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

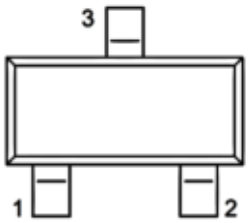
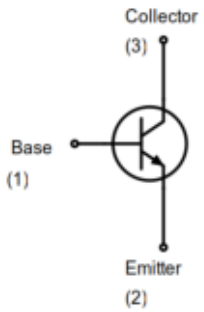
KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
V_{CBO}	30-80	V
V_{CEO}	30-65	V
V_{EBO}	5-6	V
I_C	0.1	A
h_{FE}	220-800	

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°C unless otherwise noted)

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

Fig.1 Static Characteristic

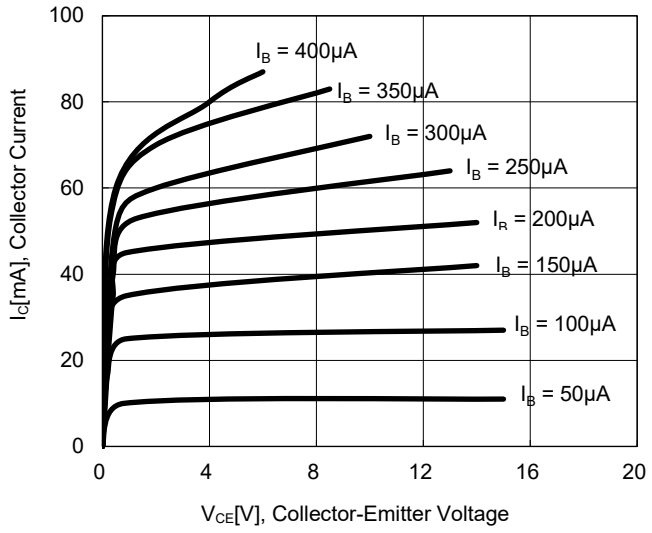
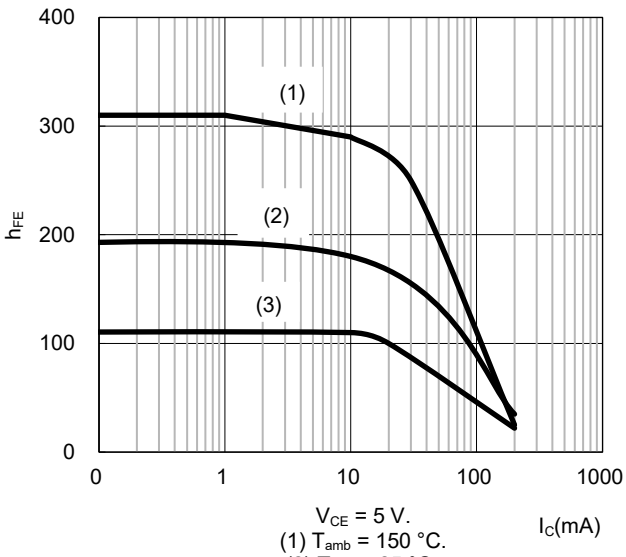


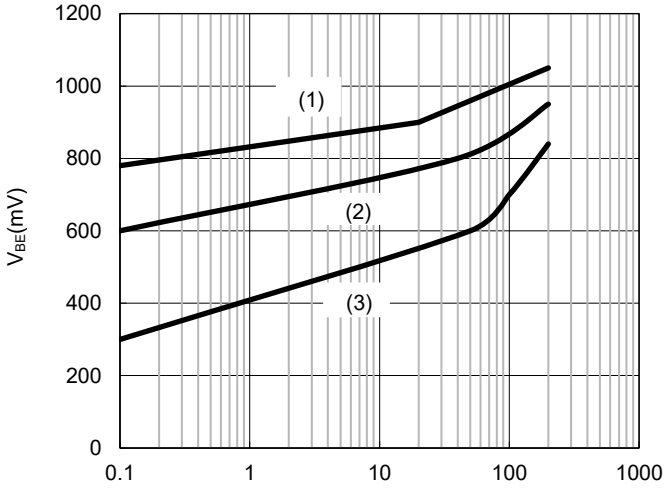
Fig. 2 DC Current Gain



V_{CE} = 5 V.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = -55 °C.

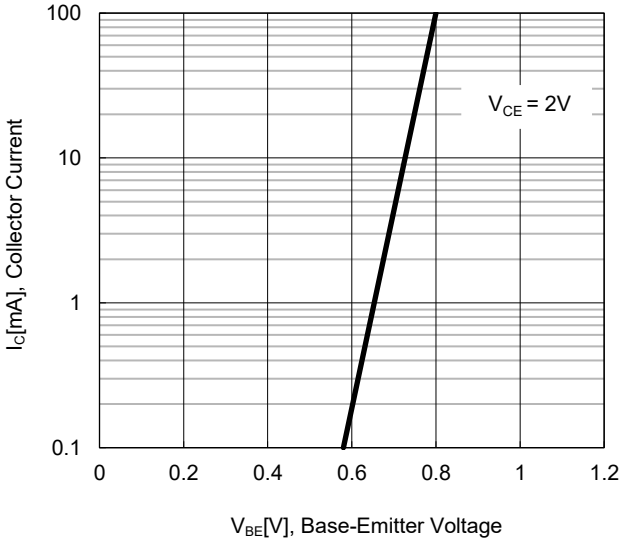
Fig.3 Base-Emitter Saturation Voltage

Collector-Emitter Saturation Voltage



V_{CE} = 5 V.
(1) T_{amb} = -55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

Fig.4 Base-Emitter On Voltage



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.5 Collector Output Capacitance

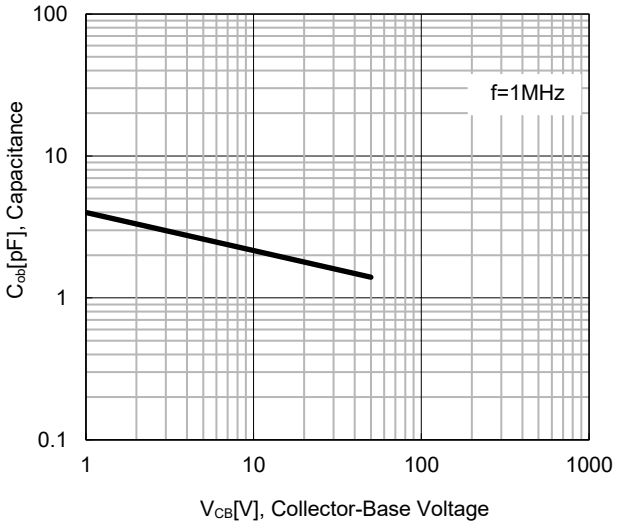
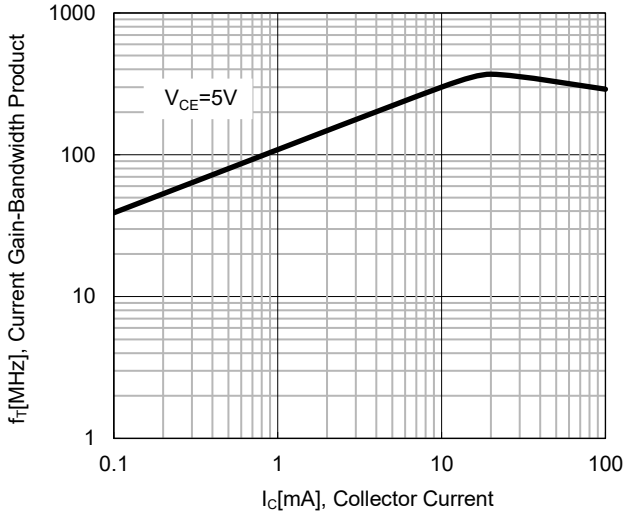
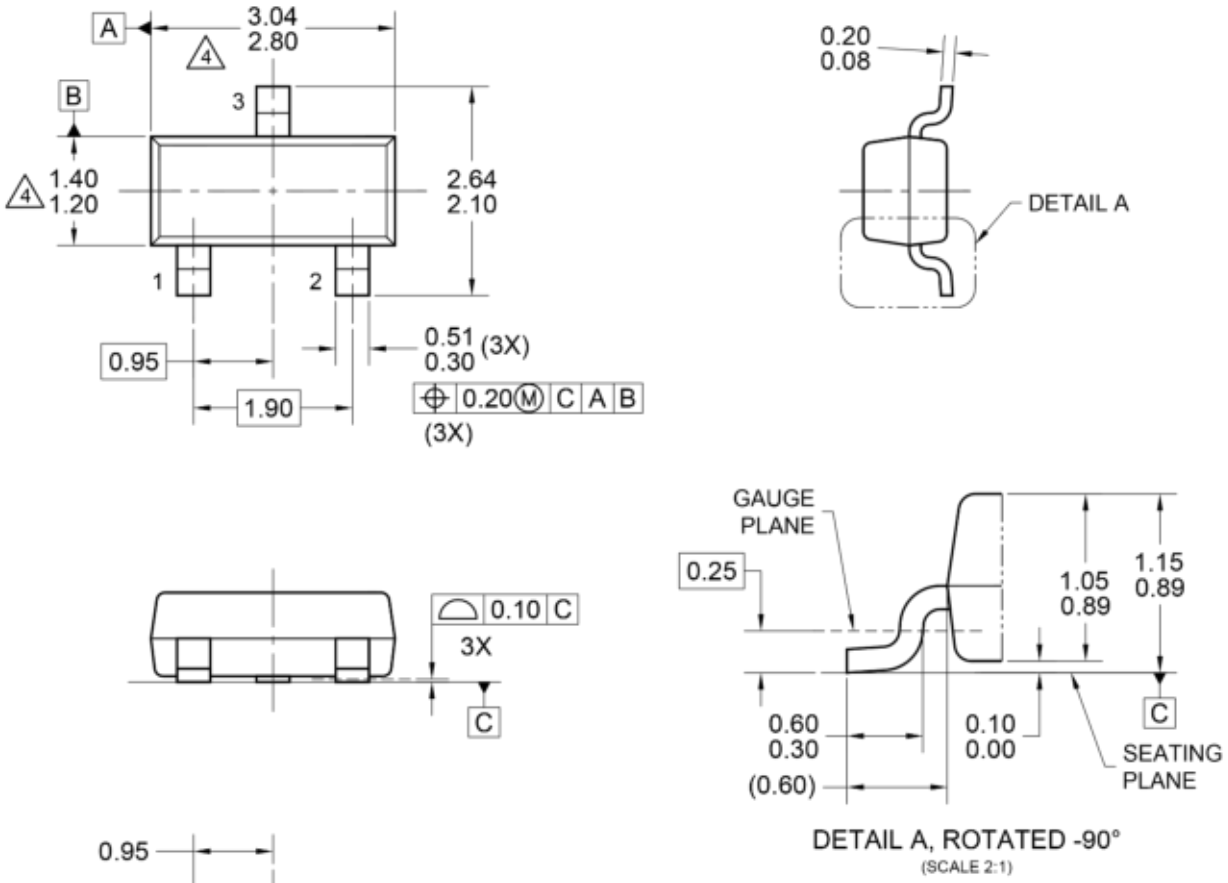


Fig. 6 Current Gain Bandwidth Product



PACKAGE OUTLINE DIMENSIONS

SOT-23



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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