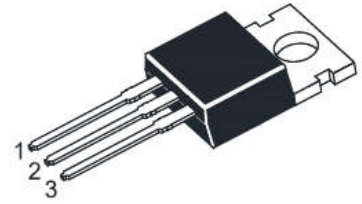


# TIP100, TIP101, TIP102-HAF

## NPN Silicon Epitaxial Planar Darling Power Transistor

### Features

- High DC Current Gain
- Low Collector Emitter Saturation Voltage
- Halogen and Antimony Free(HAF),  
RoHS compliant



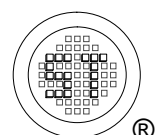
1.Base 2.Collector 3.Emitter  
TO-220FB Plastic Package

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	TIP100 TIP101 TIP102	60 80 100	V
Collector Emitter Voltage	TIP100 TIP101 TIP102	60 80 100	V
Emitter Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	8	A
Peak Collector Current, Pulsed	$I_{CM}$	15	A
Base Current	$I_B$	1	A
Total Power Dissipation	$T_a = 25^\circ\text{C}$ $T_C = 25^\circ\text{C}$	2 13	W
Operating Junction and Storage Temperature Range	$T_j, T_{stg}$	- 65 to + 150	$^\circ\text{C}$

### Thermal Characteristics

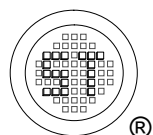
Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Case	$R_{\theta JC}$	9.6	$^\circ\text{C/W}$
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$



# TIP100, TIP101, TIP102-HAF

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

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at $V_{CE} = 4\text{ V}$ , $I_C = 3\text{ A}$ at $V_{CE} = 4\text{ V}$ , $I_C = 8\text{ A}$	$h_{FE}$ $h_{FE}$	1000 200	20000 -	- -
Collector Base Cutoff Current at $V_{CB} = 60\text{ V}$ TIP100 at $V_{CB} = 80\text{ V}$ TIP101 at $V_{CB} = 100\text{ V}$ TIP102	$I_{CBO}$	- - -	50 50 50	$\mu\text{A}$
Collector Emitter Cutoff Current at $V_{CE} = 30\text{ V}$ TIP100 at $V_{CE} = 40\text{ V}$ TIP101 at $V_{CE} = 50\text{ V}$ TIP102	$I_{CEO}$	- - -	50 50 50	$\mu\text{A}$
Emitter Base Cutoff Current at $V_{EB} = 5\text{ V}$	$I_{EBO}$	-	8	mA
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$ TIP100 TIP101 TIP102	$V_{(BR)CBO}$	60 80 100	- - -	V
Collector Emitter Breakdown Voltage at $I_C = 10\text{ mA}$ TIP100 TIP101 TIP102	$V_{(BR)CEO}$	60 80 100	- - -	V
Emitter Base Breakdown Voltage at $I_E = 100\text{ }\mu\text{A}$	$V_{(BR)EBO}$	5	-	V
Collector Emitter Saturation Voltage at $I_C = 3\text{ A}$ , $I_B = 6\text{ mA}$ at $I_C = 8\text{ A}$ , $I_B = 80\text{ mA}$	$V_{CE(sat)}$	- -	2 2.5	V
Base Emitter On Voltage at $V_{CE} = 4\text{ V}$ , $I_C = 8\text{ A}$	$V_{BE(on)}$	-	2.8	V
Collector Output Capacitance at $V_{CB} = 10\text{ V}$ , $f = 0.1\text{ MHz}$	$C_{ob}$	-	200	pF



# TIP100, TIP101, TIP102-HAF

## Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

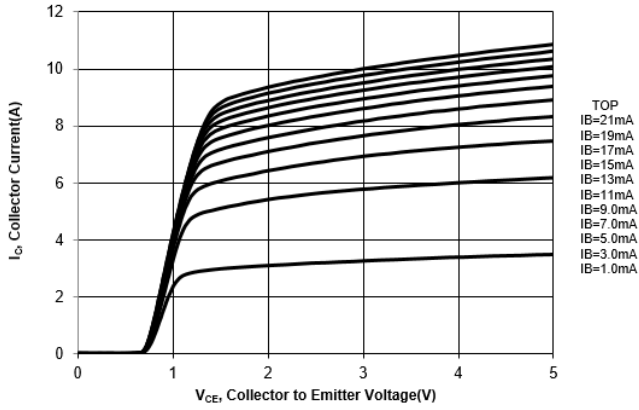


Fig. 2 Collector Current vs. Base to Emitter Voltage

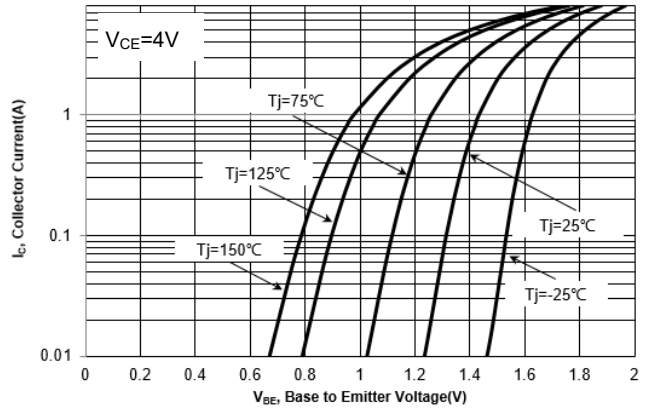


Fig. 3 DC Current Gain vs. Collector Current

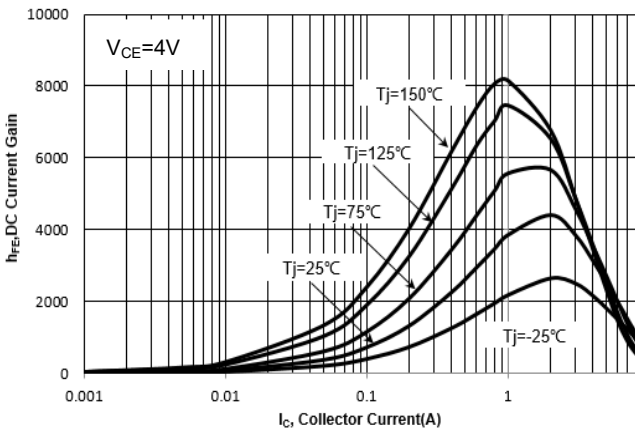
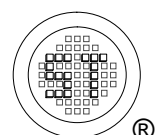
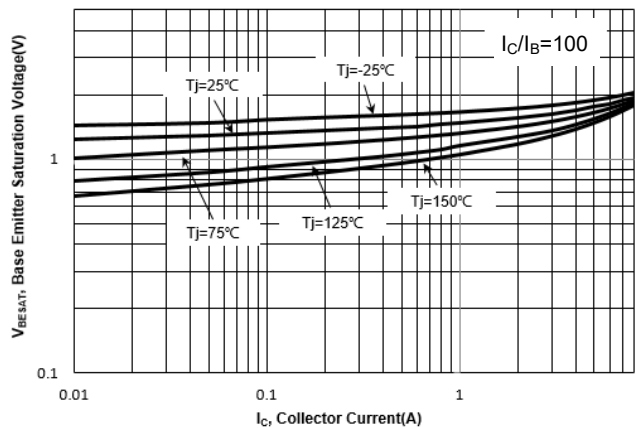


Fig. 4  $V_{BESAT}$  vs. Collector Current



# TIP100, TIP101, TIP102-HAF

## Electrical Characteristics Curves

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

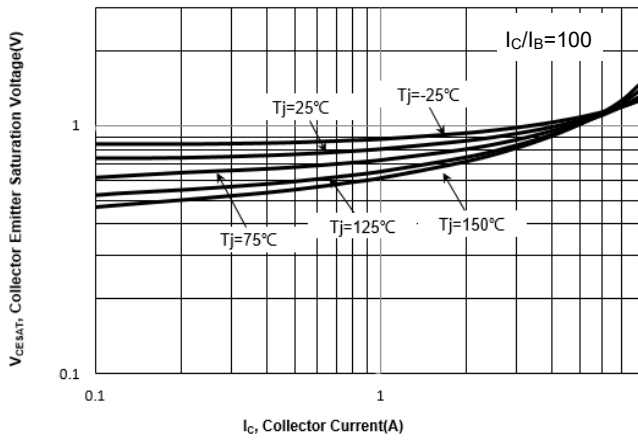


Fig. 6 Output Capacitance

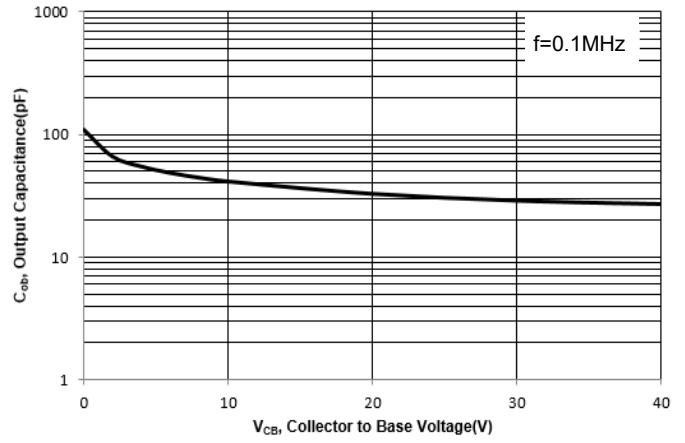
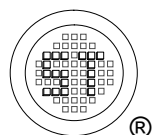
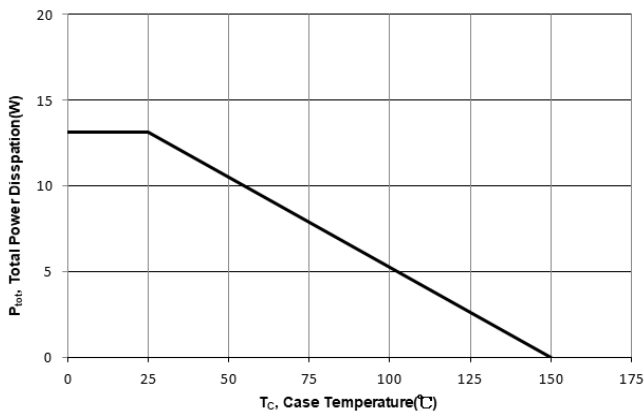


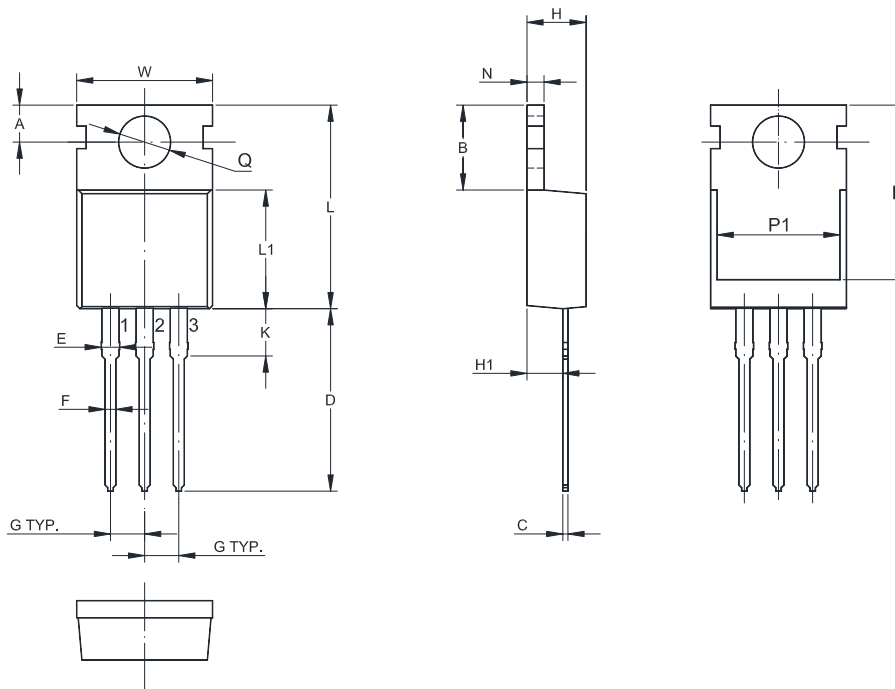
Fig. 7 Power Derating Curve



# TIP100, TIP101, TIP102-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

" TIP100 ", " TIP101 ", " TIP102 " = Part No.

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

Font type: Arial



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