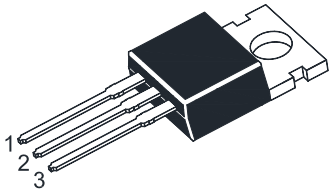
TIP105,TIP106,TIP107-HAF

PNP Silicon Power Darlington Transistors



1.Base 2.Collector 3.Emitter

TO-220FB Plastic Package

Features

• Halogen and Antimony Free(HAF), RoHS compliant

Applications

• Linear and Switching Industrial Equipment
• Audio Power Amplifier
• General Power Switching
• DC-AC Converter
• Easy Driver for Low Voltage DC Motor

Absolute Maximum Ratings (T_a = 25℃)

Parameter		Symbol	Value	Unit
Collector Base Voltage	TIP105 TIP106 TIP107	$-V_{CBO}$	60 80 100	V
Collector Emitter Voltage	TIP105 TIP106 TIP107	$-V_{CEO}$	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
Power Dissipation	T_a = 25℃ T_c = 25℃	P_D	2 13	W
Operating Junction Temperature		T_j	150	℃
Storage Temperature Range		T_{stg}	- 65 to + 150	℃

Thermal Characteristics

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

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Characteristics at T_a = 25℃

Parameter		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $-V_{CE}$ = 4 V, $-I_C$ = 3 A at $-V_{CE}$ = 4 V, $-I_C$ = 8 A		 h_{FE} h_{FE}	 1000 200	 - -	 20000 -	 - -
Collector Base Cutoff Current at $-V_{CB}$ = 60 V at $-V_{CB}$ = 80 V at $-V_{CB}$ = 100 V	 TIP105 TIP106 TIP107	$-I_{CBO}$	 - - -	 - - -	 50 50 50	μA
Collector Emitter Cutoff Current at $-V_{CE}$ = 60 V at $-V_{CE}$ = 80 V at $-V_{CE}$ = 100 V	 TIP105 TIP106 TIP107	$-I_{CEO}$	 - - -	 - - -	 50 50 50	μA
Emitter Base Cutoff Current at $-V_{EB}$ = 5 V		$-I_{EBO}$	-	-	8	mA
Collector Base Breakdown Voltage at $-I_C$ = 100 μA	TIP105 TIP106 TIP107	$-V_{(BR)CBO}$	60 80 100	- - -	- - -	V
Collector Emitter Breakdown Voltage at $-I_C$ = 10 mA	TIP105 TIP106 TIP107	$-V_{(BR)CEO}$	60 80 100	- - -	- - -	V
Emitter Base Breakdown Voltage at $-I_E$ = 100 μA		$-V_{(BR)EBO}$	5	-	-	V
Collector Emitter Saturation Voltage at $-I_C$ = 8 A, $-I_B$ = 80 mA		$-V_{CE(sat)}$	-	-	2.5	V
Base Emitter On Voltage at $-V_{CE}$ = 4 V, $-I_C$ = 8 A		$-V_{BE(on)}$	-	-	2.8	V
Collector Output Capacitance at $-V_{CB}$ = 10 V, f = 1 MHz		C_{ob}	-	68	-	pF

Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

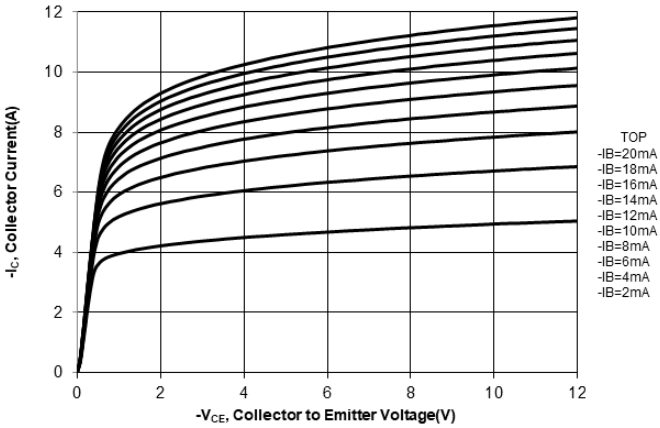


Fig. 2 Collector Current vs. Base to Emitter Voltage

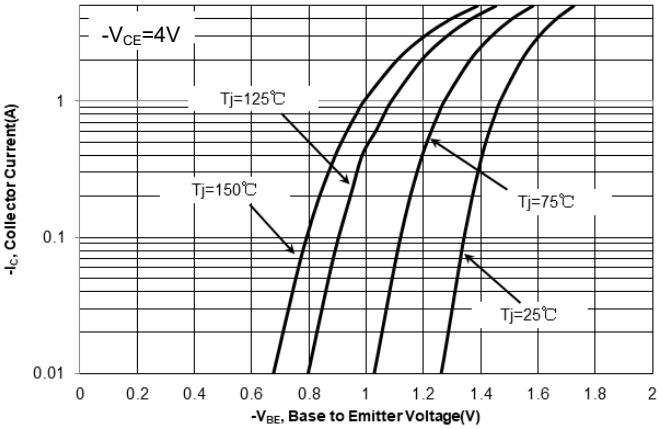


Fig. 3 DC Current Gain vs. Collector Current

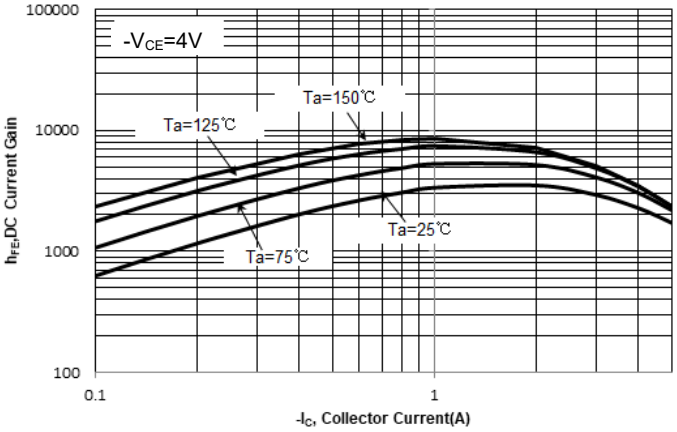
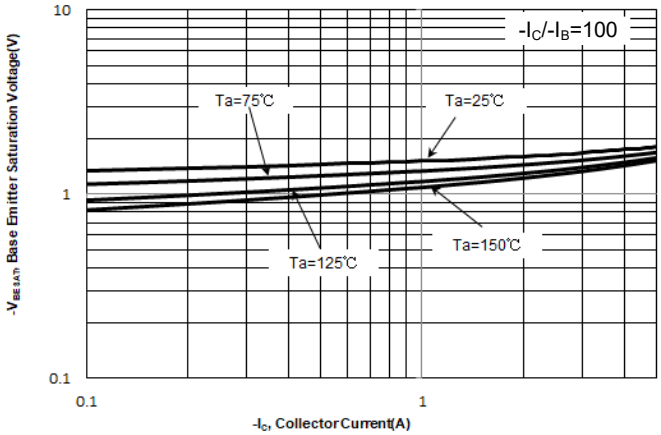


Fig. 4 V_{BESAT} vs. Collector Current



Electrical Characteristics Curves

Fig. 5 V_{CESAT} vs. Collector Current

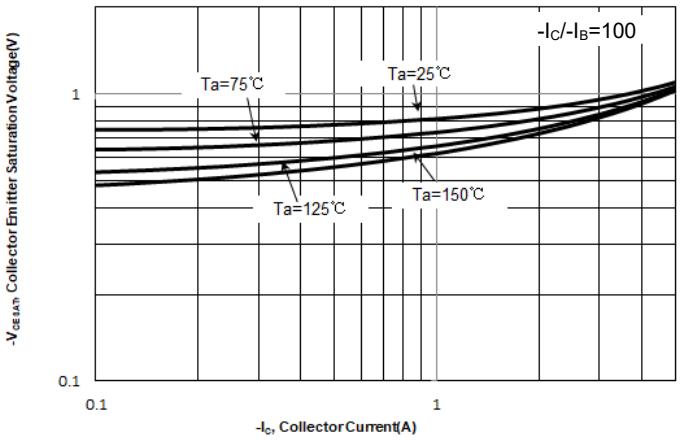


Fig. 6 Output Capacitance

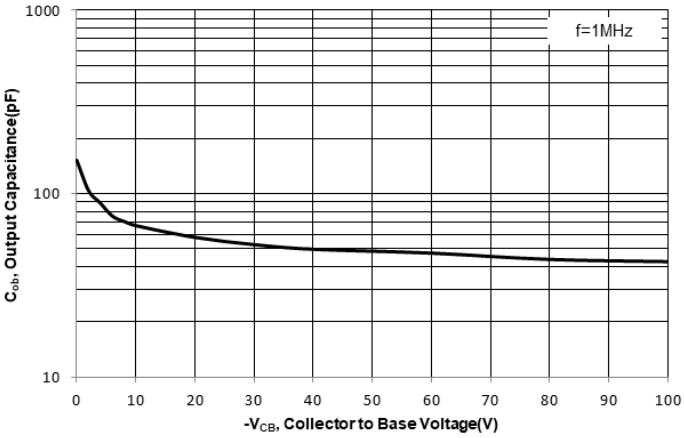
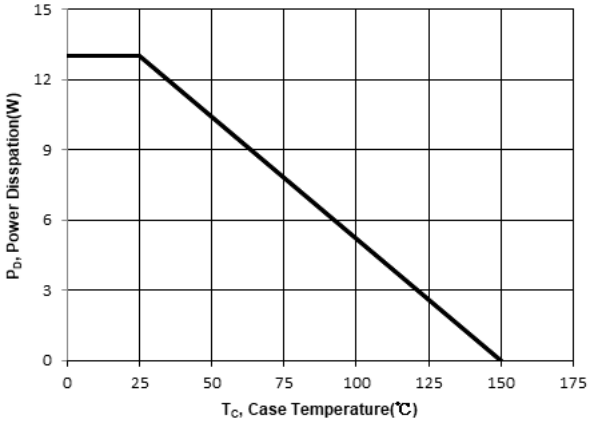
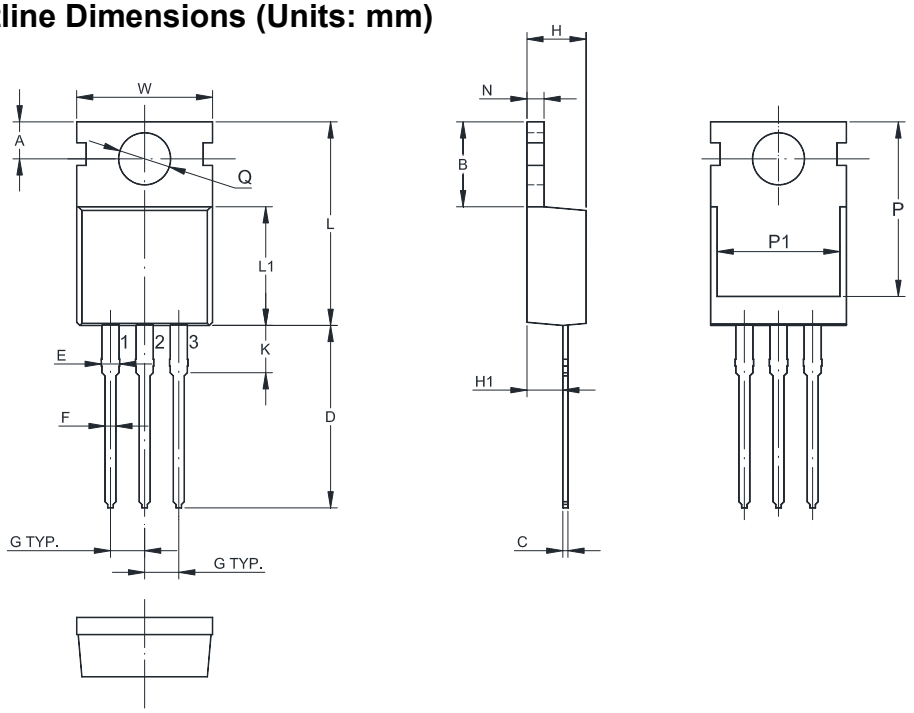


Fig. 7 Power Derating Curve



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 Typ.	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		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

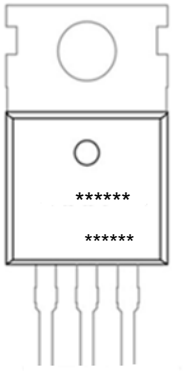
Package	Carton Quantity	Box Quantity	Base Quantity	Delivery Mode
TO-220FB	5 K / Carton	1 K / Box	50 pcs / Tube	Tube

Marking information

" TIP105 "," TIP106 "," TIP107 " = Part No.

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

Font type: Arial



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