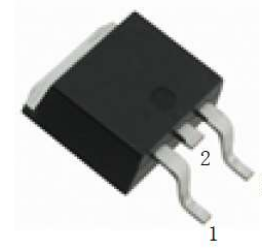


# TIP137R-HAF

## PNP Silicon Darlington Transistors

### Features

- Halogen and Antimony Free(HAF), RoHS compliant



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

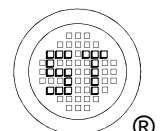
### Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	100	V
Collector Emitter Voltage	$-V_{CEO}$	100	V
Emitter Base Voltage	$-V_{EBO}$	5	V
Collector Current	$-I_C$	8	A
Peak Collector Current, Pulsed	$-I_{CM}$	10	A
Base Current	$-I_B$	0.3	A
Total Power Dissipation	$P_{tot}$	25 1.2	W
Junction Temperature	$T_j$	150	°C
Storage Temperature Range	$T_{stg}$	- 65 to + 150	°C

### Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Case	$R_{\theta JC}$	5	°C/W
Thermal Resistance from Junction to Ambient <sup>1)</sup>	$R_{\theta JA}$	104	°C/W

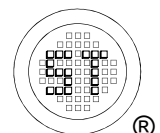
<sup>1)</sup> Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate.



# TIP137R-HAF

## Characteristics at $T_a = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at $-V_{CE} = 4\text{ V}$ , $-I_C = 1\text{ A}$ at $-V_{CE} = 4\text{ V}$ , $-I_C = 4\text{ A}$	$h_{FE}$ $h_{FE}$	500 1000	- 15000	- -
Collector Emitter Cutoff Current at $-V_{CE} = 50\text{ V}$	$-I_{CEO}$	-	0.5	mA
Collector Base Cutoff Current at $-V_{CB} = 100\text{ V}$	$-I_{CBO}$	-	0.2	mA
Emitter Base Cutoff Current at $-V_{EB} = 5\text{ V}$	$-I_{EBO}$	-	5	mA
Collector Base Breakdown Voltage at $-I_C = 1\text{ mA}$	$-V_{(BR)CBO}$	100	-	V
Collector Emitter Sustaining Voltage at $-I_C = 30\text{ mA}$	$-V_{CEO(SUS)}$	100	-	V
Emitter Base Breakdown Voltage at $-I_E = 1\text{ mA}$	$-V_{(BR)EBO}$	5	-	V
Collector Emitter Saturation Voltage at $-I_C = 4\text{ A}$ , $-I_B = 16\text{ mA}$ at $-I_C = 6\text{ A}$ , $-I_B = 30\text{ mA}$	$-V_{CE(sat)}$	- -	2 4	V
Base Emitter Saturation Voltage at $-I_C = 4\text{ A}$ , $-V_{CE} = 4\text{ V}$	$-V_{BE(on)}$	-	2.5	V



# TIP137R-HAF

## Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

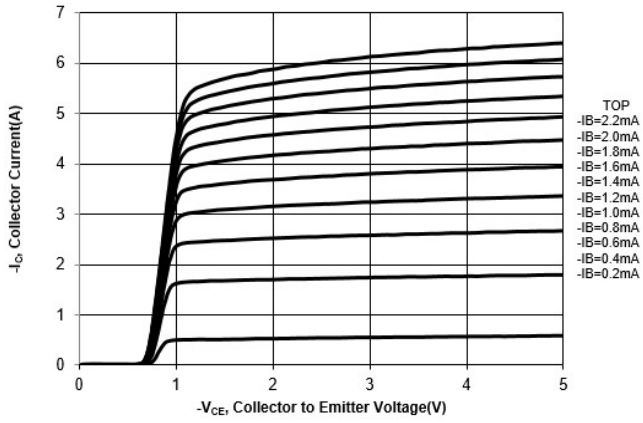


Fig. 2 Collector Current vs. Base to Emitter Voltage

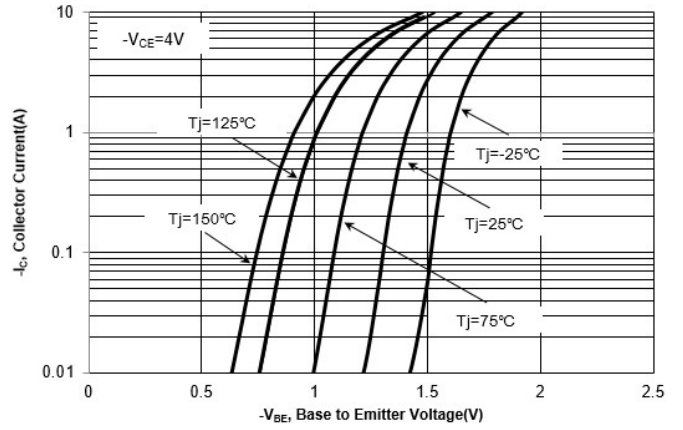


Fig. 3 DC Current Gain vs. Collector Current

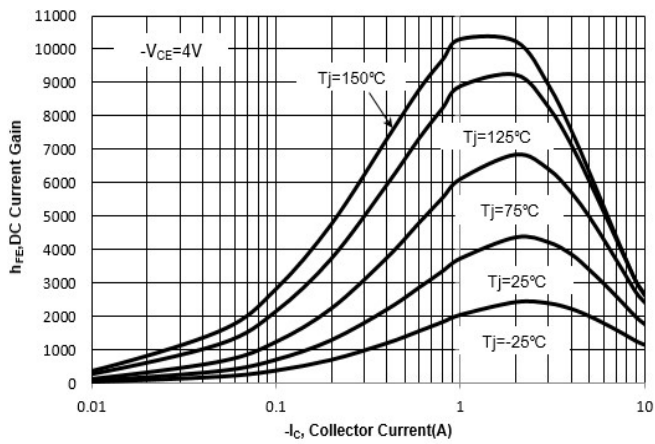
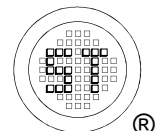
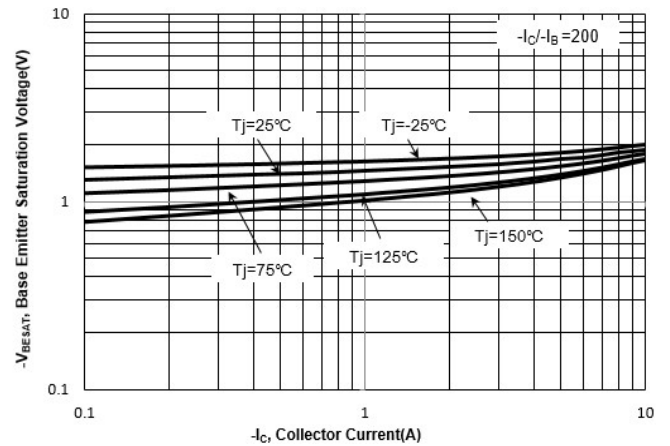


Fig. 4 V<sub>BESAT</sub> vs. Collector Current



## Electrical Characteristics Curves

Fig. 5  $V_{CESAT}$  vs. Collector Current

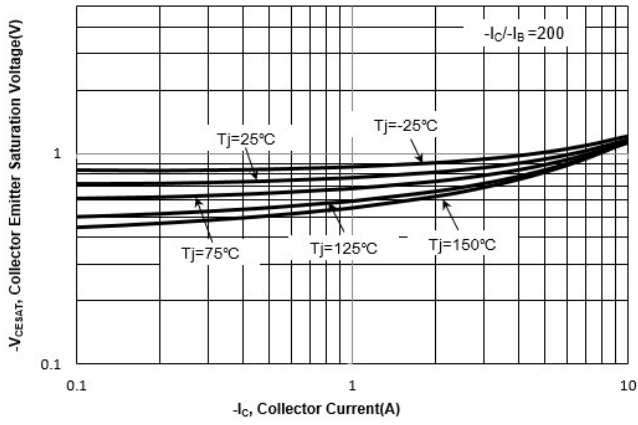


Fig. 6 Output Capacitance

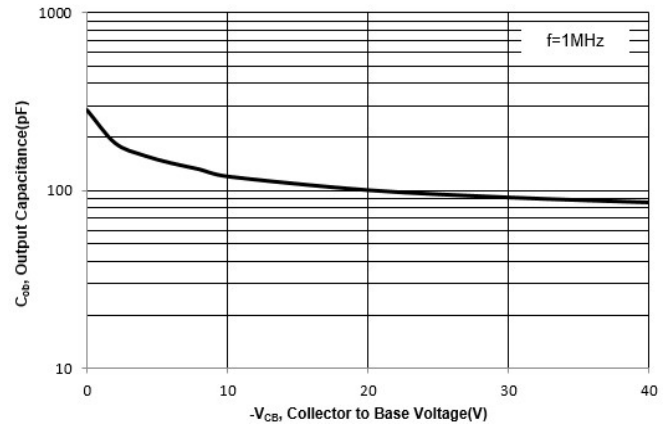
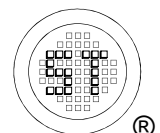
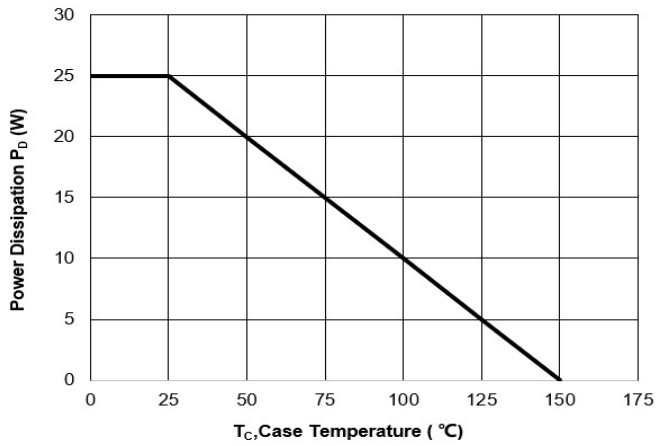


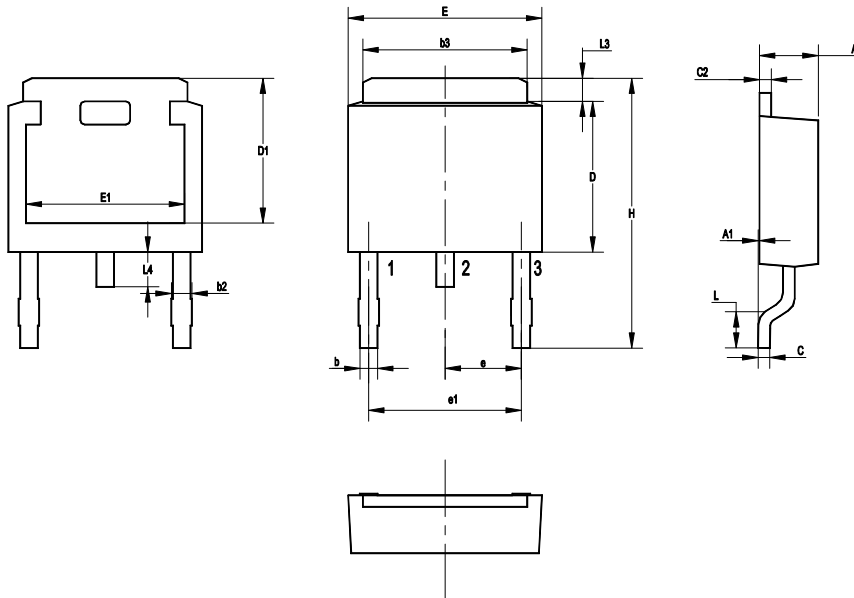
Fig 7. Power Derating Curve



# TIP137R-HAF

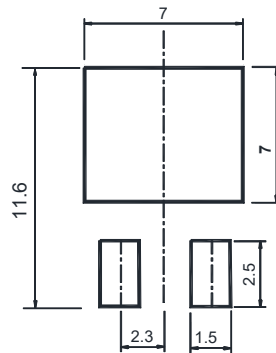
## Package Outline (Dimensions in mm)

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

" TIP137R " = Part No.

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

Font type: Arial

