

NPN General Purpose Transistor

FEATURES

- Low reverse current, high reliability
- Surface device type mounting
- Moisture sensitivity level 1
- Matte Tin(Sn) lead finish with Nickel(Ni) underplate
- High temperature soldering guaranteed : 260°C/10s
- RoHS Compliant
- Halogen-free

KEY PARAMETERS

PARAMETER	VALUE	UNIT
I_C	0.1	A
V_{CBO}	30 - 80	V
V_{CEO}	30 - 65	V
V_{EBO}	5 - 6	V
$T_J \text{ MAX}$	150	°C

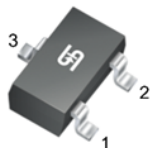
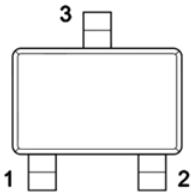
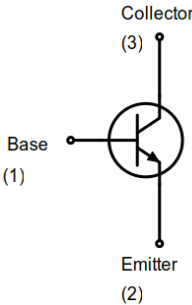
APPLICATIONS

- 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)



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	I_C	0.1	A
Peak Collector Current	I_{CM}	0.2	A
Junction temperature range	T_J	-55 to +150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

ELECTRICAL SPECIFICATIONS (T _A = 25°C unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	MIN	MAX	UNIT
Collector-Base Breakdown Voltage	BC846AW/BW/CW	I _C = 10μA	V _{CBO}	80	-	V
	BC847AW/BW/CW			50	-	V
	BC848AW/BW/CW			30	-	V
	BC849AW/BW/CW			30	-	V
	BC850AW/BW/CW			50	-	V
Collector-Emitter Breakdown Voltage	BC846AW/BW/CW	I _C = 10mA	V _{(BR)CEO}	65	-	V
	BC847AW/BW/CW			45	-	V
	BC848AW/BW/CW			30	-	V
	BC849AW/BW/CW			30	-	V
	BC850AW/BW/CW			45	-	V
Emitter-Base Breakdown Voltage	BC846AW/BW/CW	I _E = 1μA	V _{EBO}	6	-	V
	BC847AW/BW/CW			6	-	V
	BC848AW/BW/CW			5	-	V
	BC849AW/BW/CW			5	-	V
	BC850AW/BW/CW			5	-	V
Collector Cut-off Current		V _{CB} = 30V	I _{CBO}	-	15	nA
Emitter Cut-off Current		V _{EB} = 5V	I _{EBO}	-	100	nA
DC Current Gain	BC846AW - BC850AW	V _{CE} = 5V, I _C = 2mA	h _{FE}	110	220	-
	BC846BW - BC850BW			200	450	-
	BC846CW - BC850CW			420	800	-
Collector-Emitter Saturation Voltage		I _C = 10mA, I _B = 0.5mA	V _{CE(sat)}	-	0.25	V
		I _C = 100mA, I _B = 5mA		-	0.60	V
Transition Frequency		V _{CE} = 5V, I _C = 10mA , f = 100MHz	f _T	100	-	MHz
Base Emitter Voltage		V _{CE} = 5V, I _C = 2mA	V _{BE}	0.58	0.70	V
		V _{CE} = 5V, I _C = 10mA		-	0.77	V
Collector Output Capacitance		V _{CB} = 10V, I _E = 0, f = 1MHz	C _{ob}	-	4.50	pF

ORDERING AND MARKING INFORMATION

ORDERING CODE	PACKAGE	PACKING	DEVICE MARKING
BC846AW RFG	SOT-323	3K / 7" Reel	1A
BC846BW RFG	SOT-323	3K / 7" Reel	1B
BC846CW RFG	SOT-323	3K / 7" Reel	1C
BC847AW RFG	SOT-323	3K / 7" Reel	1E
BC847BW RFG	SOT-323	3K / 7" Reel	1F
BC847CW RFG	SOT-323	3K / 7" Reel	1G
BC848AW RFG	SOT-323	3K / 7" Reel	1E
BC848BW RFG	SOT-323	3K / 7" Reel	1F
BC848CW RFG	SOT-323	3K / 7" Reel	1G
BC849AW RFG	SOT-323	3K / 7" Reel	1E
BC849BW RFG	SOT-323	3K / 7" Reel	1F
BC849CW RFG	SOT-323	3K / 7" Reel	1G
BC850AW RFG	SOT-323	3K / 7" Reel	1E
BC850BW RFG	SOT-323	3K / 7" Reel	1F
BC850CW RFG	SOT-323	3K / 7" Reel	1G

CHARACTERISTICS CURVES

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

Fig.1 Normalized DC Current Gain

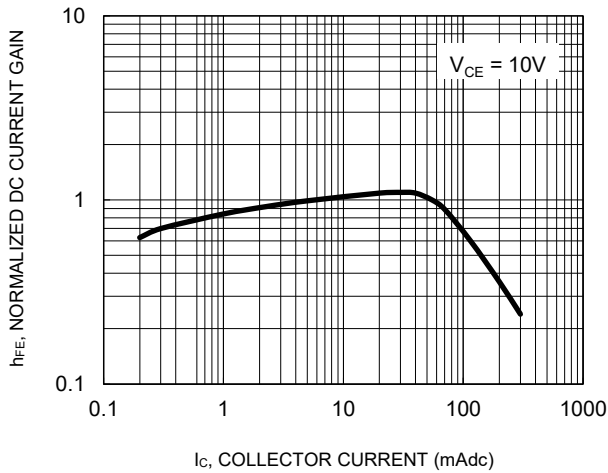


Fig.2 "Saturation" and "On" Voltages

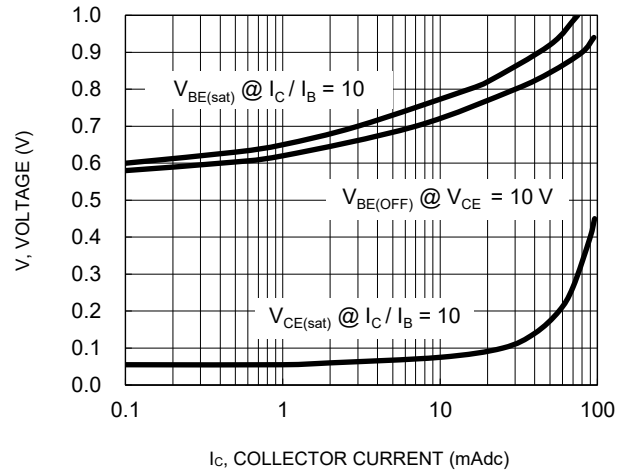


Fig.3 Collector Saturation Region

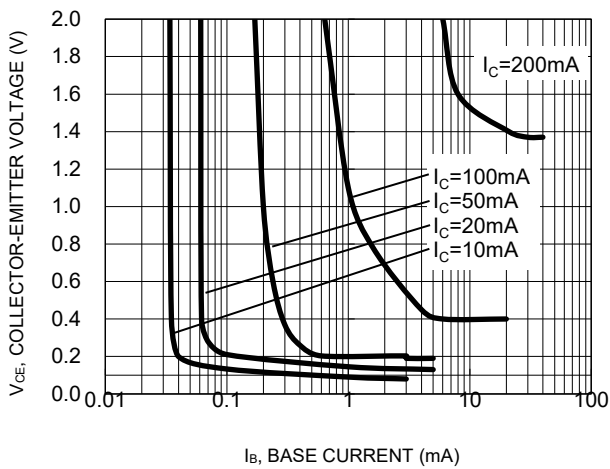


Fig.4 Base-Emitter Current (mA)

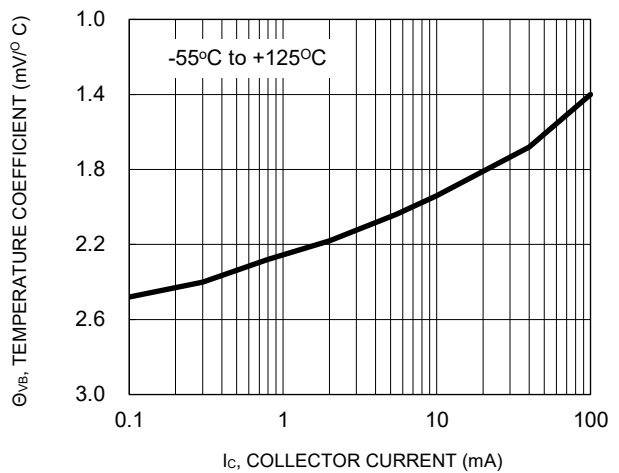


Fig.5 Capacitances

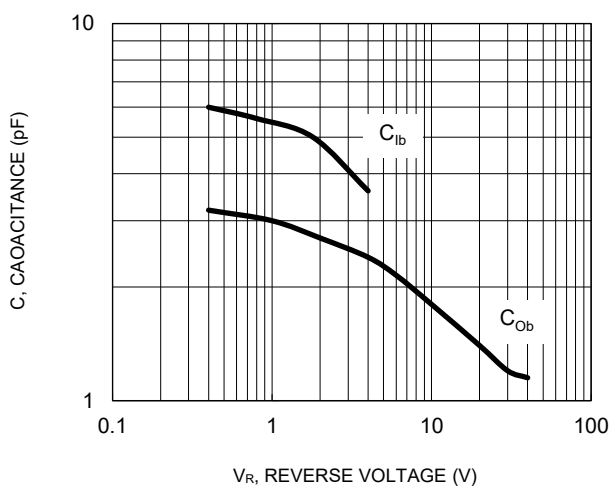
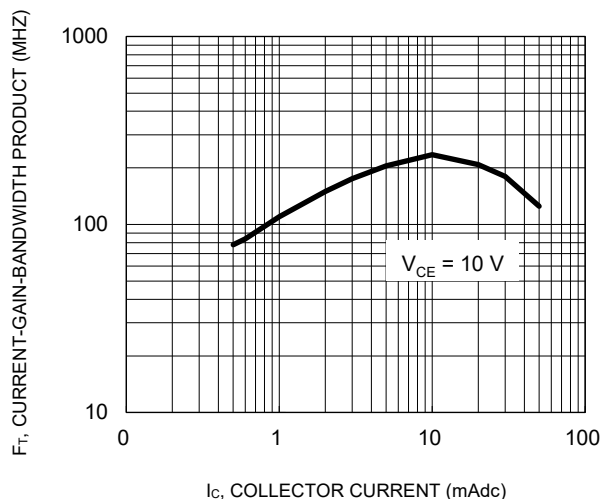


Fig.6 Current-Gain-Bandwidth Product



CHARACTERISTICS CURVES

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

Fig.7 DC Collector Current (mA)

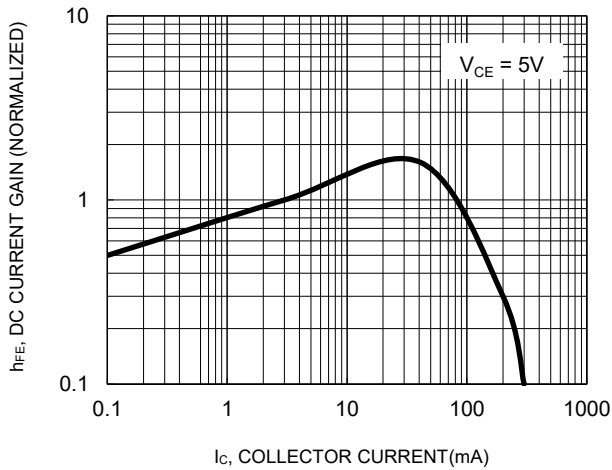


Fig.8 "On" Voltage

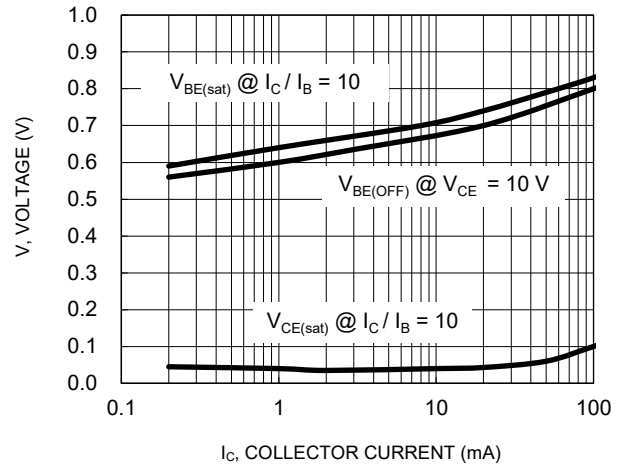


Fig.9 Collector Saturation Region

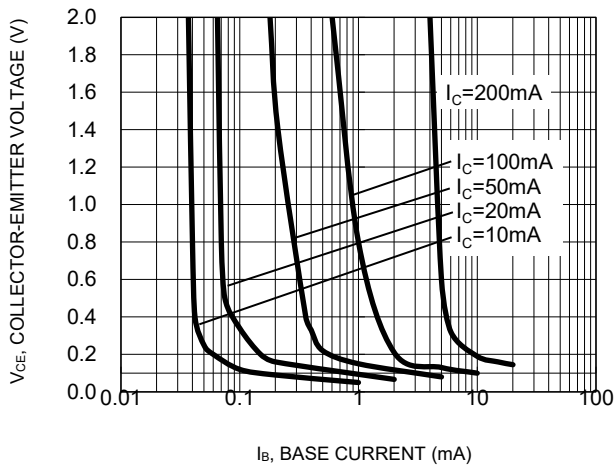


Fig.10 Base-Emitter Temperature Coefficient

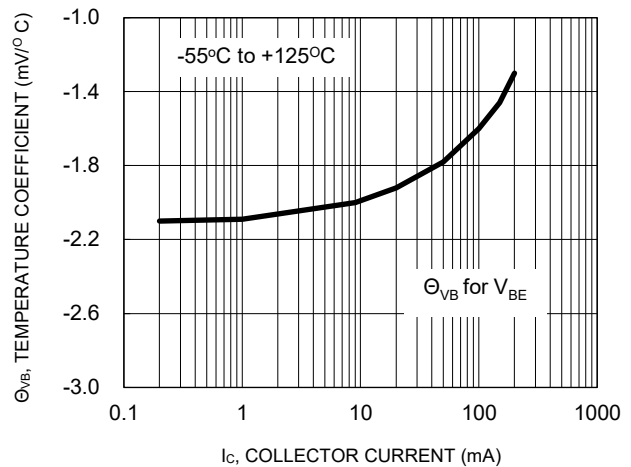


Fig.11 Capacitance

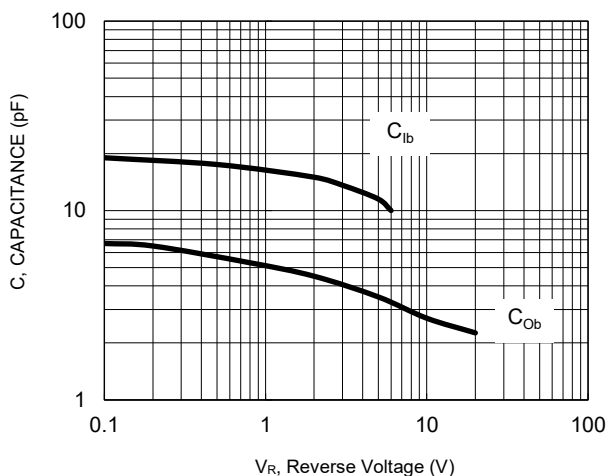
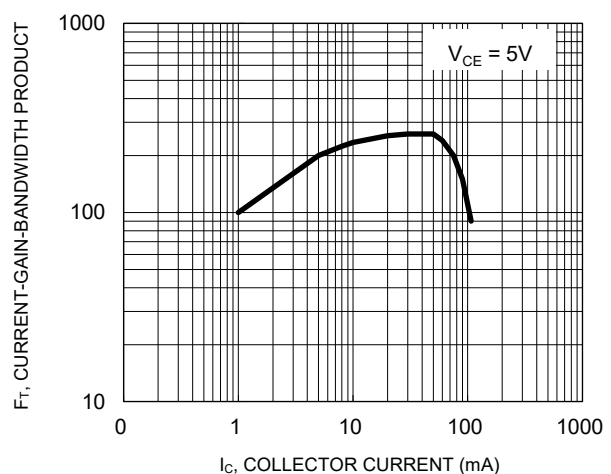
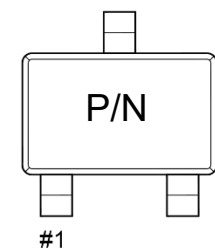
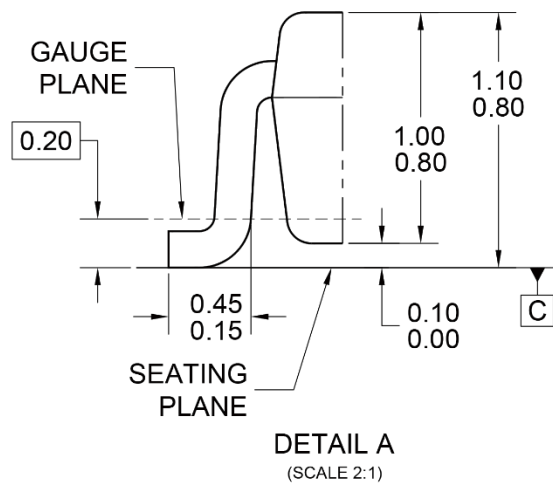
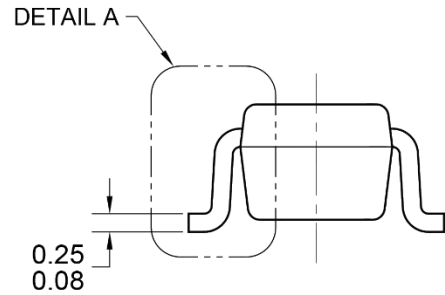
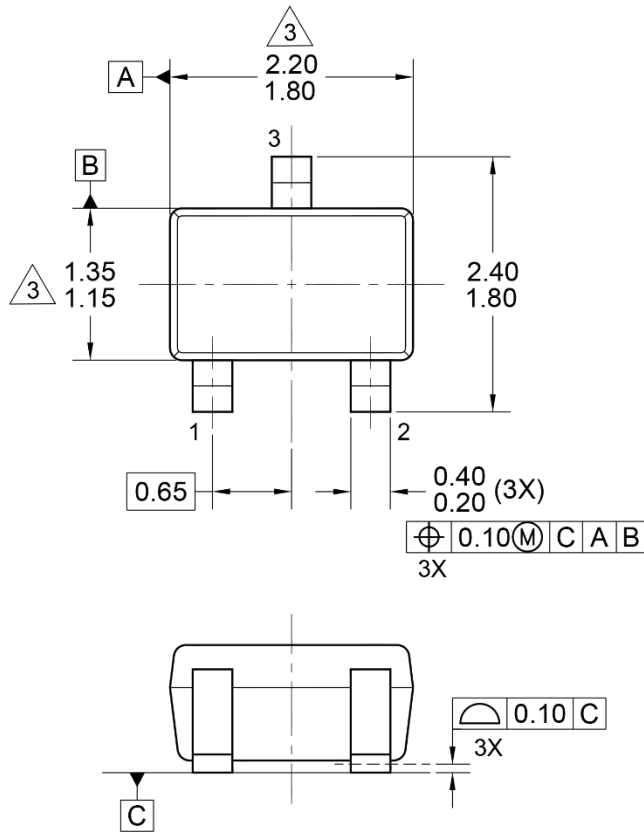


Fig.12 Current-Gain-Bandwidth Product



PACKAGE OUTLINE DIMENSIONS

SOT-323

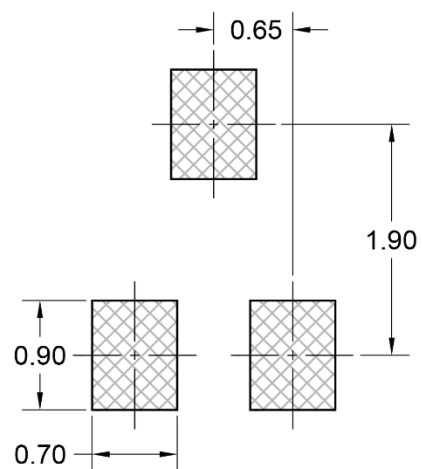


MARKING DIAGRAM

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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