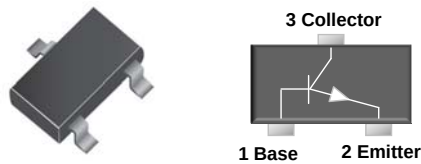


Small Signal Transistor



Features

- ✧ Epitaxial planar die construction
- ✧ Surface device type mounting
- ✧ Moisture sensitivity level 1
- ✧ Matte Tin(Sn) lead finish with Nickel(Ni) underplate
- ✧ Pb free version and RoHS compliant
- ✧ Green compound (Halogen free) with suffix "G" on packing code and prefix "G" on date code

Mechanical Data

- ✧ Case : SOT- 23 small outline plastic package
- ✧ Terminal: Matte tin plated, lead free., solderable per MIL-STD-202, Method 208 guaranteed
- ✧ High temperature soldering guaranteed: 260°C/10s
- ✧ Weight : 0.008gram (approximately)

Ordering Information

Package	Part No.	Packing	Marking
SOT-23	BC846A RF	3K / 7" Reel	1A
SOT-23	BC846B RF	3K / 7" Reel	1B
SOT-23	BC847A RF	3K / 7" Reel	1E
SOT-23	BC847B RF	3K / 7" Reel	1F
SOT-23	BC847C RF	3K / 7" Reel	1G
SOT-23	BC848A RF	3K / 7" Reel	1J
SOT-23	BC848B RF	3K / 7" Reel	1K
SOT-23	BC848C RF	3K / 7" Reel	1L
SOT-23	BC846A RFG	3K / 7" Reel	1A
SOT-23	BC846B RFG	3K / 7" Reel	1B
SOT-23	BC847A RFG	3K / 7" Reel	1E
SOT-23	BC847B RFG	3K / 7" Reel	1F
SOT-23	BC847C RFG	3K / 7" Reel	1G
SOT-23	BC848A RFG	3K / 7" Reel	1J
SOT-23	BC848B RFG	3K / 7" Reel	1K
SOT-23	BC848C RFG	3K / 7" Reel	1L

Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

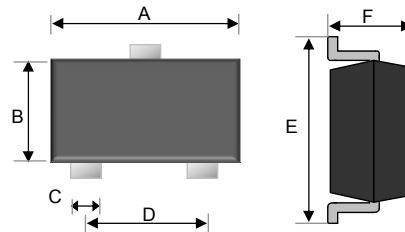
Maximum Ratings

Type Number	Symbol	Value	Units
Power Dissipation	P_D	200	mW
Collector-Base Voltage	V_{CBO}	80 50 30	V
Collector-Emitter Voltage	V_{CEO}	65 45 30	V
Emitter-Base Voltage	V_{EBO}	6 6 5	V
Collector Current	I_C	0.1	A
Junction and Storage Temperature Range	T_J, T_{STG}	-65 to + 150	°C

Notes:1. Valid provided that electrodes are kept at ambient temperature

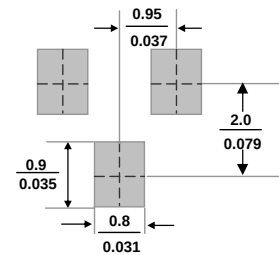
BC846A/B, BC847A/B/C, BC848A/B/C 200mW, NPN Small Signal Transistor

SOT-23



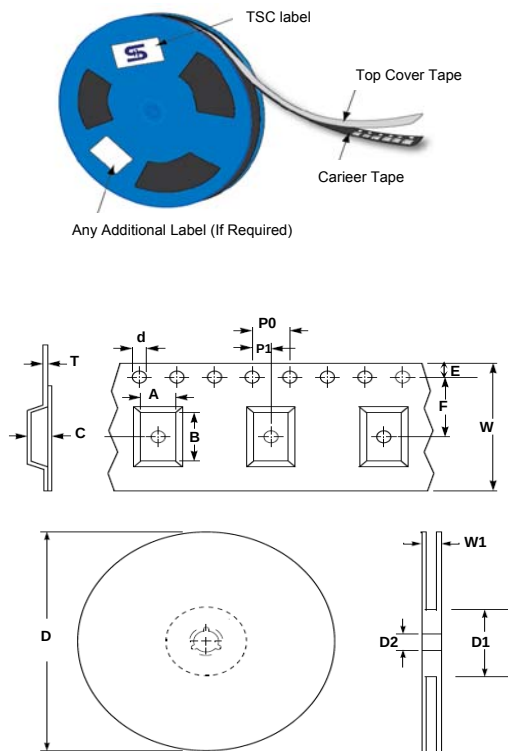
Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	2.80	3.00	0.110	0.118
B	1.20	1.40	0.047	0.055
C	0.30	0.50	0.012	0.020
D	1.80	2.00	0.071	0.079
E	2.25	2.55	0.089	0.100
F	0.90	1.20	0.035	0.043

Suggested PAD Layout

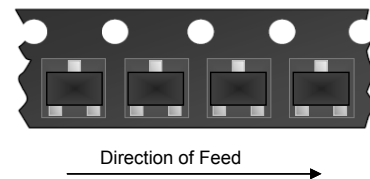


Small Signal Transistor
Electrical Characteristics

Type Number			Symbol	Min	Max	Units
Collector-Base Breakdown Voltage	BC846	$I_C = 10\mu A$ $I_E = 0$	$V_{(BR)CBO}$	80	-	V
	BC847			50		
	BC848			30		
Collector-Emitter Breakdown Voltage	BC846	$I_C = 10mA$ $I_B = 0$	$V_{(BR)CEO}$	65	-	V
	BC847			45		
	BC848			30		
Emitter-Base Breakdown Voltage	BC846	$I_E = 1\mu A$ $I_C = 0$	$V_{(BR)EBO}$	6	-	V
	BC847			6		
	BC848			5		
Collector Cut-off Current		$V_{CB} = 30V$ $I_E = 0$	I_{CBO}	-	15	nA
Emitter Cut-off Current		$V_{EB} = 5V$ $I_C = 0$	I_{EBO}	-	0.1	μA
DC current gain	BC846A, BC847A, BC848A	$V_{CE} = 5V$ $I_C = 2mA$	h_{FE}	110	220	
	BC846B, BC847B, BC848B			200	450	
	BC847C, BC848C			420	800	
Collector-Emitter saturation voltage		$I_C = 100mA$ $I_B = 5mA$	$V_{CE(sat)}$	-	0.5	V
Base-Emitter saturation voltage		$I_C = 100mA$ $I_B = 5mA$	$V_{BE(sat)}$	-	1.1	V
Transition frequency		$V_{CE} = 5V$ $I_C = 10mA$ $f = 100MHz$	f_T	100	-	MHz

Tape & Reel specification


Item	Symbol	Dimension(mm)
Carrier width	A	3.15 ±0.10
Carrier length	B	2.77 ±0.10
Carrier depth	C	1.22 ±0.10
Sprocket hole	d	1.50 ± 0.10
Reel outside diameter	D	178 ± 1
Reel inner diameter	D1	55 Min
Feed hole width	D2	13.0 ± 0.20
Sprocket hole position	E	1.75 ±0.10
Punch hole position	F	3.50 ±0.05
Sprocket hole pitch	P0	4.00 ±0.10
Embossment center	P1	2.00 ±0.05
Overall tape thickness	T	0.229 ±0.013
Tape width	W	8.10 ±0.20
Reel width	W1	12.30 ±0.20



Small Signal Transistor

Rating and Characteristic Curves

Figure1. Static Characteristic

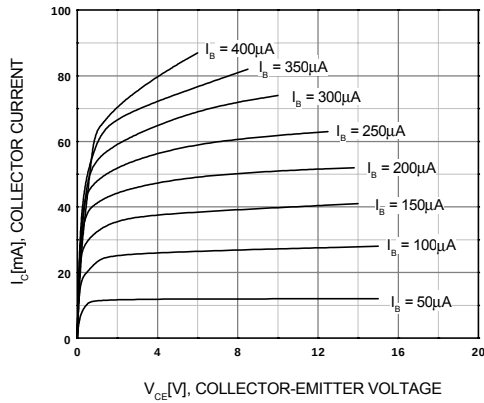


Figure 2. DC Current Gain

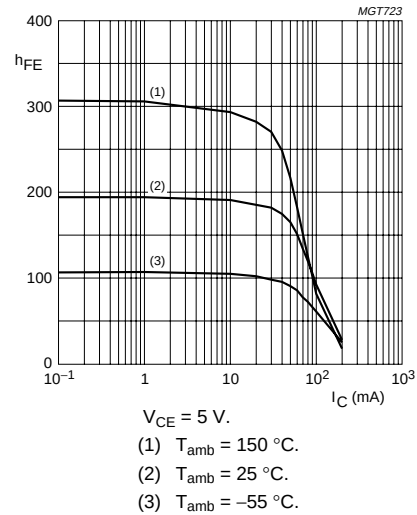


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

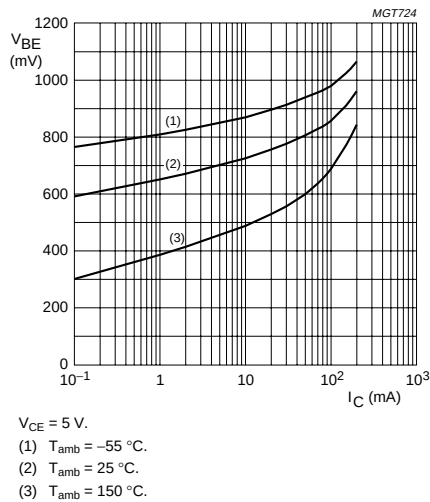


Figure 4. Base-Emitter On Voltage

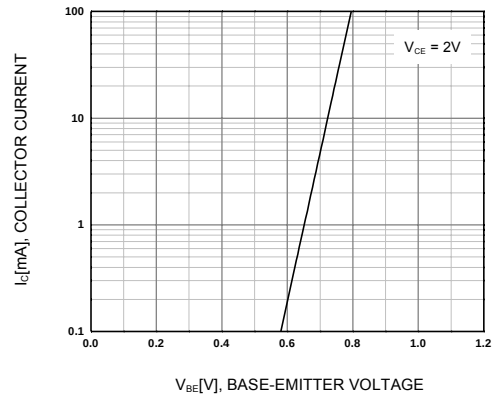


Figure 5. Collector Output Capacitance

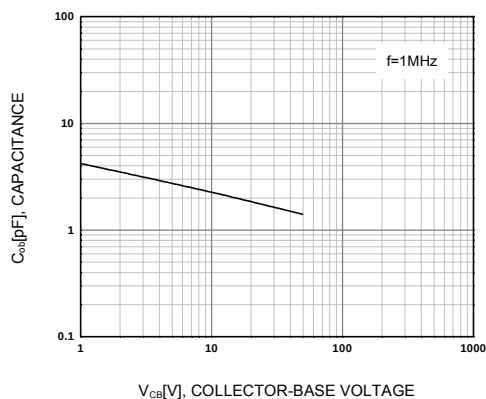


Figure 6. Current Gain Bandwidth Product

