Features

- Halogen Free. “Green” Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

NPN General Purpose Transistors

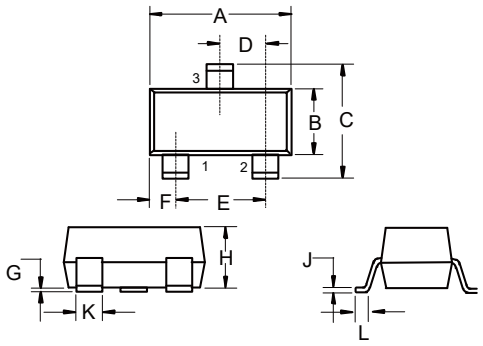
Maximum Ratings @ 25°C Unless Otherwise Specified

- Operating Junction Temperature Range: -65℃ to +150℃
- Storage Temperature Range: -65℃ to +150℃
- Maximum Thermal Resistance:625℃/W Junction to Ambient (Note2)

Parameter	Symbol	Rating	Unit
Collector-Base Voltage			
BC846AW,BC846BW	V_{CBO}	80	V
BC847AW,BC847BW,BC847CW		50	
BC848AW,BC848BW,BC848CW		30	
Collector-Emitter Voltage			
BC846AW,BC846BW	V_{CEO}	65	V
BC847AW,BC847BW,BC847CW		45	
BC848AW,BC848BW,BC848CW		30	
Emitter-Base Voltage			
BC846AW,BC846BW	V_{EBO}	6	V
BC847AW,BC847BW,BC847CW		6	
BC848AW,BC848BW,BC848CW		5	
Collector Current	I_C	100	mA
Peak Collector Current	I_{CM}	200	mA
Peak Base Current	I_{BM}	200	mA
Power Dissipation	P_D	200	mW

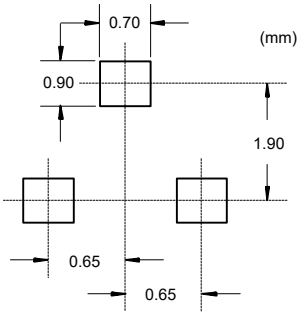
Note: 1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

SOT-323

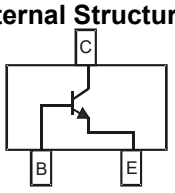


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.071	0.087	1.80	2.20	
B	0.045	0.053	1.15	1.35	
C	0.083	0.096	2.10	2.45	
D	0.026		0.65		TYP.
E	0.047	0.055	1.20	1.40	
F	0.012	0.016	0.30	0.40	
G	0.000	0.004	0.00	0.10	
H	0.035	0.044	0.90	1.10	
J	0.002	0.010	0.05	0.25	
K	0.006	0.016	0.15	0.40	
L	0.010	0.018	0.26	0.46	

Suggested Solder Pad Layout



Internal Structure



Marking:
BC846AW:1A; BC846BW:1B
BC847AW:1E; BC847BW:1F; BC847CW:1G
BC848AW:1J; BC848BW:1K;BC848C:1L

Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage						
BC846AW,BC846BW	$V_{(BR)CBO}$	80			V	I_C=10μA, I_E=0
BC847AW,BC847BW,BC847CW		50				
BC848AW,BC848BW,BC848CW		30				
Collector-Emitter Breakdown Voltage						
BC846AW,BC846BW	$V_{(BR)CEO}$	65			V	I_C=10mA, I_B=0
BC847AW,BC847BW,BC847CW		45				
BC848AW,BC848BW,BC848CW		30				
Emitter-Base Breakdown Voltage						
BC846AW,BC846BW	$V_{(BR)EBO}$	6			V	I_E=1μA, I_C=0
BC847AW,BC847BW,BC847CW		6				
BC848AW,BC848BW,BC848CW		5				
Collector-Base Cutoff Current	I_{CBO}			15	nA	V_{CB}=30V, I_E=0
				5	μA	V_{CB}=30V, I_E=0, T_J=150°C
Emitter-Base Cutoff Current	I_{EBO}			100	nA	V_{EB}=5V, I_C=0
DC Current Gain						
BC846AW,BC847AW,BC848AW	$h_{FE(1)}$		90			V_{CE}=5V, I_C=10μA
BC846BW,BC847BW,BC848CW			150			
BC847CW,BC848CW			270			
BC846AW,BC847AW,BC848AW	$h_{FE(2)}$	110	180	220		V_{CE}=5V, I_C=2mA
BC846BW,BC847BW,BC848BW		200	290	450		
BC847CW,BC848CW		420	520	800		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		90	250	mV	I_C=10mA, I_B=0.5mA
			200	600	mV	I_C=100mA, I_B=5mA (Note3)
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		700		mV	I_C=10mA, I_B=0.5mA
			900		mV	I_C=100mA, I_B=5mA (Note3)
Base-Emitter Voltage	V_{BE}	580	660	700	mV	V_{CE}=5V, I_C=2mA
				770	mV	V_{CE}=5V, I_C=10mA
Transition Frequency	f_T	100			MHz	V_{CE}=5V, I_C=10mA, f=100MHz
Collector Capacitance	C_C			4.5	pF	V_{CB}=10V, I_E=I_e=0, f=1MHz
Noise Figure	NF			10	dB	V_{CE}=5V, I_C=200μA R_S=2KΩ, f=1KHz, BW=200Hz

Notes: 2. Device Mounted on an FR4 Printed Circuit Board.
3. Pluse Width ≤ 300μs, Duty Cycle ≤ 2.0%

Curve Characteristics

Fig. 1 - Static Characteristics

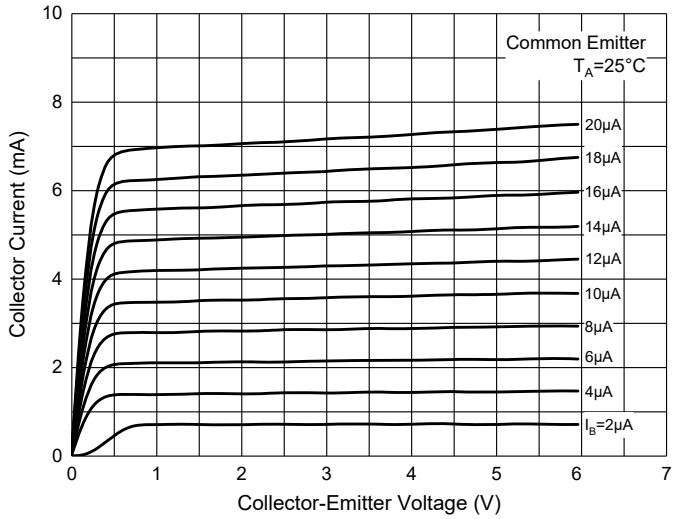


Fig. 2 - DC Current Gain Characteristics

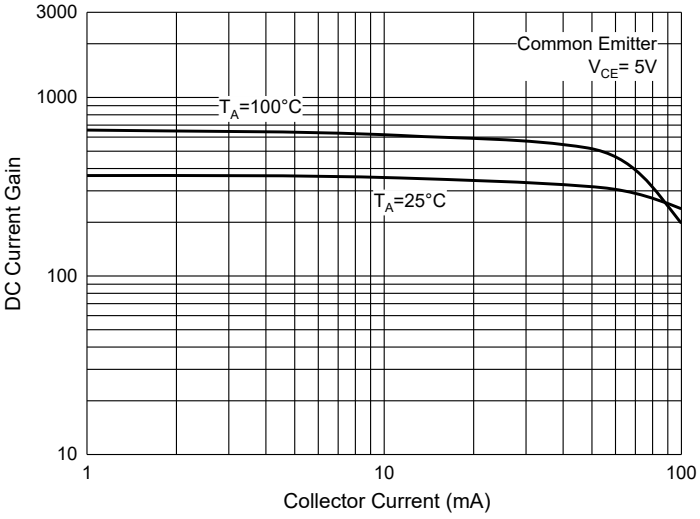


Fig. 3 - Base-Emitter Saturation Voltage Characteristics

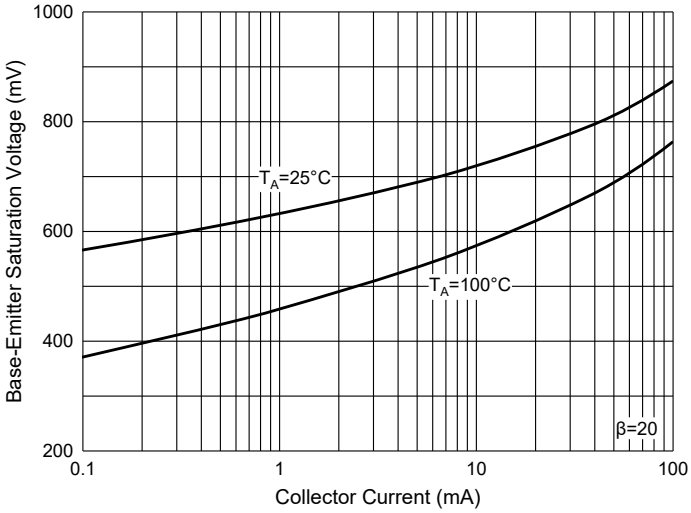


Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

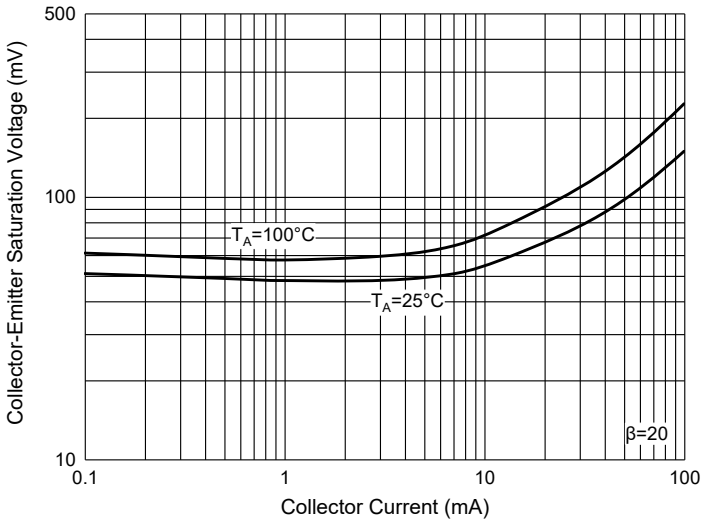


Fig. 5 - Base-Emitter Voltage Characteristics

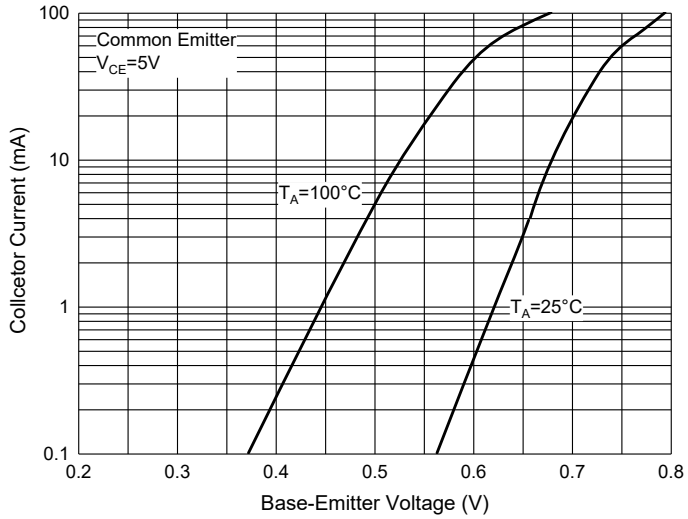


Fig. 6 - Collector Power Derating Curve