

TIP142-HAF

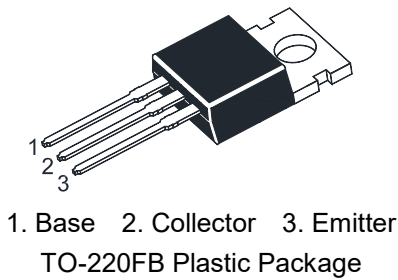
NPN Silicon Planar Darlington Power Transistor

Features

- Halogen and Antimony Free(HAF),
RoHS compliant

Applications

- General Purpose and Low Speed Switching

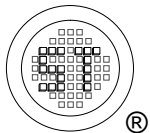


Absolute Maximum Ratings ($T_a = 25^{\circ}\text{C}$)

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	10	A
Peak Collector Current, Pulsed	I_{CM}	15	A
Power Dissipation $T_a = 25^{\circ}\text{C}$ $T_c = 25^{\circ}\text{C}$	P_D	2 65	W
Operating Junction and Storage Temperature Range	T_j, T_{stg}	- 55 to + 150	$^{\circ}\text{C}$

Thermal Characteristics

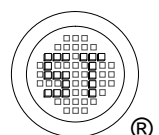
Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	$^{\circ}\text{C/W}$
Thermal Resistance from Junction to Case	$R_{\theta JC}$	1.9	$^{\circ}\text{C/W}$



TIP142-HAF

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

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 4\text{ V}$, $I_C = 5\text{ A}$	h_{FE}	2000	-	-	-
Collector Emitter Cutoff Current at $V_{CE} = 50\text{ V}$ at $V_{CE} = 100\text{ V}$	I_{CEO}	- -	- -	2 1	mA
Emitter Base Cutoff Current at $V_{EB} = 5\text{ V}$	I_{EBO}	-	-	2	mA
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	100	-	-	V
Collector Emitter Sustaining Voltage at $I_C = 10\text{ mA}$	$V_{CEO(SUS)}$	100	-	-	V
Emitter Base Breakdown Voltage at $I_E = 1\text{ mA}$	$V_{(BR)EBO}$	5	-	-	V
Collector Emitter Saturation Voltage at $I_C = 5\text{ A}$, $I_B = 20\text{ mA}$	$V_{CE(sat)}$	-	-	2	V
Base Emitter On Voltage at $V_{CE} = 4\text{ V}$, $I_C = 10\text{ A}$	$V_{BE(on)}$	-	-	3	V
Current Gain Bandwidth Product at $V_{CE} = 3\text{ V}$, $I_C = 100\text{ mA}$, $f = 1\text{ MHz}$	f_T	-	77	-	MHz
Output Capacitance at $V_{CB} = 10\text{ V}$, $f = 0.1\text{ MHz}$	C_{ob}	-	-	200	pF



Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

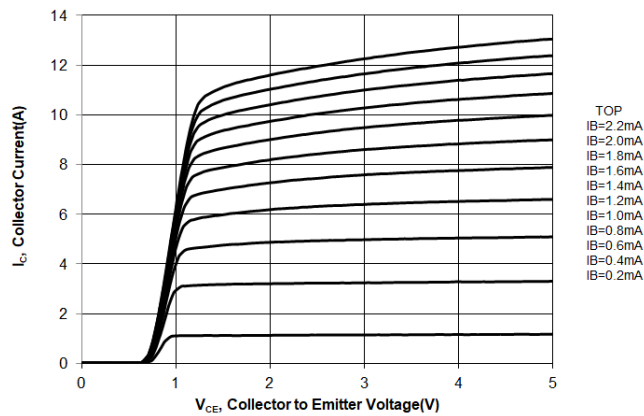


Fig. 2 Collector Current vs. Base to Emitter Voltage

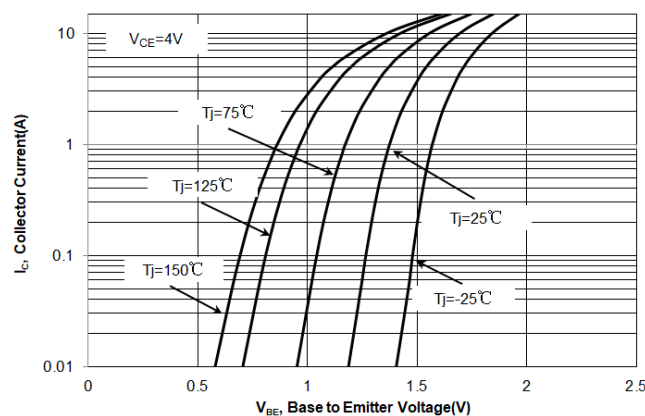


Fig. 3 DC Current Gain vs. Collector Current

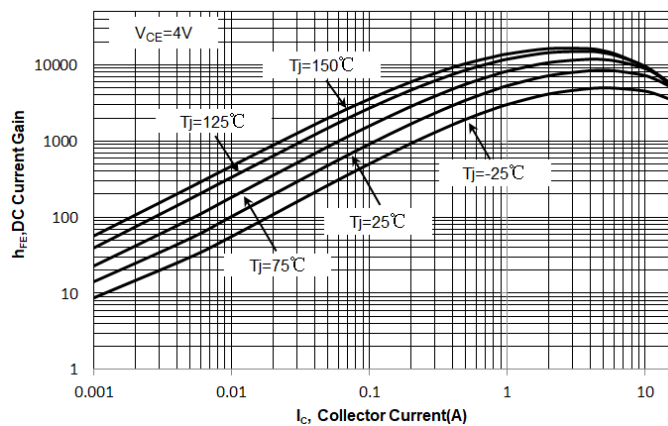
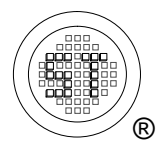
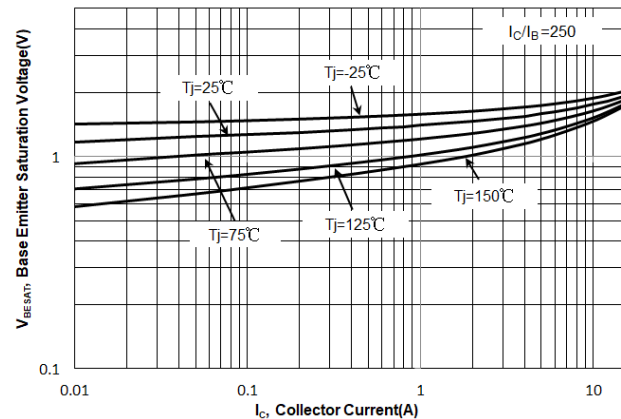


Fig. 4 V_{BESAT} vs. Collector Current



Electrical Characteristics Curves

Fig. 5 V_{CESAT} vs. Collector Current

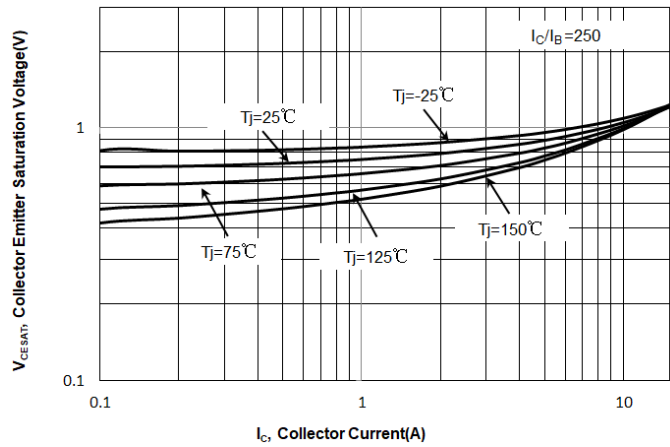


Fig. 6 Output Capacitance

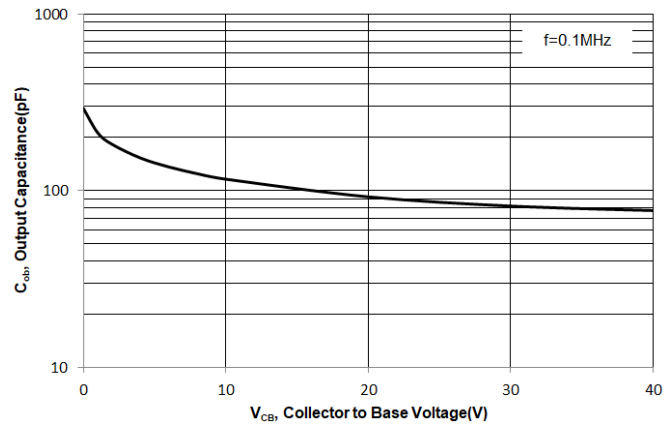
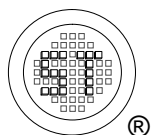
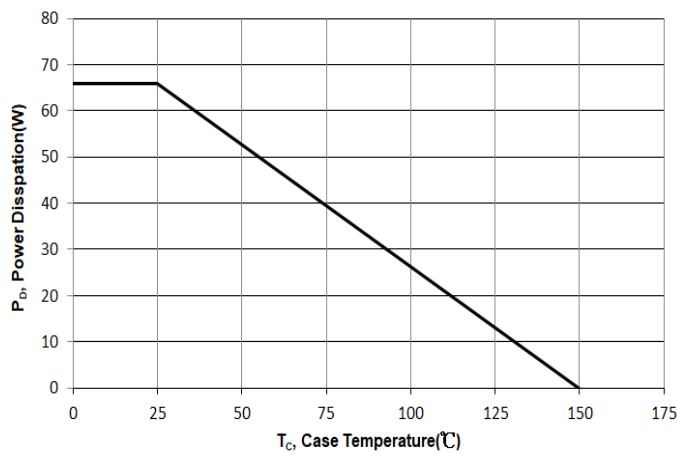


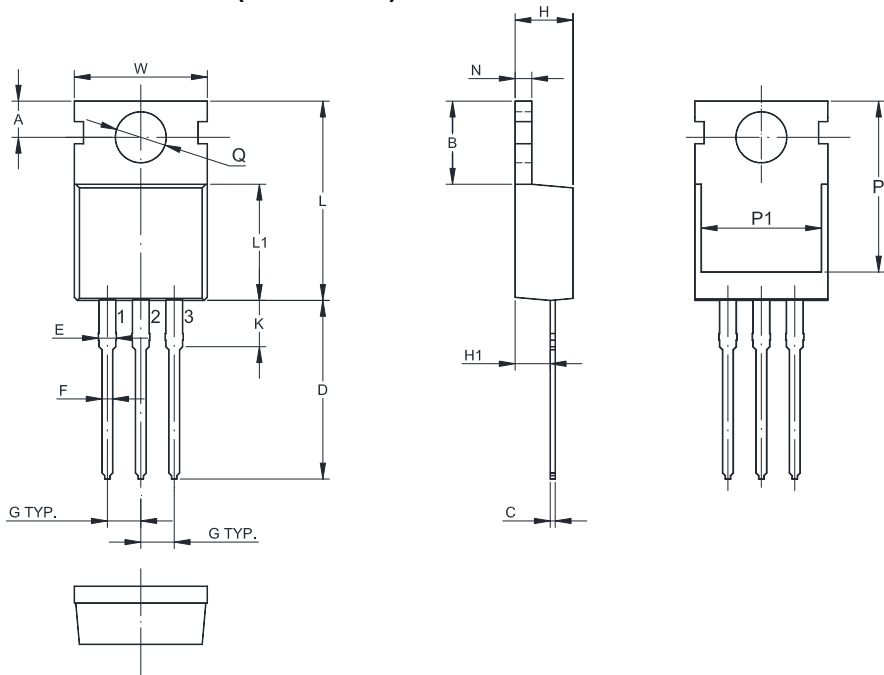
Fig 7. Power Derating Curve



TIP142-HAF

Package Outline Dimensions (Units: mm)

TO-220FB



UNIT	A	B	C	D	E	F	G	W	H	H1	K	L	L1	N
mm	2.9	6.8	0.7	15	1.5	0.9	2.54	10.2	4.7	2.5	3.1	16.8	9.4	1.4
	2.7	6.4	0.3	11	1.1	0.7	TYP	9.8	4.3	2.2	2.7	14.8	9.0	1.2

UNIT	P	P1	Q
mm	13.3	8.2	3.7
	12.7	7.6	3.5

Packing information

Package	Carton Quantity	Box Quantity	Base Quantity	Delivery Mode
TO-220FB	5 K / Carton	1 K / Box	50 pcs / Tube	Tube

Marking information

" TIP142 " = Part No.
" ***** " = Date Code Marking
Font type: Arial



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