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 Plastic-Encapsulate Transistors

Maximum Ratings @ 25°C Unless Otherwise Specified

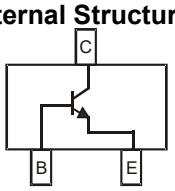
- Operating Junction Temperature Range: -55℃ to +150℃
- Storage Temperature Range: -55℃ to +150℃
- Maximum Thermal Resistance:625℃/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Collector-Base Voltage BC846A-BC846C BC847A-BC847C BC848A-BC848C,BC849B-BC849C	V_{CBO}	 80 50 30	V
Collector-Emitter Voltage BC846A-BC846C BC847A-BC847C BC848A-BC848C,BC849B-BC849C	V_{CEO}	 65 45 30	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	100	mA
Collector Power Dissipation@T_A=25℃ (Note2)	P_C	225	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.

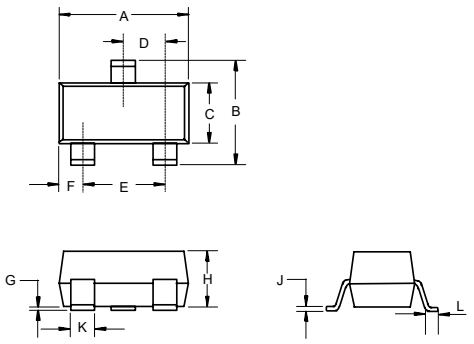
2. Transistor mounted on an FR4 printed-circuit board

Internal Structure



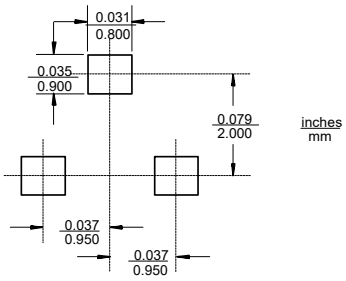
Marking:
BC846A:1A; BC846B:1B; BC846C:1C;
BC847A:1E; BC847B:1F; BC847C:1G;
BC848A:1J; BC848B:1K; BC848C:1L;
BC849B:49B; BC849C:49C;

SOT-23



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.014	0.020	0.35	0.51	
L	0.007	0.020	0.20	0.50	

Suggested Solder Pad Layout



Electrical Characteristics @ T_A=25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage						
BC846A-BC846C	$V_{(BR)CBO}$	80			V	I_C=10μA, I_E=0
BC847A-BC847C		50				
BC848A-BC848C,BC849B-BC849C		30				
Collector-Emitter Breakdown Voltage						
BC846A-BC846C	$V_{(BR)CEO}$	65			V	I_C=10mA, I_B=0
BC847A-BC847C		45				
BC848A-BC848C,BC849B-BC849C		30				
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6			V	I_E=10μA, I_C=0
Collector Cut-off Current						
BC846A-BC846C	I_{CBO}			0.1	μA	V_{CB}=70V, I_E=0
BC847A-BC847C						V_{CB}=50V, I_E=0
BC848A-BC848C,BC849B-BC849C						V_{CB}=30V, I_E=0
Emitter Cutoff Current						
BC846A-BC846C	I_{CEO}			0.1	μA	V_{CE}=60V, I_B=0
BC847A-BC847C						V_{CE}=45V, I_B=0
BC848A-BC848C,BC849B-BC849C						V_{CE}=30V, I_B=0
Emitter Cutoff Current	I_{EBO}			0.1	μA	V_{EB}=5V, I_C=0
DC Current Gain						
BC846A/BC847A/BC848A	$h_{FE(1)}$		90			V_{CE}=5V, I_C=10μA
BC846B/BC847B/BC848B/BC849B			150			
BC846C/BC847C/BC848C/BC849C			400			
DC Current Gain						
BC846A/BC847A/BC848A	$h_{FE(2)}$	110		220		V_{CE}=5V, I_C=2mA
BC846B/BC847B/BC848B/BC849B		200		450		
BC846C/BC847C/BC848C/BC849C		420		800		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.25	V	I_C=10mA, I_B=0.5mA
				0.5	V	I_C=100mA, I_B=5mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.7		V	I_C=10mA, I_B=0.5mA
			0.9	1.1	V	I_C=100mA, I_B=5mA
Base-Emitter On Voltage	$V_{BE(on)}$	0.58	0.66	0.7	V	V_{CE}=5V, I_C=2mA
				0.77	V	V_{CE}=5V, I_C=10mA
Transition Frequency	f_T	100			MHz	V_{CE}=5V, I_C=10mA, f=100MHz
Collector Output Capacitance	C_{ob}			4.5	pF	V_{CB}=10V, I_E=0, f=0.1MHz
Noise Figure	NF			10	dB	I_C=0.2mA, V_{CE}=5.0V, R_S=2.0kΩ, f=1.0kHz, BW=200Hz

Curve Characteristics

Fig. 1 - Static Characteristics

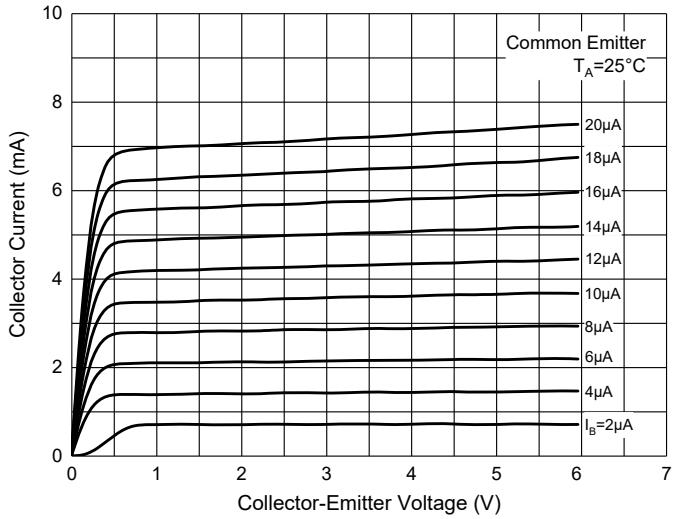


Fig. 2 - DC Current Gain Characteristics

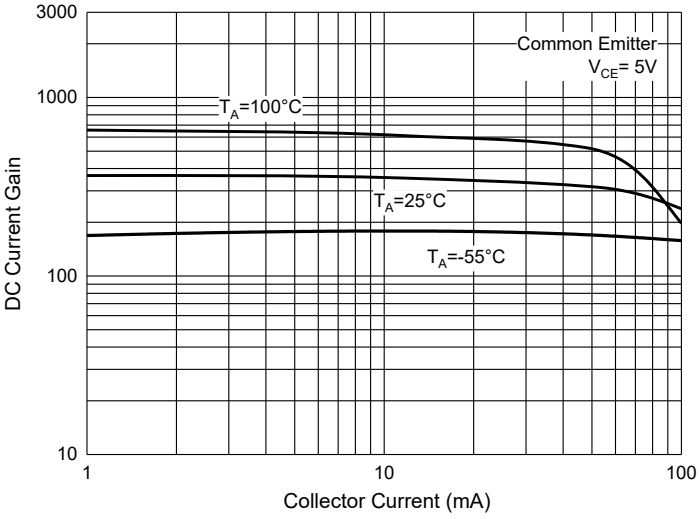


Fig. 3 - Base-Emitter Saturation Voltage Characteristics

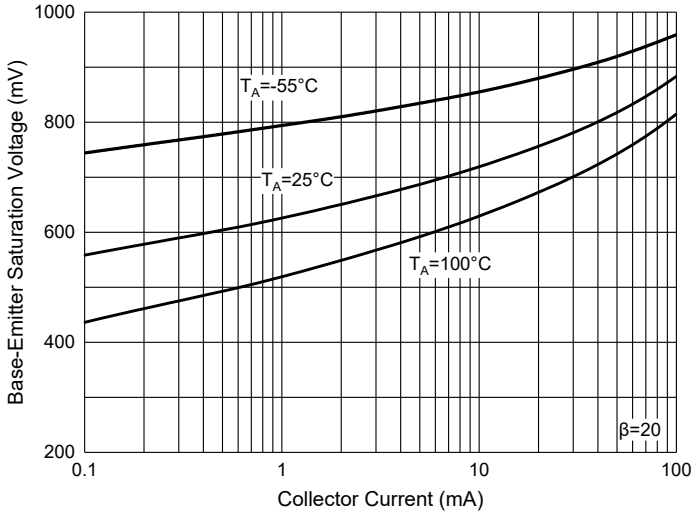


Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

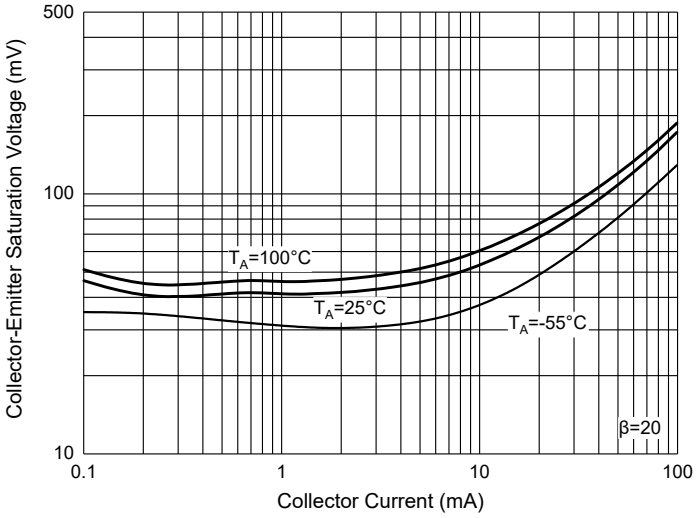


Fig. 5 - Base-Emitter Voltage Characteristics

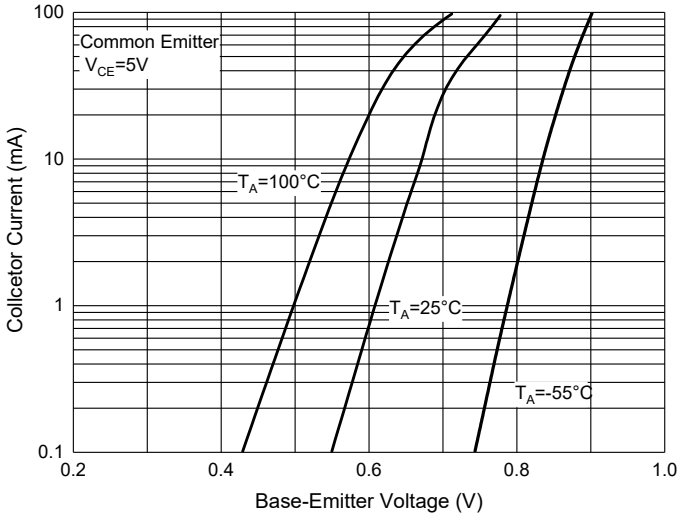
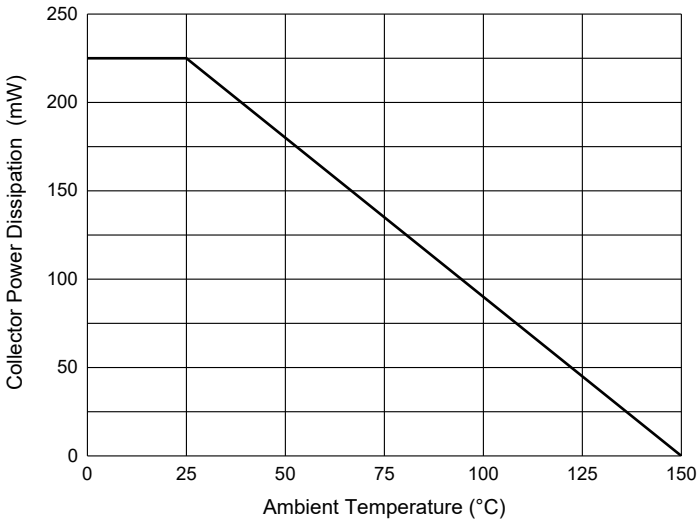


Fig. 6 - Collector Power Derating Curve



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel