

NPN General Purpose Transistor

FEATURES

- Epitaxial planar die construction
- Surface mount device type
- Matte Tin(Sn) lead finish with Nickel(Ni) underplate
- High temperature soldering guaranteed: 260°C/10s
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

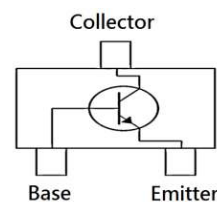
APPLICATIONS

- General-purpose switching and amplification

MECHANICAL DATA

- Case: SOT-323
- Terminal: Matte tin plated, lead free, solderable per MIL-STD-202, Method 208 guaranteed
- Weight: 5.00mg (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_C	500	mA
V_{CBO}	50	V
V_{CEO}	45	V
V_{EBO}	5	V
$T_{J\ MAX}$	150	°C
Package	SOT-323	


SOT-323


ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Power dissipation	P_D	200	mW
Collector current, dc	I_C	500	mA
Junction temperature	T_J	-55 to +150	°C
Storage temperature	T_{STG}	-55 to +150	°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-ambient thermal resistance	$R_{\theta JA}$	625	°C/W

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

PARAMETER	CONDITIONS	SYMBOL	MIN	MAX	UNIT	
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	nA	
Emitter Cut-off Current	$V_{EB} = 5\text{V}$	I_{EBO}	-	100	nA	
DC Current Gain	$V_{CE} = 1\text{V}, I_C = 100\text{mA}$	h_{FE}	BC817-16W	100	250	-
			BC817-25W	160	400	-
	BC817-40W		250	600	-	
	BC817-16W BC817-25W BC817-40W		$V_{CE} = 1\text{V}, I_C = 500\text{mA}$	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	100	-	MHz	

ORDERING AND MARKING INFORMATION

ORDERING CODE ⁽¹⁾	MARKING	PACKAGE	PACKING
BC817-16W RF	6CR	SOT-323	3K / 7" Reel
BC817-25W RF	6CS	SOT-323	3K / 7" Reel
BC817-40W RF	6CT	SOT-323	3K / 7" Reel
BC817-16W RFG	6CR	SOT-323	3K / 7" Reel
BC817-25W RFG	6CS	SOT-323	3K / 7" Reel
BC817-40W RFG	6CT	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

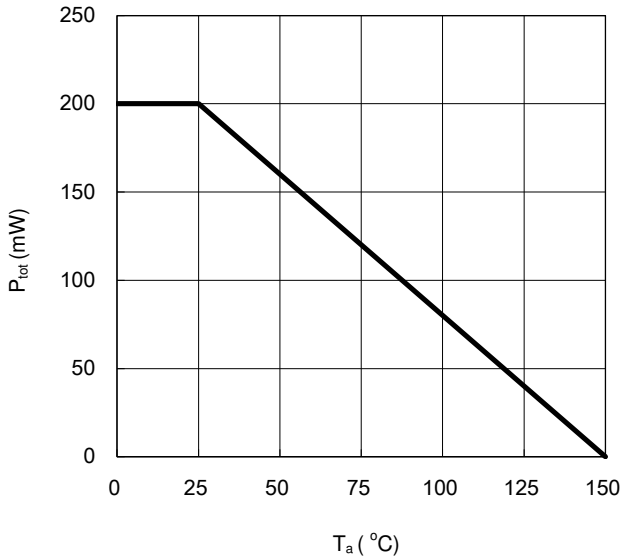


Fig.2 Permissible Pulse Load

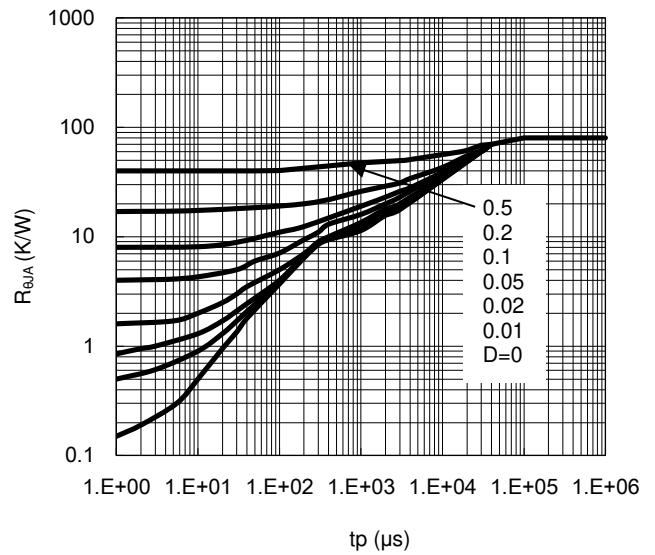


Fig.3 Permissible Pulse Load

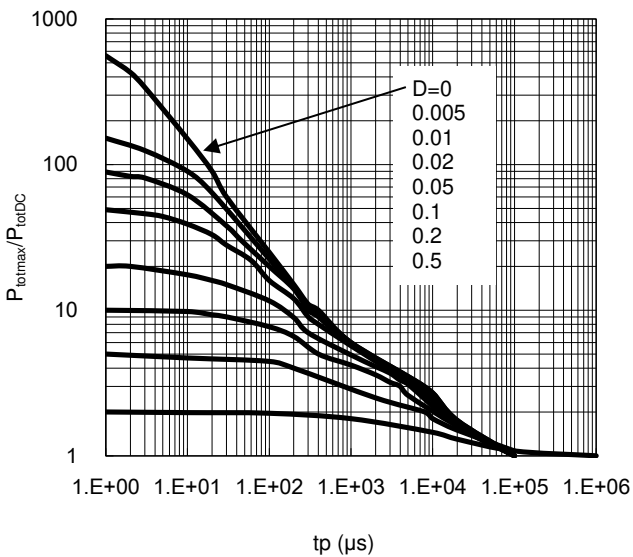
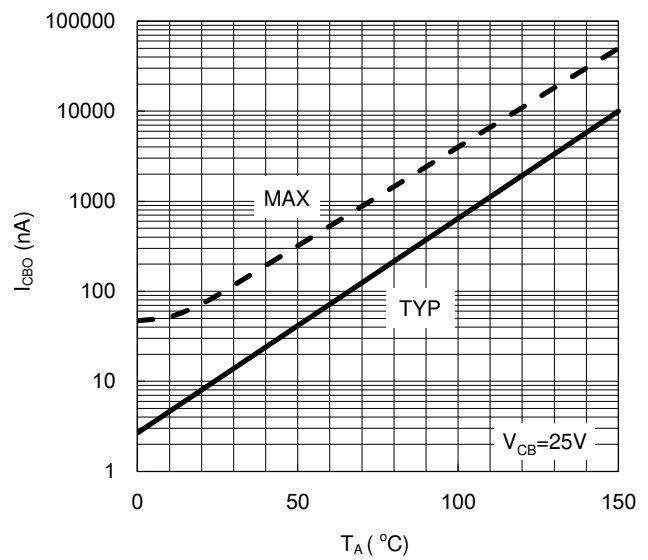


Fig.4 Collector Cutoff Current



CHARACTERISTICS CURVES

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

Fig.5 DC Current Gain

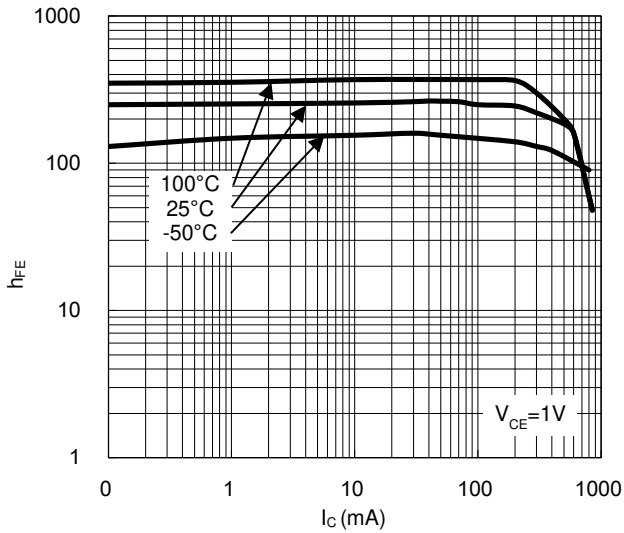


Fig.6 Transition Frequency

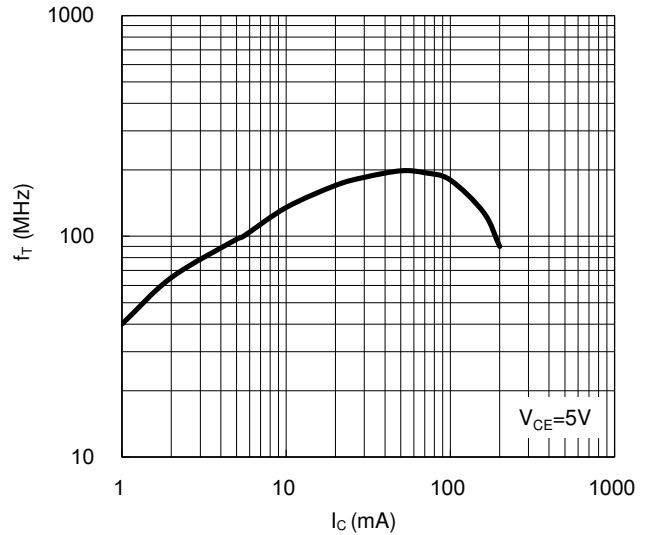


Fig.7 Base-Emitter Saturation Voltage

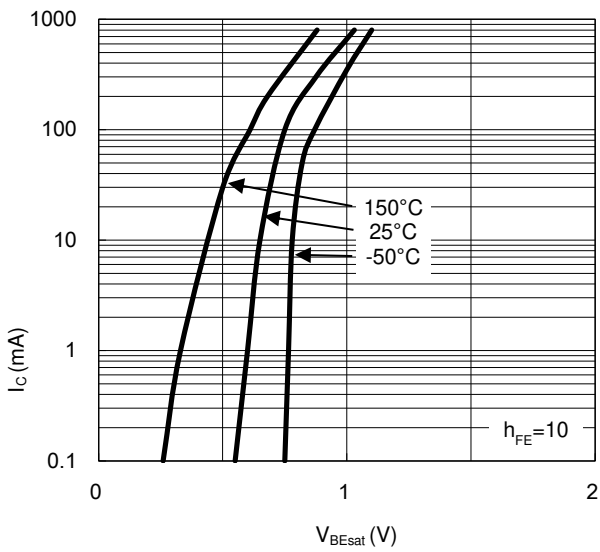
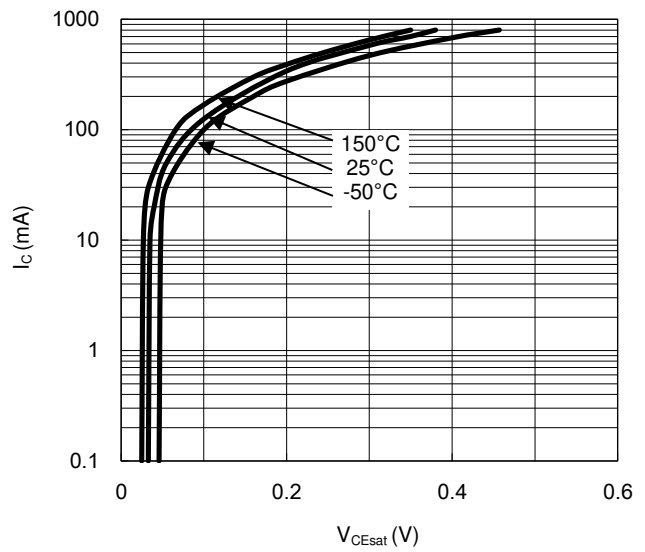
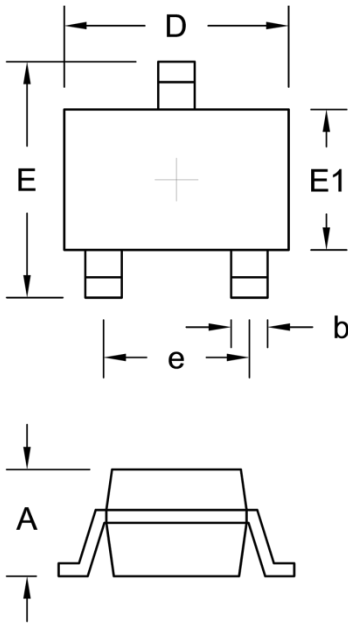


Fig.8 Collector-Emitter Saturation Voltage



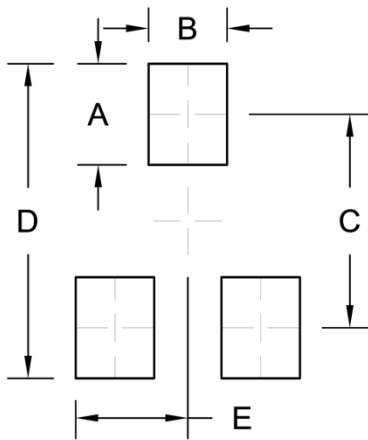
PACKAGE OUTLINE DIMENSIONS

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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