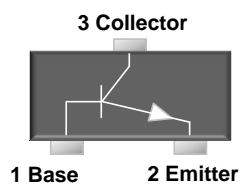
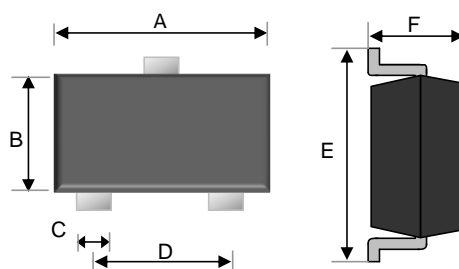


## Small Signal Diode



SOT-323



### Features

- ◇ Low reverse current high reliability
- ◇ 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

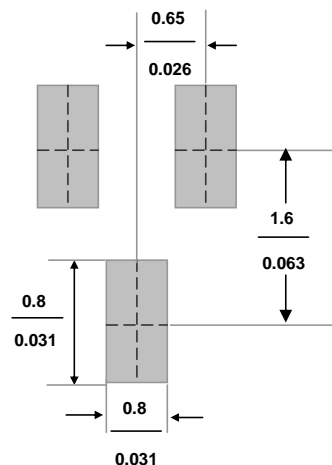
- ◇ Case : SOT-323 small outline plastic package
- ◇ Terminal: Matte tin plated, lead free., solderable per MIL-STD-202, Method 208 guaranteed
- ◇ High temperature soldering guaranteed: 260°C/10s
- ◇ Weight : 0.005gram (approximately)

Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.90	2.10	0.075	0.083
B	1.15	1.35	0.045	0.053
C	0.25	0.35	0.010	0.014
D	1.20	1.40	0.047	0.055
E	2.00	2.20	0.079	0.087
F	0.80	1.00	0.031	0.039

### Ordering Information

Package	Part No.	Packing
SOT-323	BC846AW RF/RFG	3K / 7" Reel
SOT-323	BC846BW RF/RFG	3K / 7" Reel
SOT-323	BC846CW RF/RFG	3K / 7" Reel
SOT-323	BC847AW RF/RFG	3K / 7" Reel
SOT-323	BC847BW RF/RFG	3K / 7" Reel
SOT-323	BC847CW RF/RFG	3K / 7" Reel
SOT-323	BC848AW RF/RFG	3K / 7" Reel
SOT-323	BC848BW RF/RFG	3K / 7" Reel
SOT-323	BC848CW RF/RFG	3K / 7" Reel
SOT-323	BC849AW RF/RFG	3K / 7" Reel
SOT-323	BC849BW RF/RFG	3K / 7" Reel
SOT-323	BC849CW RF/RFG	3K / 7" Reel
SOT-323	BC850AW RF/RFG	3K / 7" Reel
SOT-323	BC850BW RF/RFG	3K / 7" Reel
SOT-323	BC850CW RF/RFG	3K / 7" Reel

### Suggested PAD Layout



**Small Signal Diode**
**Maximum Ratings and Electrical Characteristics**

Rating at 25°C ambient temperature unless otherwise specified.

**Maximum Ratings**

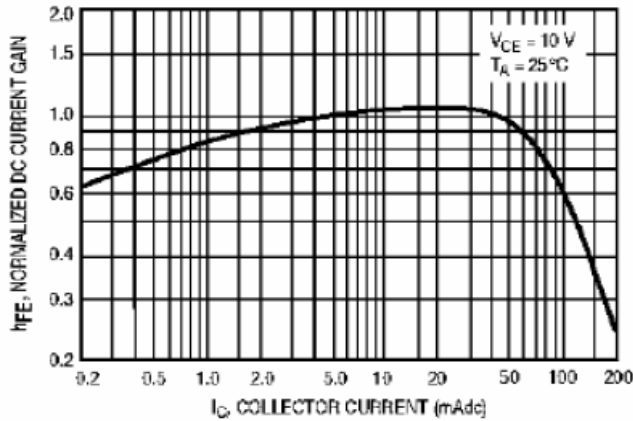
Type Number	Symbol	Value	Units
Power Dissipation	$P_D$	200	mW
Collector-Base Voltage BC846AW/BW/CW BC847AW/BW/CW BC848AW/BW/CW BC849AW/BW/CW BC850AW/BW/CW	$V_{CBO}$	80 50 30 30 50	V
Collector-Emitter Voltage BC846AW/BW/CW BC847AW/BW/CW BC848AW/BW/CW BC849AW/BW/CW BC850AW/BW/CW	$V_{CEO}$	65 45 30 30 45	V
Emitter-Base Voltage BC846AW/BW/CW BC847AW/BW/CW BC848AW/BW/CW BC849AW/BW/CW BC850AW/BW/CW	$V_{EBO}$	6 6 5 5 5	V
Collector Current	$I_C$	0.1	A
Peak Collector Current	$I_{CM}$	0.2	A
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to + 150	°C

**Electrical Characteristics**

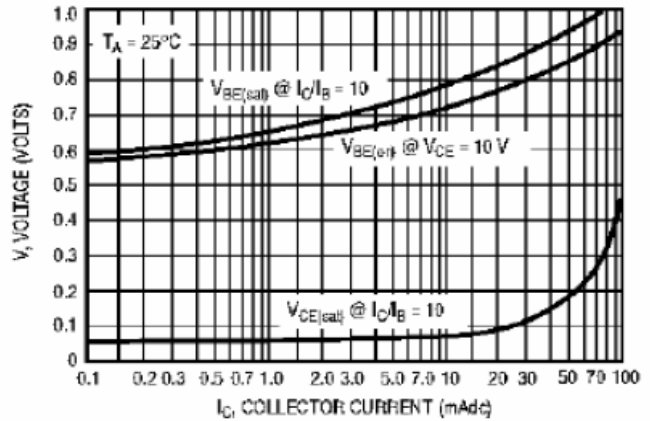
Type Number	Symbol	Min	Max	Units
Collector-Base Breakdown Voltage at $I_C = 10 \mu A$ BC846AW/BW/CW BC847AW/BW/CW BC848AW/BW/CW BC849AW/BW/CW BC850AW/BW/CW	$V_{CBO}$	80 50 30 30 50	- - - - -	V
Collector-Emitter Breakdown Voltage at $I_C = 10 mA$ BC846AW/BW/CW BC847AW/BW/CW BC848AW/BW/CW BC849AW/BW/CW BC850AW/BW/CW	$V_{CEO}$	65 45 30 30 45	- - - - -	V
Emitter-Base Breakdown Voltage at $I_E = 1 \mu A$ BC846AW/BW/CW BC847AW/BW/CW BC848AW/BW/CW BC849AW/BW/CW BC850AW/BW/CW	$V_{EBO}$	6 6 5 5 5	- - - - -	V
Collector Cut-off Current at $V_{CB} = 30 V$	$I_{CBO}$	-	15	nA
Emitter Cut-off Current at $V_{EB} = 5 V$	$I_{EBO}$	-	100	nA
DC Current Gain at $V_{CE} = 5 V, I_C = 2 mA$ BC846AW~BC850AW BC846BW~BC850BW BC846CW~BC850CW	$h_{FE}$	110 200 420	220 450 800	- - -
Collector-Emitter saturation voltage at $I_C = 10 mA, I_B = 0.5 mA$ $I_C = 100 mA, I_B = 5 mA$	$V_{CE(sat)}$	- -	0.25 0.6	V
Transition frequency $V_{CE} = 5V, I_C = 10 mA, f = 100 MHz$	$f_T$	100	-	MHz
Base Emitter Voltage at $V_{CE} = 5V, I_C = 2 mA$ $V_{CE} = 5V, I_C = 10 mA$	$V_{BE}$	0.58 -	0.7 0.77	V
Collector Output Capacitance at $V_{CB} = 10 V, I_E = 0, f = 1MHz$	$C_{ob}$	-	4.5	pF

**Small Signal Diode**

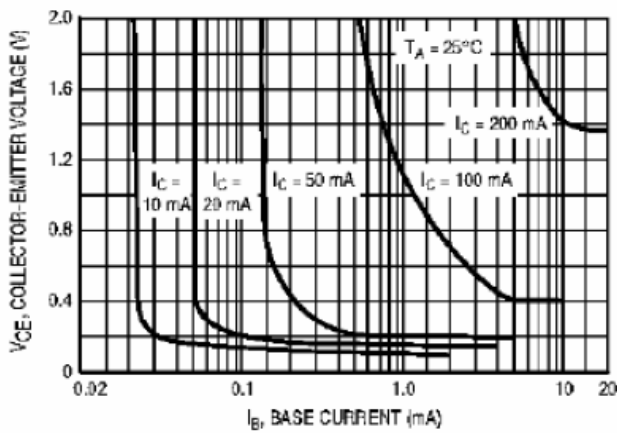
**Rating and Characteristic Curves**



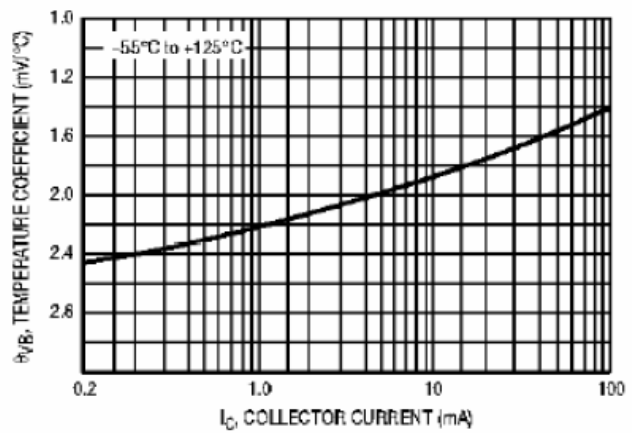
**Figure 1. Normalized DC Current Gain**



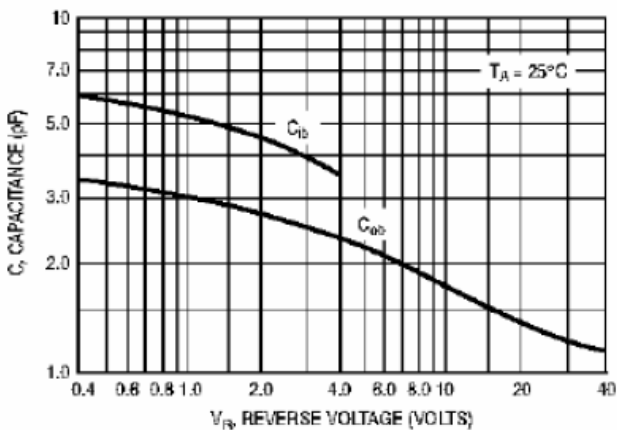
**Figure 2. "Saturation" and "On" Voltages**



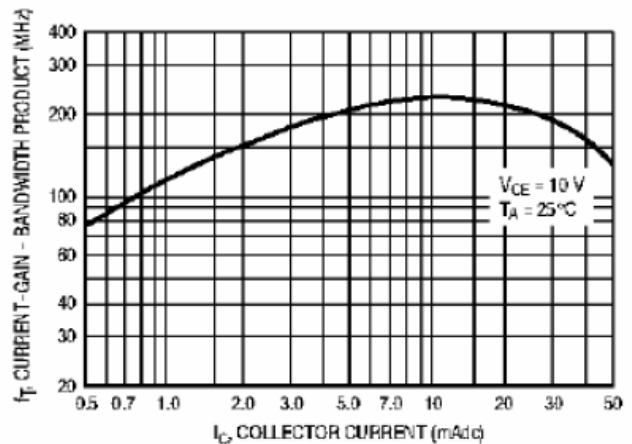
**Figure 3. Collector Saturation Region**



**Figure 4. Base-Emitter Temperature Coefficient**



**Figure 5. Capacitances**



**Figure 6. Current-Gain - Bandwidth Product**

**Small Signal Diode**

**Rating and Characteristic Curves**

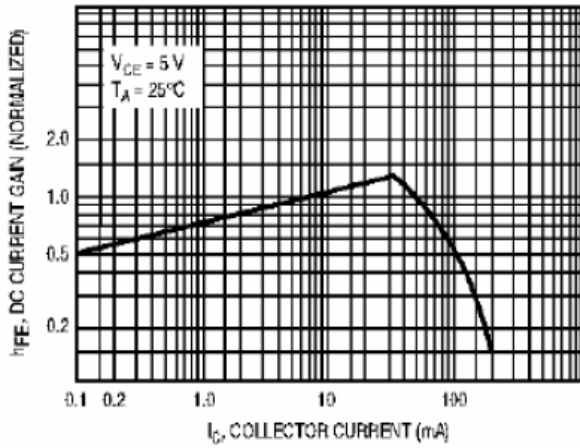


Figure 7. DC Current Gain

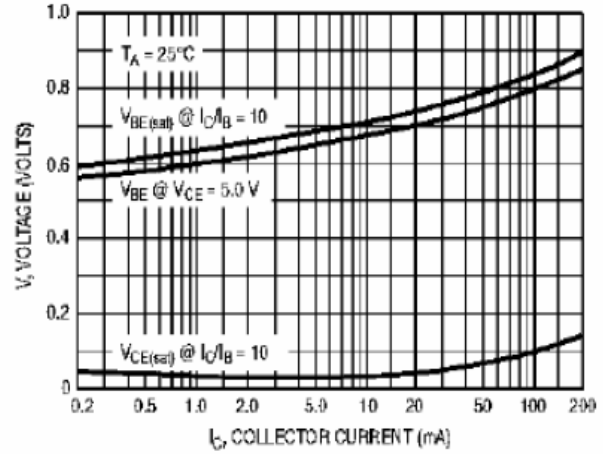


Figure 8. "On" Voltage

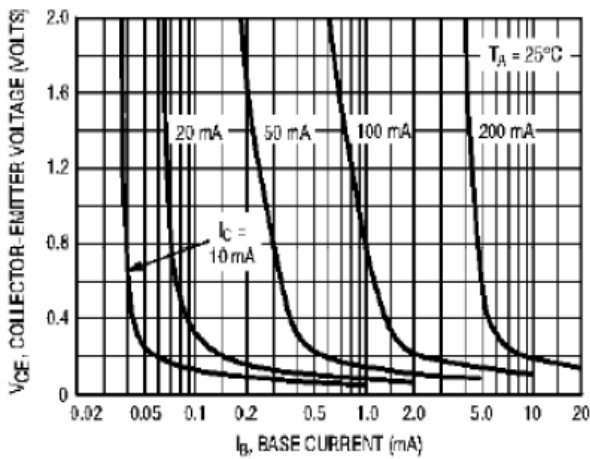


Figure 9. Collector Saturation Region

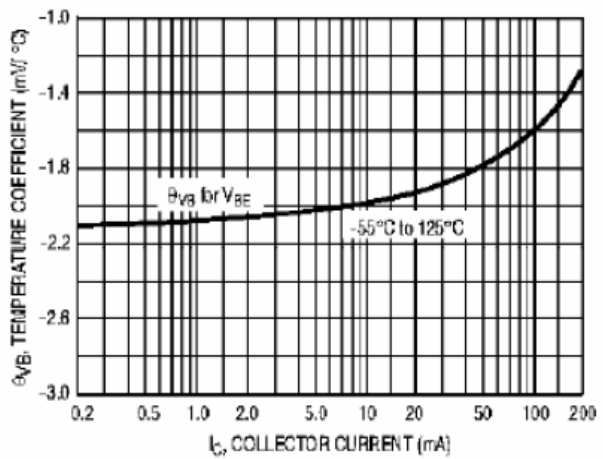


Figure 10. Base-Emitter Temperature Coefficient

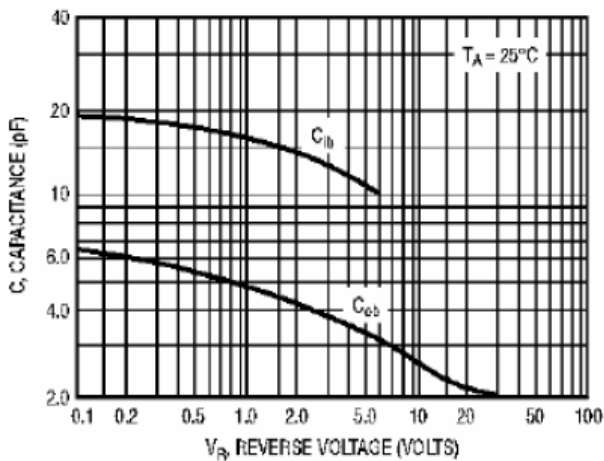


Figure 11. Capacitance

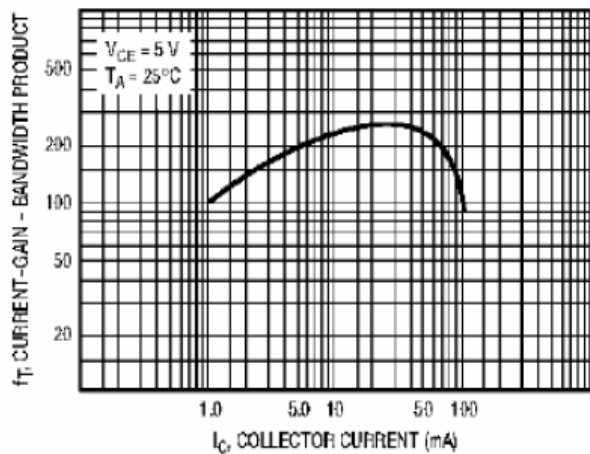
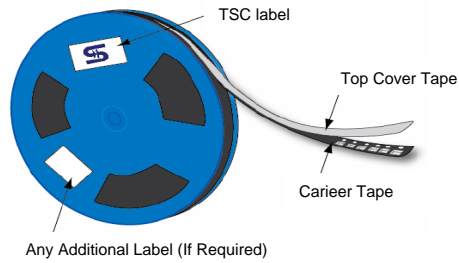


Figure 12. Current-Gain - Bandwidth Product

Small Signal Diode

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

