

## PNP General Purpose Transistor

### FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter

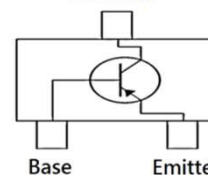
### MECHANICAL DATA

- Case: SOT-323
- Molding compound meets UL 94 V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Weight: 5.00mg (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_C$	-0.5	A
$V_{CBO}$	-50	V
$V_{CEO}$	-45	V
$V_{EBO}$	-5	V
$T_J$	150	°C
Package	SOT-323	


**SOT-323**

Collector



Base

Emitter

### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Collector current	$I_C$	-0.5	A
Power dissipation	$P_D$	200	mW
Junction temperature	$T_J$	-55 to +150	°C
Storage temperature	$T_{STG}$	-55 to +150	°C

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-ambient thermal resistance	$R_{\theta JA}$	625	$^{\circ}\text{C/W}$

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^{\circ}\text{C}$ unless otherwise noted)						
<b>PARAMETER</b>	<b>CONDITIONS</b>	<b>SYMBOL</b>	<b>MIN</b>	<b>MAX</b>	<b>UNIT</b>	
Collector-base breakdown voltage	$I_C = 10\mu\text{A}$	$V_{(BR)CBO}$	-50	-	V	
Collector-emitter breakdown voltage	$I_C = 10\text{mA}$	$V_{(BR)CEO}$	-45	-	V	
Emitter-base breakdown voltage	$I_E = 10\mu\text{A}$	$V_{(BR)EBO}$	-5	-	V	
Collector cut-off current	$V_{CB} = 20\text{V}$	$I_{CBO}$	-	-100	$\mu\text{A}$	
Emitter cut-off current	$V_{EB} = 5\text{V}$	$I_{EBO}$	-	-100	$\mu\text{A}$	
DC current gain	BC807-16W	$V_{CE} = 1\text{V}, I_C = 100\text{mA}$	$h_{FE}$	100	250	-
	BC807-25W			160	400	-
	BC807-40W			250	600	-
	BC807-16W BC807-25W BC807-40W	$V_{CE} = 1\text{V}, I_C = 500\text{mA}$	40	-	-	
Collector-emitter saturation voltage	$I_C = 500\text{mA}, I_B = 50\text{mA}$	$V_{CE(sat)}$	-	-0.7	V	
Transition frequency	$V_{CE} = 5\text{V}, I_C = 10\text{mA},$ $f = 100\text{MHz}$	$f_T$	80	-	MHz	

<b>ORDERING AND MARKING INFORMATION</b>			
<b>ORDERING CODE<sup>(1)</sup></b>	<b>MARKING</b>	<b>PACKAGE</b>	<b>PACKING</b>
BC807-16W RF	5CR	SOT-323	3K / 7" Reel
BC807-25W RF	5CS	SOT-323	3K / 7" Reel
BC807-40W RF	5CT	SOT-323	3K / 7" Reel
BC807-16W RFG	5CR	SOT-323	3K / 7" Reel
BC807-25W RFG	5CS	SOT-323	3K / 7" Reel
BC807-40W RFG	5CT	SOT-323	3K / 7" Reel
BC807-16W-B0 RF	5CR	SOT-323	3K / 7" Reel
BC807-25W-B0 RF	5CS	SOT-323	3K / 7" Reel
BC807-40W-B0 RF	5CT	SOT-323	3K / 7" Reel
BC807-16W-B0 RFG	5CR	SOT-323	3K / 7" Reel
BC807-25W-B0 RFG	5CS	SOT-323	3K / 7" Reel
BC807-40W-B0 RFG	5CT	SOT-323	3K / 7" Reel

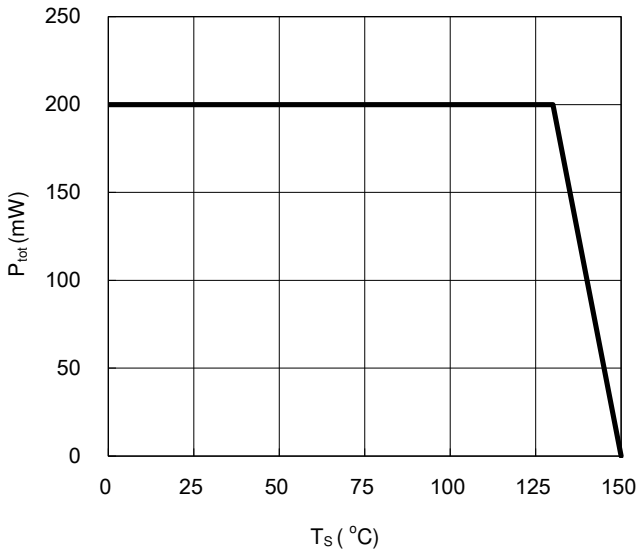
**Notes:**

1. "G" means green compound (halogen free)

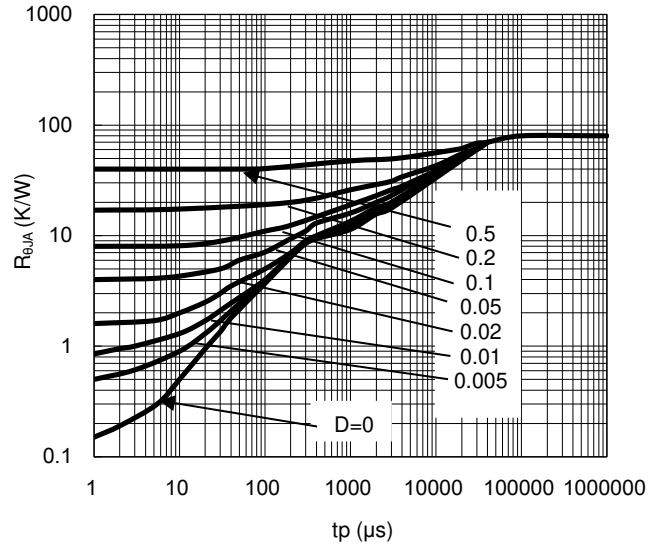
**CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

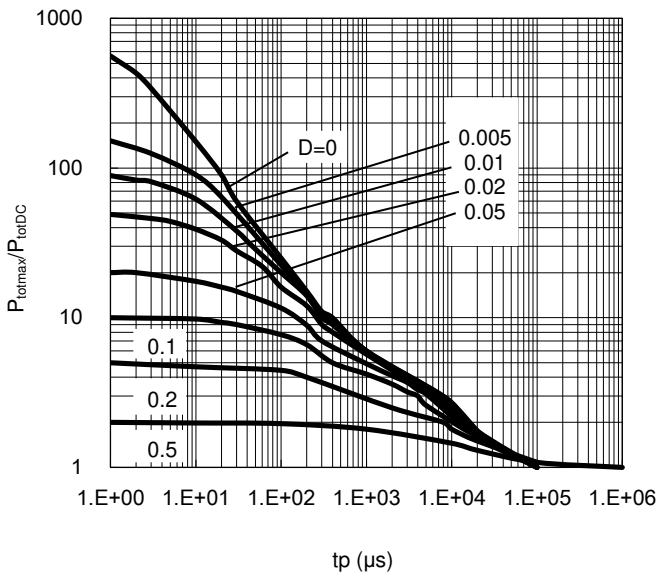
**Fig.1 Total Power Dissipation  $P_{tot} = f(T_s)$**



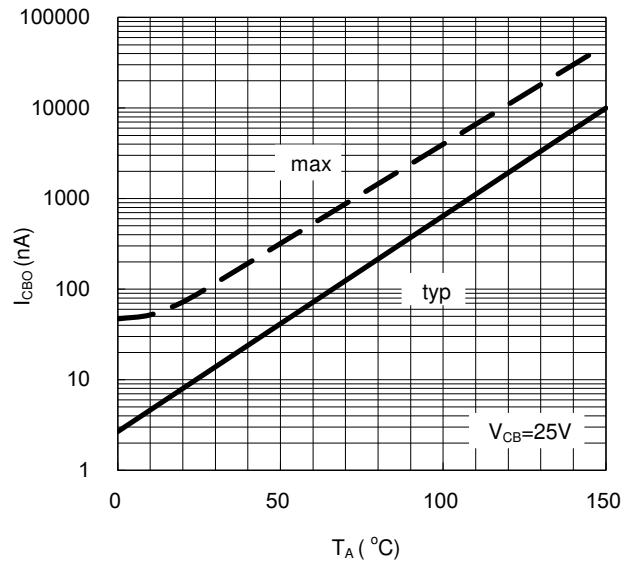
**Fig.2 Permissible Pulse Load  $R_{\theta JA} = f(tp)$**



**Fig.3 Permissible Pulse Load  $P_{totmax} / P_{totDC} = f(tp)$**



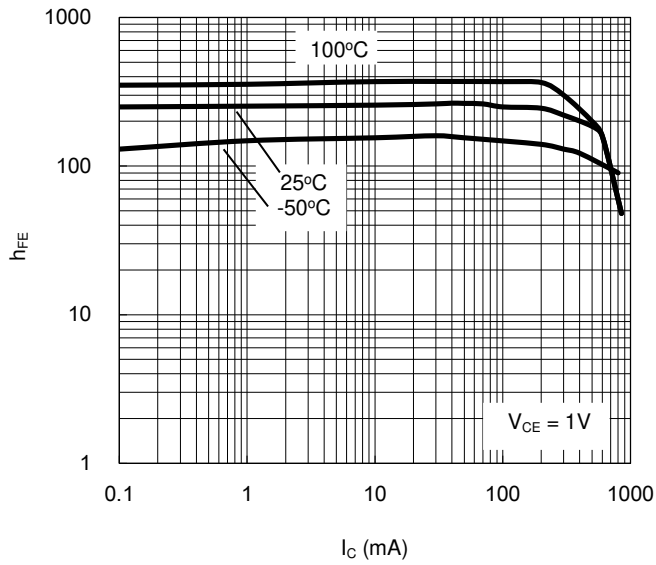
**Fig.4 Collector Cutoff Current  $I_{CBO} = f(T_A)$**



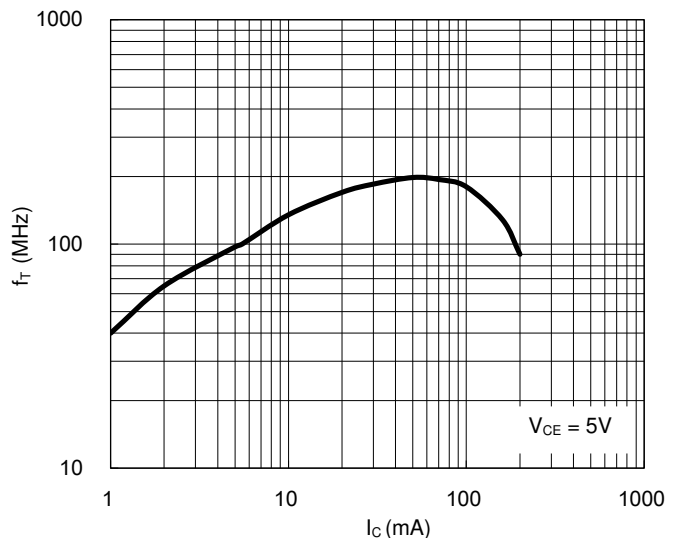
**CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

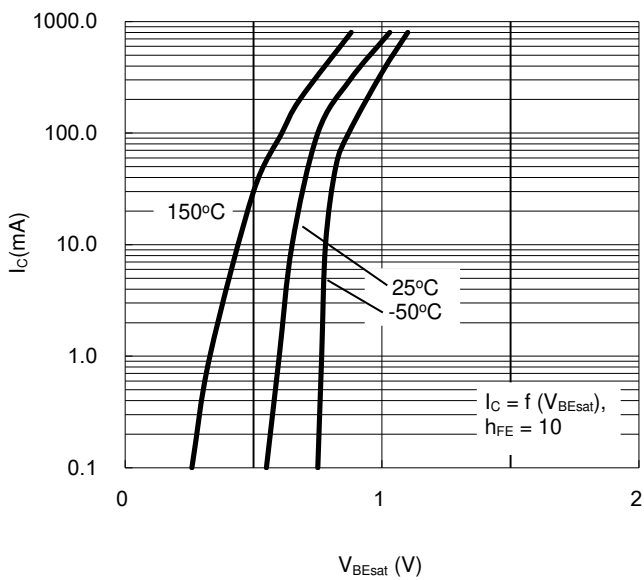
**Fig.5 DC Current Gain  $h_{FE} = f(I_C)$**



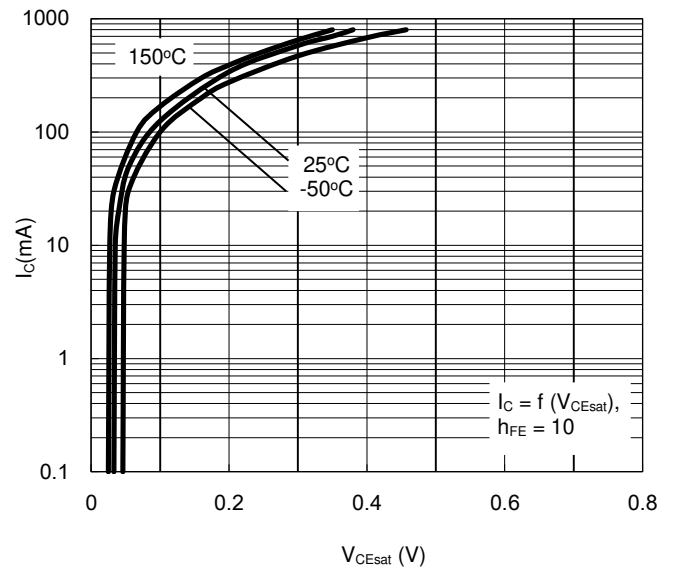
**Fig.6 Transition Frequency  $f_T = f(I_C)$**



**Fig.7 Base-Emitter Saturation Voltage**

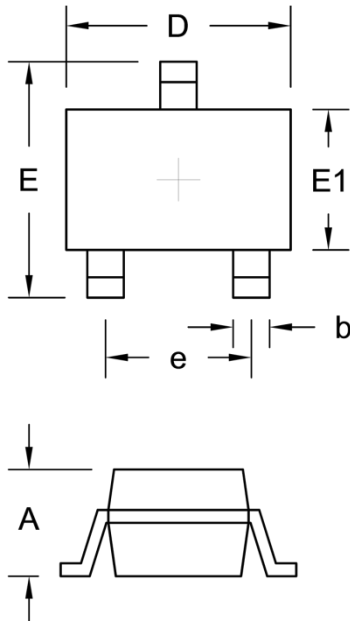


**Fig.8 Collector-Emitter Saturation Voltage**



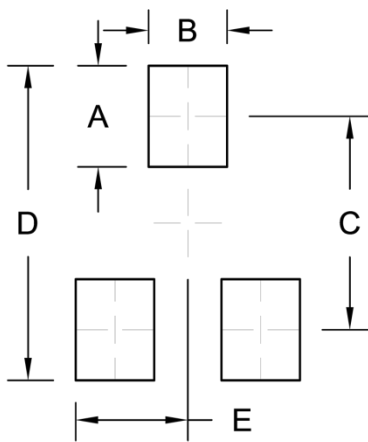
**PACKAGE OUTLINE DIMENSIONS**

SOT-323



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	0.80	1.10	0.031	0.043
b	0.25	0.40	0.010	0.016
D	1.80	2.20	0.071	0.087
E	1.80	2.40	0.071	0.094
E1	1.15	1.35	0.045	0.053
e	1.30 (TYP)		0.051 (TYP)	

**SUGGESTED PAD LAYOUT**



Symbol	Unit (mm)	Unit (inch)
A	0.90	0.035
B	0.70	0.028
C	1.90	0.075
D	2.80	0.110
E	1.00	0.039

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