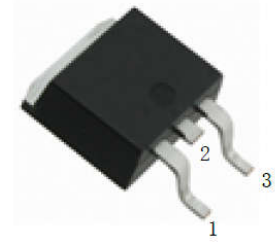


# MJD117R-HAF

## PNP Silicon Darlington Power Transistor

### Features

- Halogen and Antimony Free(HAF),  
RoHS compliant



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

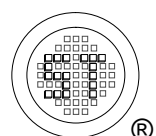
### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ unless otherwise specified)

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

### Thermal Characteristics

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

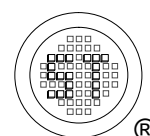
<sup>1)</sup> Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.



# MJD117R-HAF

## 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 Emitter Cutoff Current at $-V_{CE} = 50\text{ V}$	$-I_{CEO}$	-	20	$\mu\text{A}$
Collector Base Cutoff Current at $-V_{CB} = 100\text{ V}$	$-I_{CBO}$	-	20	$\mu\text{A}$
at $-V_{CB} = 80\text{ V}$		-	10	
Emitter Base Cutoff Current at $-V_{EB} = 5\text{ V}$	$-I_{EBO}$	-	2	$\text{mA}$
Collector Base Breakdown Voltage at $-I_C = 100\text{ }\mu\text{A}$	$-V_{(BR)CBO}$	100		
Collector Emitter Breakdown Voltage at $-I_C = 1\text{ mA}$	$-V_{(BR)CEO}$	100		
Emitter Base Breakdown Voltage at $-I_E = 100\text{ }\mu\text{A}$	$-V_{(BR)EBO}$	5		
Collector Emitter Saturation Voltage at $-I_C = 2\text{ A}$ , $-I_B = 8\text{ mA}$	$-V_{CE(sat)}$	-	2	$\text{V}$
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	$\text{V}$
Base Emitter Voltage at $-V_{CE} = 3\text{ V}$ , $-I_C = 2\text{ A}$	$-V_{BE(on)}$	-	2.8	$\text{V}$
Current Gain Bandwidth Product at $-V_{CE} = 10\text{ V}$ , $-I_C = 750\text{ mA}$ , $f = 1\text{ MHz}$	$f_T$	25	-	$\text{MHz}$
Output Capacitance at $-V_{CB} = 10\text{ V}$ , $f = 0.1\text{ MHz}$	$C_{ob}$	-	200	$\text{pF}$



# MJD117R-HAF

## Electrical Characteristics Curves

Fig.1 DC Current Gain

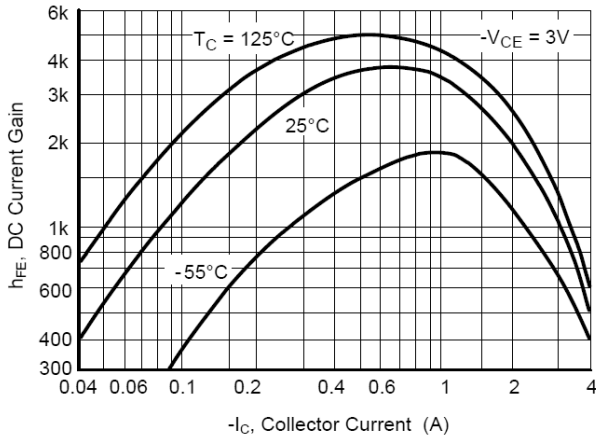


Fig.2 Collector Saturation Region

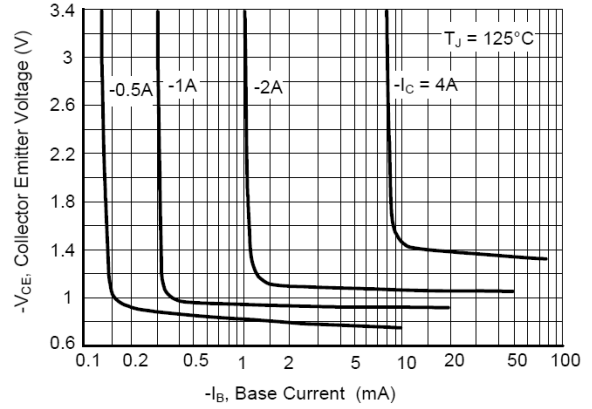


Fig.3. Power Derating Curve

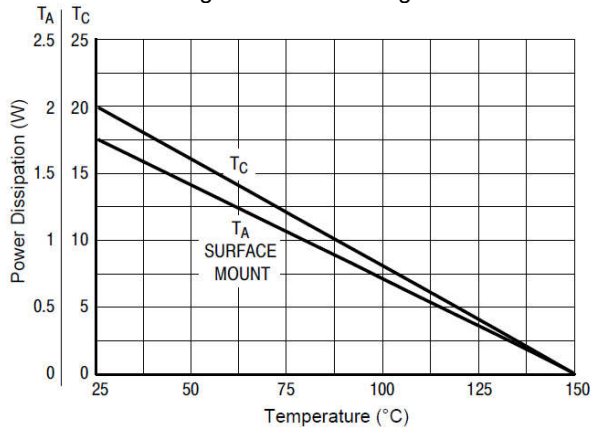
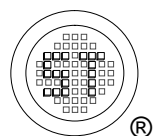
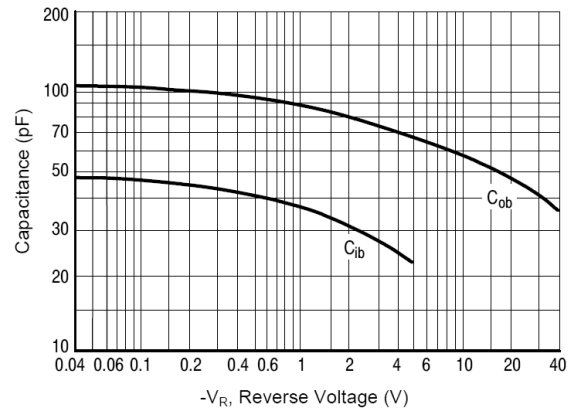


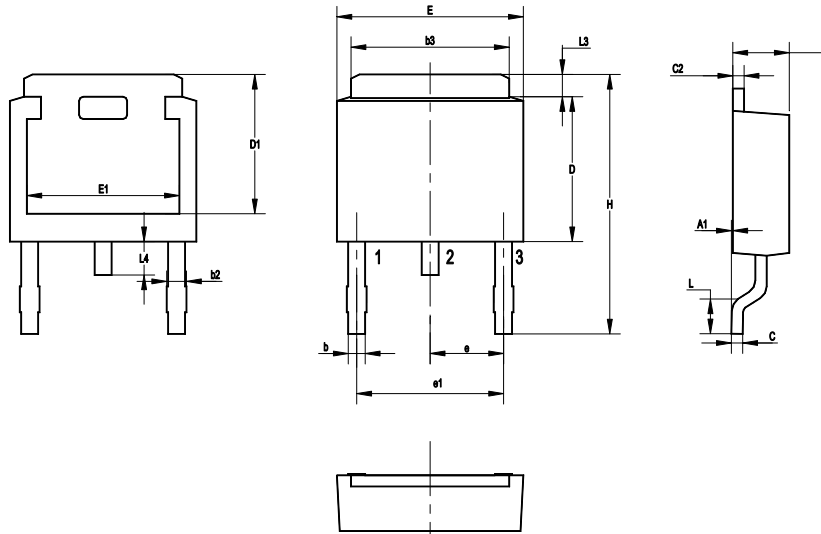
Fig.4 Output Capacitance



# MJD117R-HAF

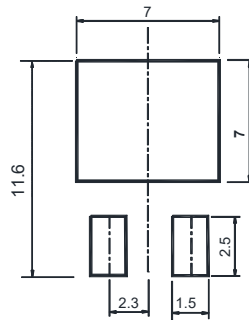
## Package Outline Dimensions (Units: mm)

TO-252



Unit	A	A1	b	b2	b3	C	C2	D	D1	E	E1	e	e1	H	L	L3	L4
mm	2.5	0.15	1.0	1.15	5.5	0.65	0.65	6.2	5.4	6.7	5.0	2.30	4.60	10.7	1.78	1.20	1.10
	2.1	0	0.5	0.65	4.9	0.4	0.4	5.6	5.0	6.1	4.6	TYP.	TYP.	9	1.40	0.85	0.51

## Recommended Soldering Footprint



## Packing information

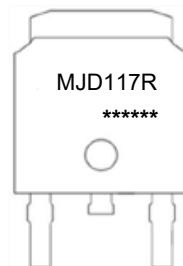
Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
TO-252	16	8 ± 0.1	0.315 ± 0.004	330	13	2,500

## Marking information

" MJD117R " = Part No.

" \*\*\*\*\* " = Date Code Marking

Font type: Arial



Disclaimer: Our company reserve the right to make modifications, enhancements, improvements, corrections or other changes to improve product design, functions and reliability, anytime without notice. Semtech Electronics Limited makes no warranties, representations or warranties regarding the suitability of its products for any particular purpose, and does not accept any liability arising from the application or use of any product or circuit such as: Apply to medical, military, aircraft, space or life support equipment and expressly waive any and all liability, including but not limited to special, consequential or collateral damage.

