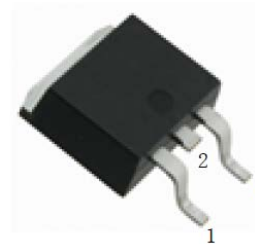


MJD117R-HAF

PNP Silicon Darlington Power Transistor

Features

- Halogen and Antimony Free(HAF),
RoHS compliant



1.Base 2.Collector 3.Emitter
TO-252 Plastic Package

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CB0}$	100	V
Collector Emitter Voltage	$-V_{CEO}$	100	V
Emitter Base Voltage	$-V_{EBO}$	5	V
Collector Current	$-I_C$	2	A
Peak Collector Current, Pulsed	$-I_{CM}$	4	A
Base Current	$-I_B$	50	mA
Power Dissipation $T_c = 25^\circ\text{C}$	P_D	20	W
Power Dissipation ¹⁾ $T_a = 25^\circ\text{C}$	P_D	1.75	W
Operating Junction Storage Temperature Range	T_j, T_{stg}	- 65 to + 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Case	$R_{\theta JC}$	6.25	$^\circ\text{C/W}$
Thermal Resistance from Junction to Ambient ¹⁾	$R_{\theta JA}$	71.4	$^\circ\text{C/W}$

¹⁾ Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

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Characteristics at $T_a = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at $-V_{CE} = 3\text{ V}$, $-I_C = 0.5\text{ A}$	h_{FE}	500	-	-
at $-V_{CE} = 3\text{ V}$, $-I_C = 2\text{ A}$	h_{FE}	1000	12000	-
at $-V_{CE} = 3\text{ V}$, $-I_C = 4\text{ A}$	h_{FE}	200	-	-
Collector Base Sustaining Voltage at $-I_C = 30\text{ mA}$, $I_B = 0$	$-V_{CEO(sus)}$	100	-	V
Collector Emitter Cutoff Current at $-V_{CE} = 50\text{ V}$, $I_B = 0$	$-I_{CEO}$	-	20	μA
Collector Base Cutoff Current at $-V_{CB} = 100\text{ V}$, $I_E = 0$	$-I_{CBO}$	-	20	μA
at $-V_{CB} = 80\text{ V}$, $I_E = 0$		-	10	
Emitter Base Cutoff Current at $-V_{EB} = 5\text{ V}$, $I_C = 0$	$-I_{EBO}$	-	2	mA
Collector Emitter Saturation Voltage at $-I_C = 2\text{ A}$, $-I_B = 8\text{ mA}$	$-V_{CE(sat)}$	-	2	V
at $-I_C = 4\text{ A}$, $-I_B = 40\text{ mA}$		-	3	
Base Emitter Saturation Voltage at $-I_C = 4\text{ A}$, $-I_B = 40\text{ mA}$	$-V_{BE(sat)}$	-	4	V
Base Emitter Voltage at $-V_{CE} = 3\text{ V}$, $-I_C = 2\text{ A}$	$-V_{BE(on)}$	-	2.8	V
Current Gain Bandwidth Product at $-V_{CE} = 10\text{ V}$, $-I_C = 750\text{ mA}$, $f = 1\text{ MHz}$	f_T	25	-	MHz
Output Capacitance at $-V_{CB} = 10\text{ V}$, $I_E = 0$, $f = 0.1\text{ MHz}$	C_{ob}	-	200	pF

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Electrical Characteristics Curves

Fig. 1 DC Current Gain vs. Collector Current

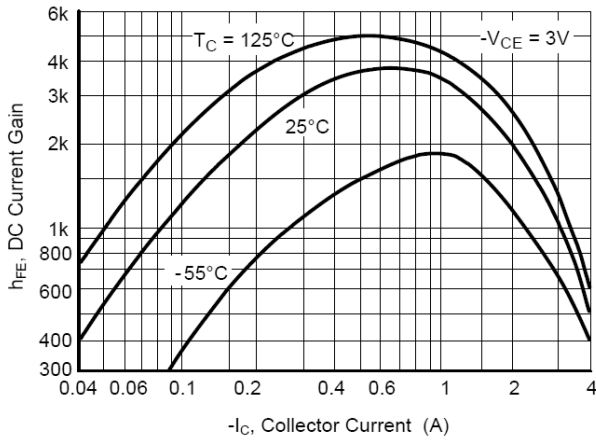


Fig. 2 V_{CE} vs. I_B

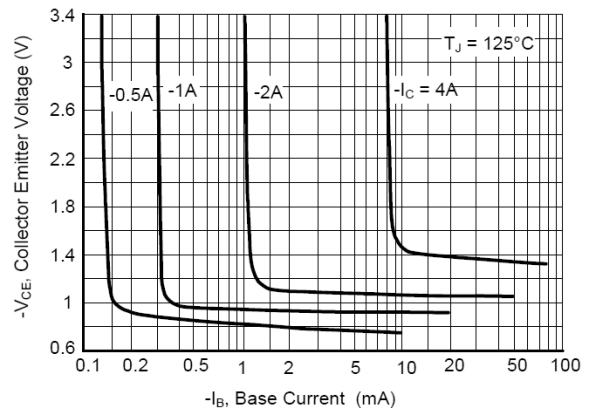


Fig. 3 Power Derating Curve

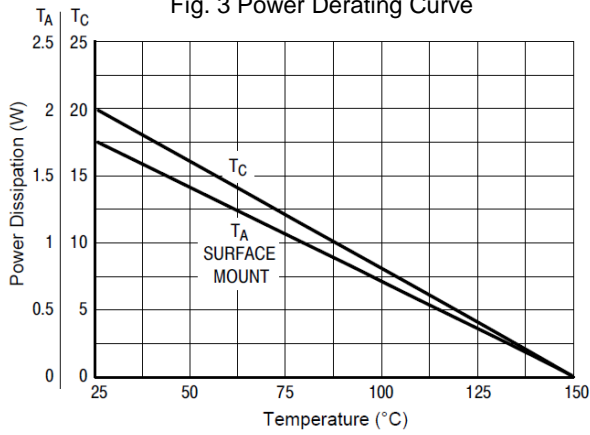
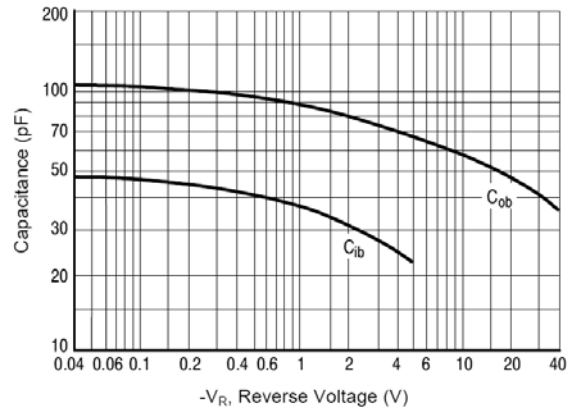


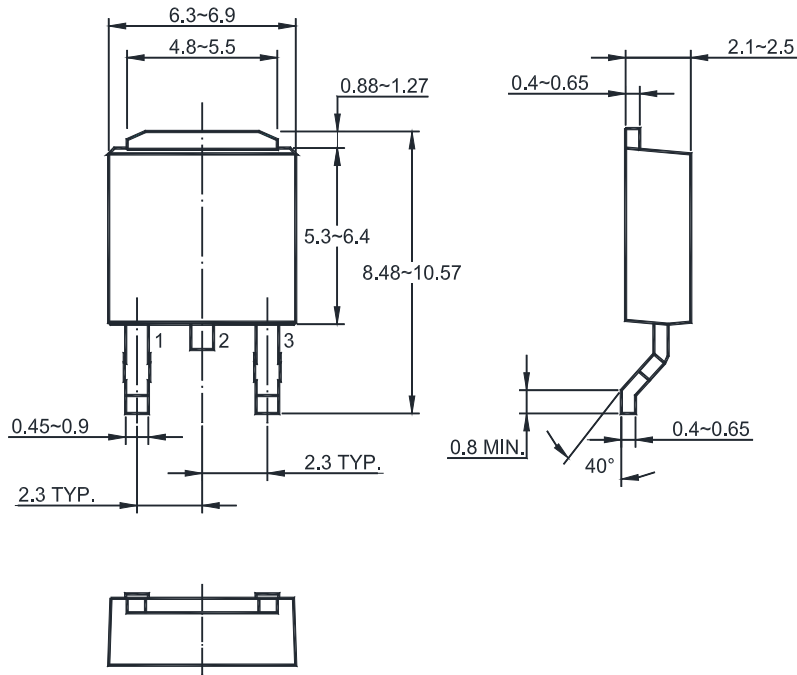
Fig. 4 Capacitance



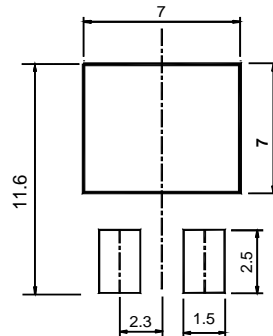
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Package Outline Dimensions (Units: mm)

TO-252



Recommended Soldering Footprint



Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
TO-252	12	8 ± 0.1	0.315 ± 0.004	330	13	2,500

Marking information

" MJD117R " = Part No.

" ***** " = Date Code Marking

Font type: Arial

