

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

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

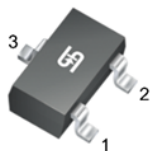
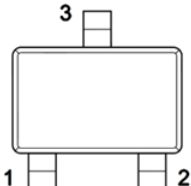
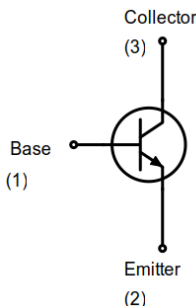
APPLICATIONS

- General-purpose switching and amplification

MECHANICAL DATA

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



PACKAGE: SOT-323	PIN CONFIGURATION	CIRCUIT DIAGRAM
		

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	BC817-16W	$V_{CE} = 1\text{ V}, I_C = 100\text{ mA}$	h_{FE}	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	PACKAGE	PACKING	DEVICE MARKING
BC817-16W RFG	SOT-323	3K / 7" Reel	6CR
BC817-25W RFG	SOT-323	3K / 7" Reel	6CS
BC817-40W RFG	SOT-323	3K / 7" Reel	6CT

CHARACTERISTICS CURVES

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

Fig.1 Total Power Dissipation

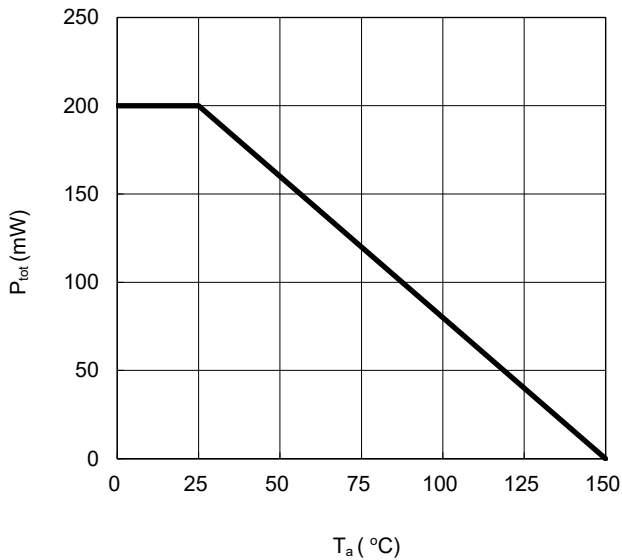


Fig.2 Permissible Pulse Load

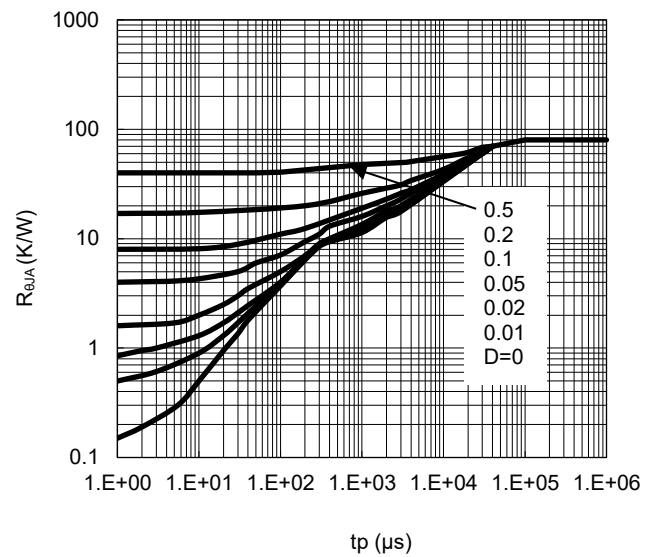


Fig.3 Permissible Pulse Load

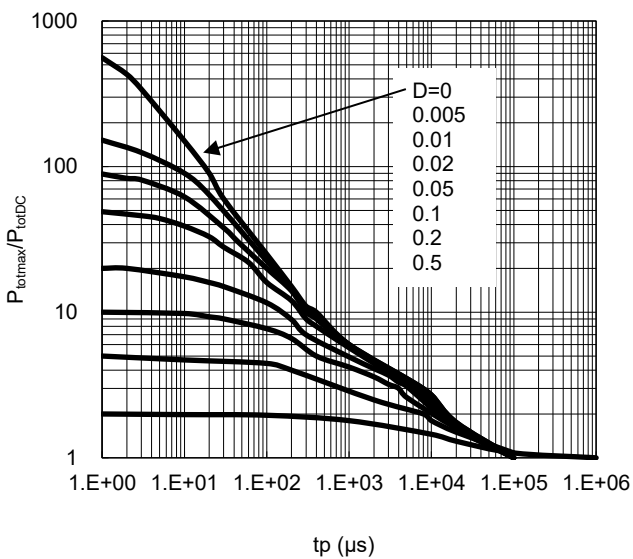
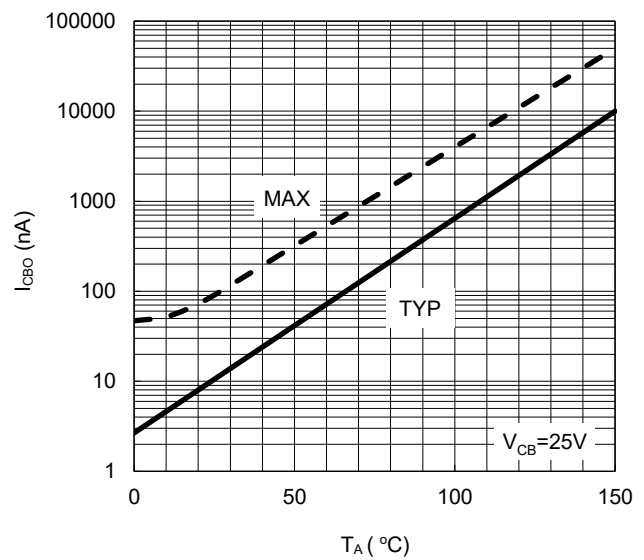


Fig.4 Collector Cutoff Current



CHARACTERISTICS CURVES

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

Fig.5 DC Current Gain

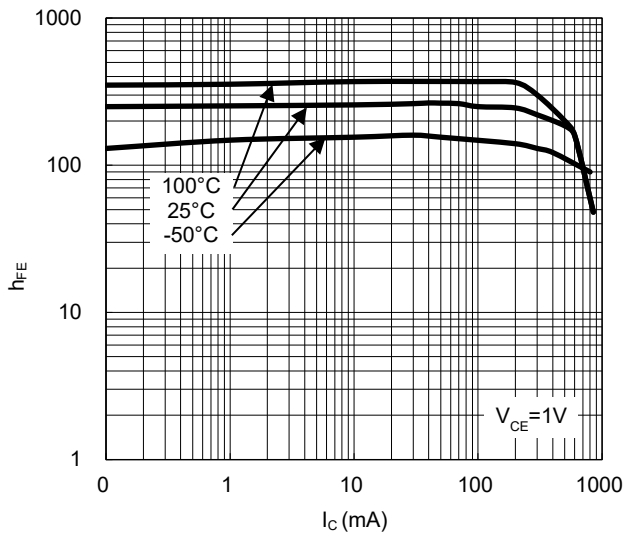


Fig.6 Transition Frequency

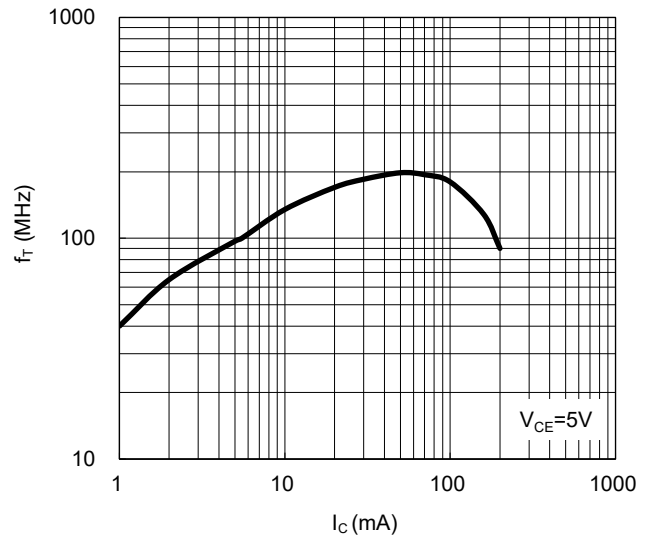


Fig.7 Base-Emitter Saturation Voltage

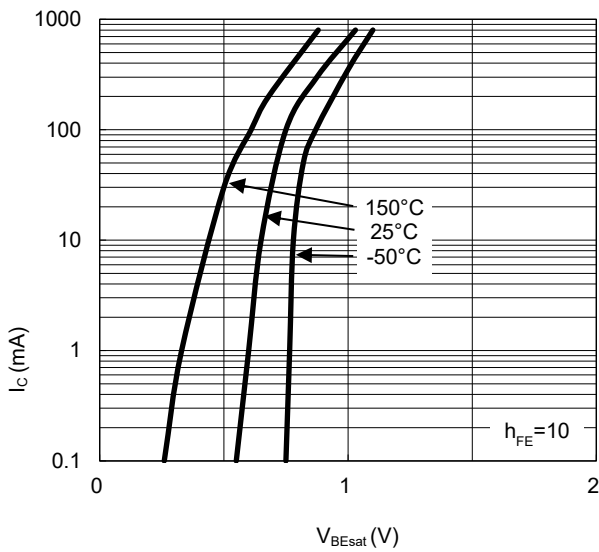
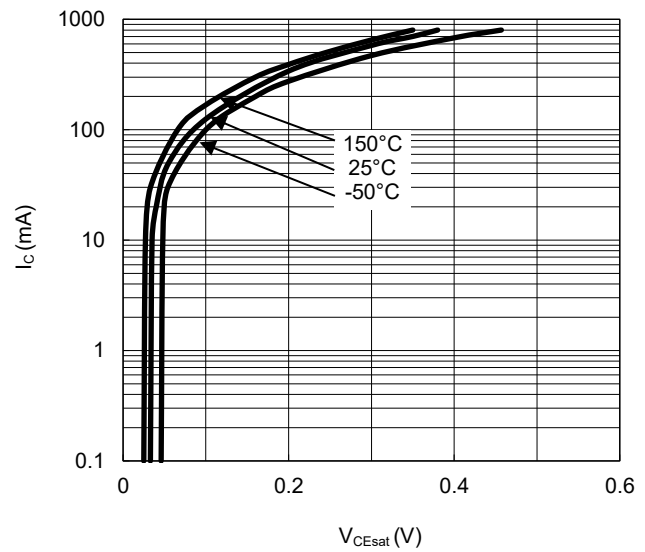
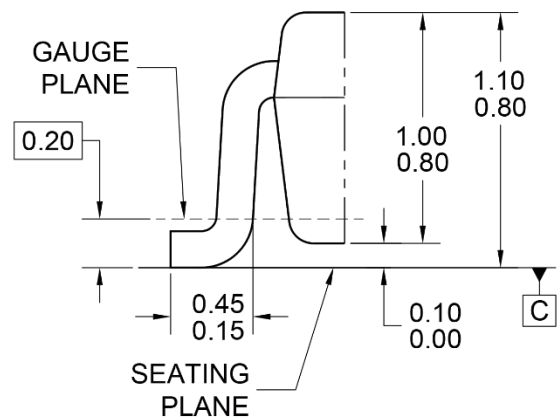
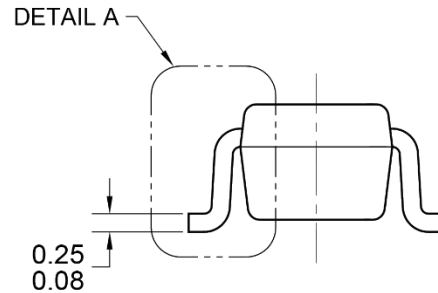
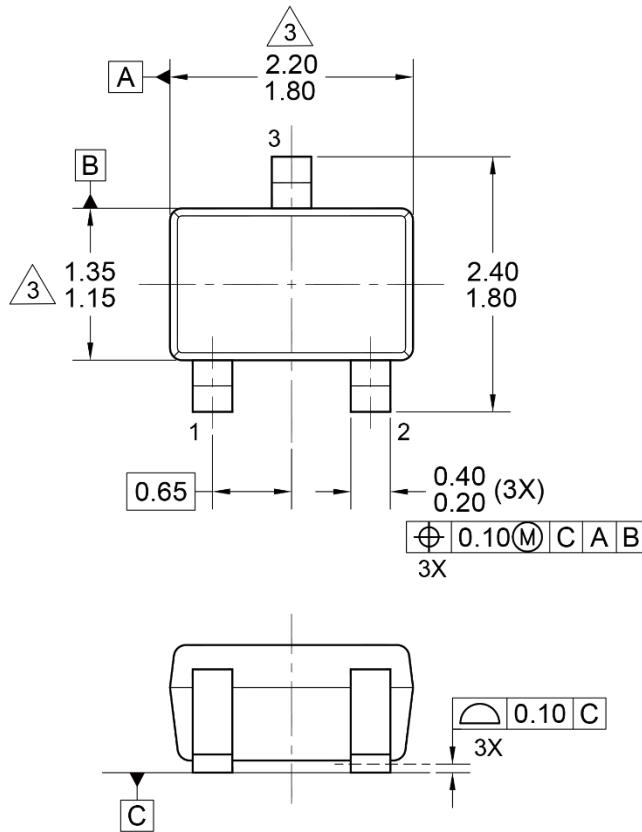


Fig.8 Collector-Emitter Saturation Voltage

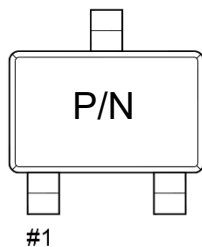


PACKAGE OUTLINE DIMENSIONS

SOT-323



DETAIL A
(SCALE 2:1)

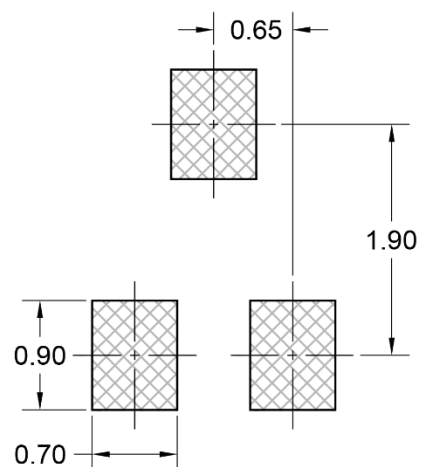


MARKING DIAGRAM

P/N = Device marking

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: JEITA ED-7500A, EIAJ SC-70.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
5. DWG NO. REF: HQ2SD07-SOT323-098 REV D.



SUGGESTED PAD LAYOUT

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