b>Polarity:</b>	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

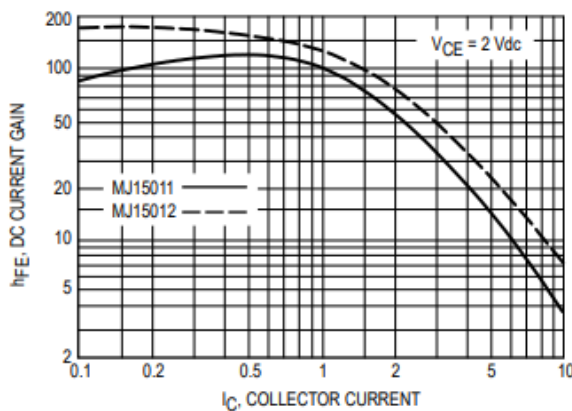


Figure 1. DC Current Gain

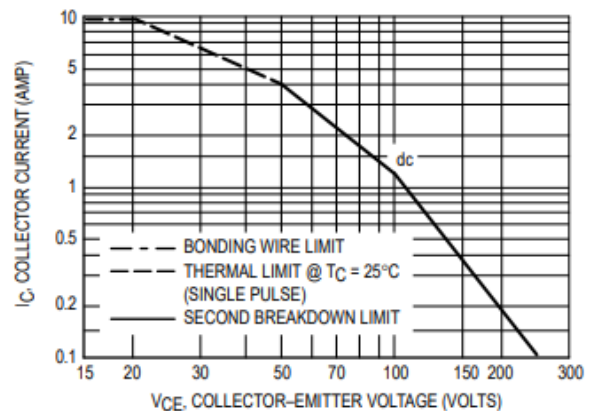


Figure 2. Active Region Safe Operating Area