

200mW, NPN Small Signal 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

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
V_{CBO}	30-80	V
V_{CEO}	30-65	V
V_{EBO}	5-6	V
I_C	0.1	A
h_{FE}	220-800	

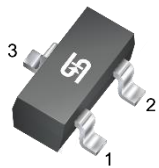
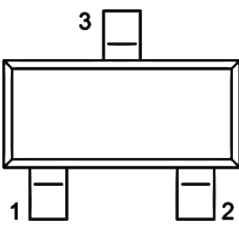
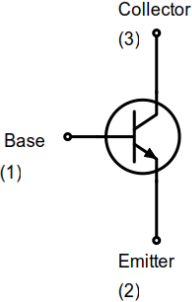
APPLICATIONS

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



MECHANICAL DATA

- Case: SOT-23
- 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: 8mg (approximately)

PACKAGE: SOT-23	PIN CONFIGURATION	CIRCUIT DIAGRAM
		

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

PARAMETER		SYMBOL	VALUE	UNIT
Power dissipation		P _D	200	mW
Collector-base voltage, emitter open	BC846	V_{CBO}	80	V
	BC847		50	
	BC848		30	
Collector-emitter voltage, base open	BC846	V_{CEO}	65	V
	BC847		45	
	BC848		30	
Emitter-base voltage, collector open	BC846	V_{EBO}	6	V
	BC847		6	

	BC848		5	
Collector current, dc		I_C	0.1	A
Junction temperature		T_J	-55 to +150	°C
Storage temperature		T_{STG}	-55 to +150	°C

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

PARAMETER	CONDITIONS		SYMBOL	MIN	MAX	UNIT
Collector cutoff current	$V_{CB} = 30\text{ V}, I_E = 0$		I_{CBO}	-	100	nA
Emitter cutoff current	$V_{EB} = 5\text{ V}, I_C = 0$		I_{EBO}	-	0.1	μA
Collector-base voltage	$I_C = 10\text{ }\mu\text{A}, I_E = 0$	BC846	V_{CBO}	80	-	V
		BC847		50	-	
		BC848		30	-	
Collector-emitter voltage	$I_C = 10\text{ mA}, I_B = 0$	BC846	V_{CEO}	65	-	V
		BC847		45	-	
		BC848		30	-	
Emitter-base voltage	$I_E = 1\text{ }\mu\text{A}, I_C = 0$	BC846	V_{EBO}	6	-	V
		BC847		6	-	
		BC848		5	-	
DC current gain	$V_{CE} = 5\text{ V}, I_C = 2\text{ mA}$	BC846A/BC847A/BC848A	h_{FE}	110	220	
		BC846B/BC847B/BC848B		200	450	
		BC847C/BC848C		420	800	
Collector-emitter saturation voltage	$I_C = 100\text{ mA}, I_B = 5\text{ mA}$		$V_{CE(sat)}$	-	0.5	V
Base-emitter saturation voltage	$I_C = 100\text{ mA}, I_B = 5\text{ mA}$		$V_{BE(sat)}$	-	1.1	V
Transition frequency	$V_{CE} = 5\text{ V}, I_C = 10\text{ mA}, f = 100\text{ MHz}$		f_T	100	-	MHz

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING	DEVICE MARKING
BC846A RFG	SOT-23	3K / 7" Reel	1A
BC846B RFG	SOT-23	3K / 7" Reel	1B
BC847A RFG	SOT-23	3K / 7" Reel	1E
BC847B RFG	SOT-23	3K / 7" Reel	1F
BC847C RFG	SOT-23	3K / 7" Reel	1G
BC848A RFG	SOT-23	3K / 7" Reel	1J

BC848B RFG	SOT-23	3K / 7" Reel	1K
BC848C RFG	SOT-23	3K / 7" Reel	1L
BC846A R5G	SOT-23	10K / 13" Reel	1A
BC846B R5G	SOT-23	10K / 13" Reel	1B
BC847A R5G	SOT-23	10K / 13" Reel	1E
BC847B R5G	SOT-23	10K / 13" Reel	1F
BC847C R5G	SOT-23	10K / 13" Reel	1G
BC848A R5G	SOT-23	10K / 13" Reel	1J
BC848B R5G	SOT-23	10K / 13" Reel	1K
BC848C R5G	SOT-23	10K / 13" Reel	1L

CHARACTERISTICS CURVES

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

Fig.1 Static Characteristic

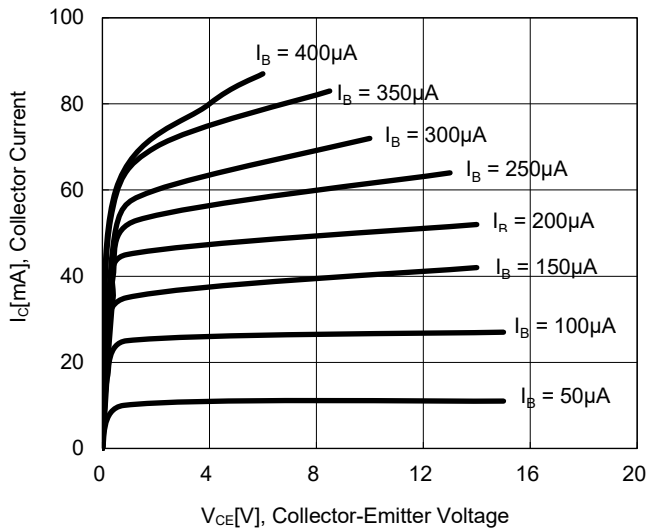


Fig. 2 DC Current Gain

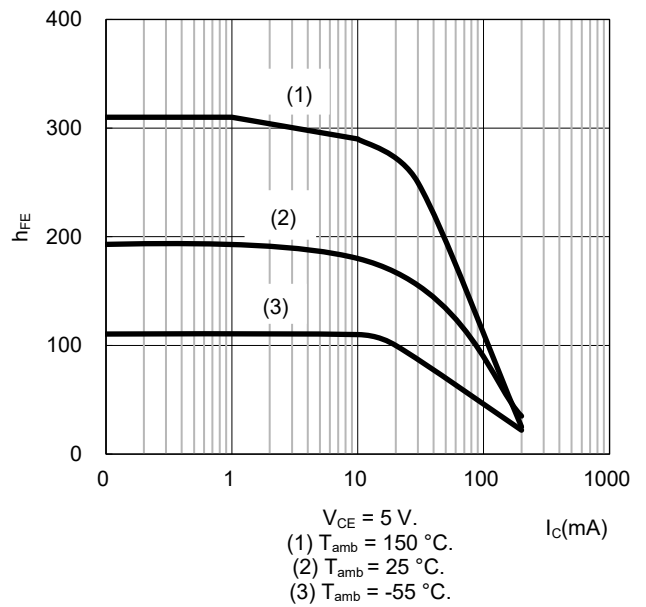


Fig.3 Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

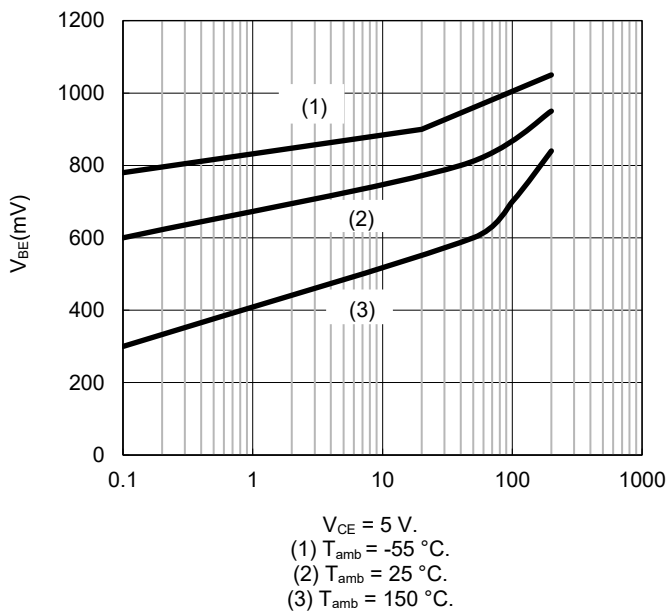
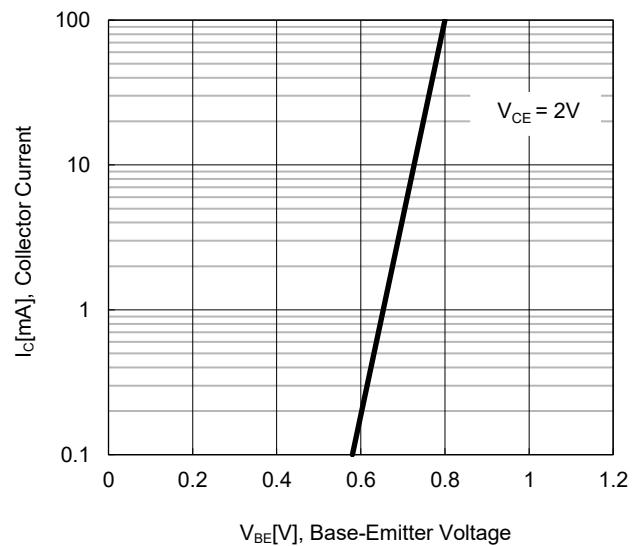


Fig.4 Base-Emitter On Voltage



CHARACTERISTICS CURVES

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

Fig.5 Collector Output Capacitance

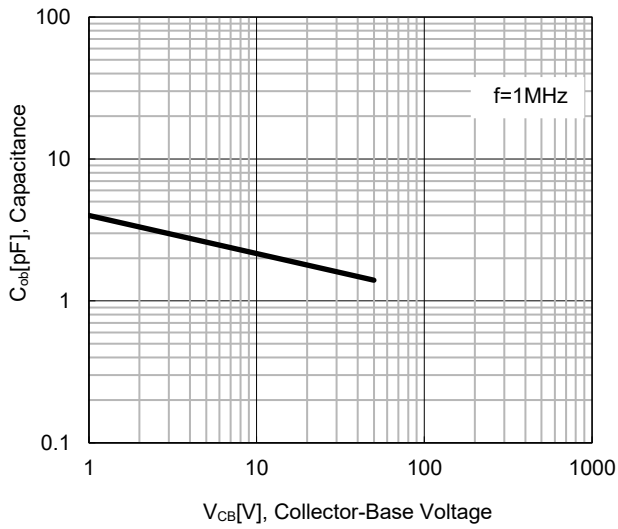
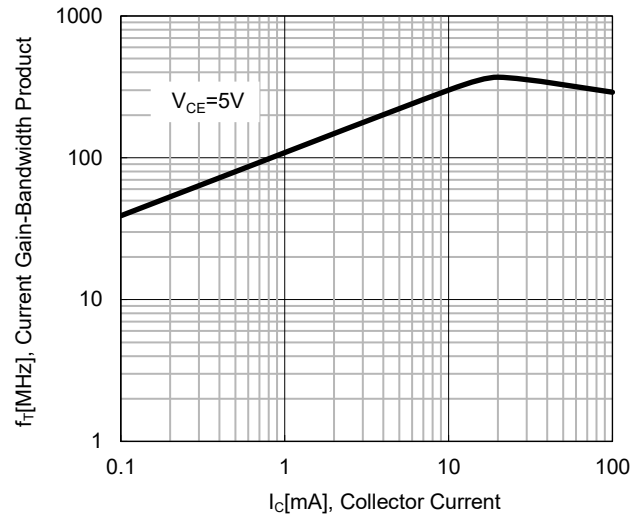
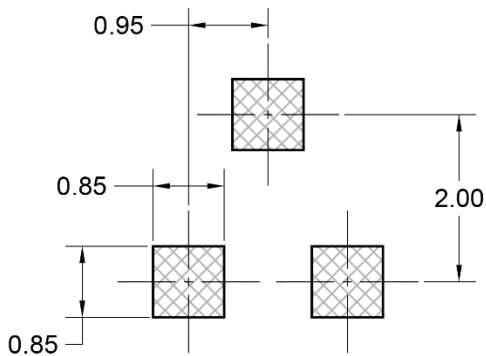
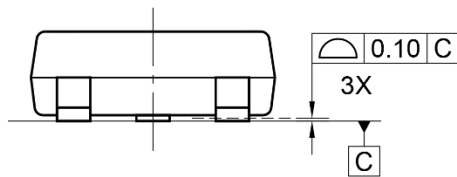
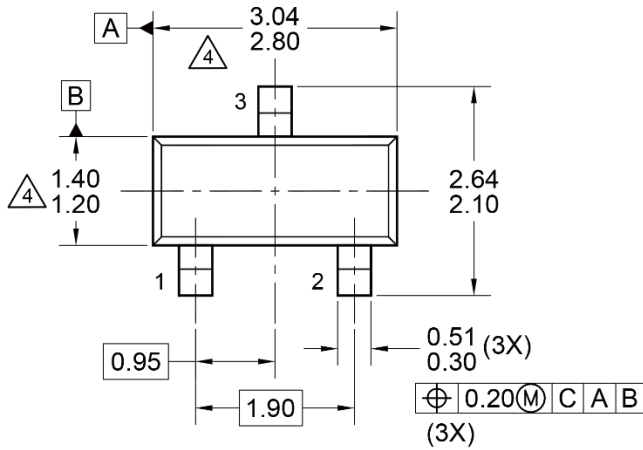


Fig. 6 Current Gain Bandwidth Product

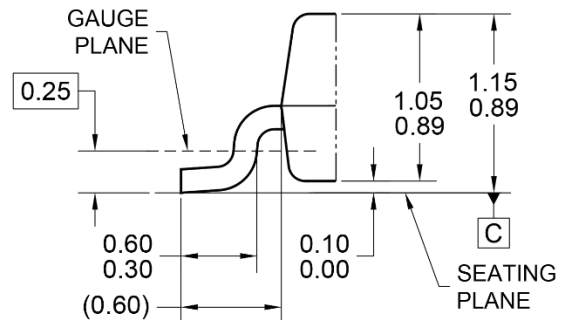
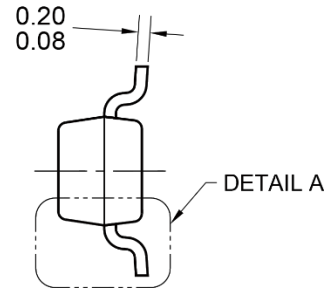


PACKAGE OUTLINE DIMENSIONS

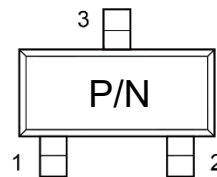
SOT-23



SUGGESTED PAD LAYOUT



DETAIL A, ROTATED -90°
(SCALE 2:1)



MARKING DIAGRAM

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: JEDEC TO-236, ISSUE H, VARIATION AA.

4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

5. DWG NO. REF: HQ2SD07-SOT23JEDEC-104 REV B.

P/N = Device marking

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