Features

- Epitaxial Die Construction
- Complementary PNP Type Available (BC857AT/BT/CT)
- 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 Small Signal Surface Mount Transistor

Maximum Ratings @ 25°C Unless Otherwise Specified

- Operating Junction Temperature Range: -55℃ to +150℃
- Storage Temperature Range: -55℃ to +150℃
- Thermal Resistance: 833℃/W Junction to Ambient (Note2)

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	100	mA
Collector Power Dissipation(Note2)	P_C	150	mW

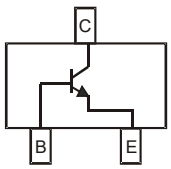
Classification Of h_{FE}

Rank	BC847AT	BC847BT	BC847CT
Range	110-222	200-450	420-800
Marking	1E	1F	1G

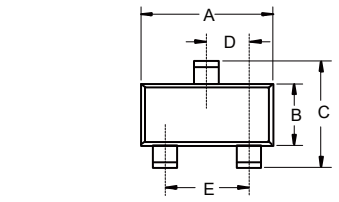
Note: 1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

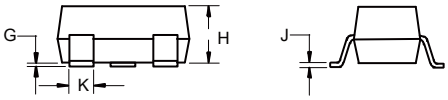
2. Device mounted on FR-4 PCB with recommended pad layout

Internal Structure



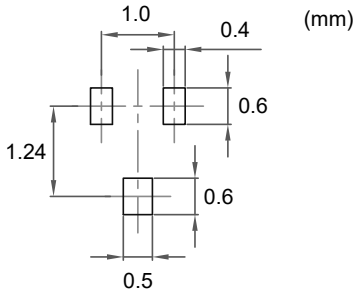
SOT-523





DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.059	0.067	1.50	1.70	
B	0.030	0.033	0.75	0.85	
C	0.057	0.069	1.45	1.75	
D	0.020		0.50		TYP.
E	0.035	0.043	0.90	1.10	
G	0.000	0.004	0.00	0.10	
H	0.024	0.031	0.60	0.80	
J	0.004	0.008	0.10	0.20	
K	0.006	0.014	0.15	0.35	

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	50			V	I_C=10μA, I_E=0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	45			V	I_C=10mA, I_B=0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6			V	I_E=1μA, I_C=0
Collector-Base Cutoff Current	I_{CBO}			15	nA	V_{CB}=30V, I_E=0
				5	μA	V_{CB}=30V, I_E=0, T_J=125°C
DC Current Gain(Note3) BC847AT	h_{FE}	110		222		V_{CE}=5V, I_C=2mA
DC Current Gain(Note3) BC847BT		200	290	450		
DC Current Gain(Note3) BC847CT		420	520	800		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.25	V	I_C=10mA, I_B=0.5mA
				0.6	V	I_C=100mA, I_B=5mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.70		V	I_C=10mA, I_B=0.5mA
			0.90		V	I_C=100mA, I_B=5mA
Base-Emitter Voltage	V_{BE}	0.58	0.66	0.70	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-Base Capacitance	C_{CBO}			4.5	pF	V_{CB}=10V, f=1MHz
Noise Figure BC847BT	NF			10	dB	V_{CE}=5V, I_C=0.2mA
Noise Figure BC847CT				4	dB	R_S=2KΩ, f=1KHz, BW=200Hz

Note: 3. Short duration pulse test used to minimize self-heating effect.

Curve Characteristics

Fig. 1 - Static Characteristics

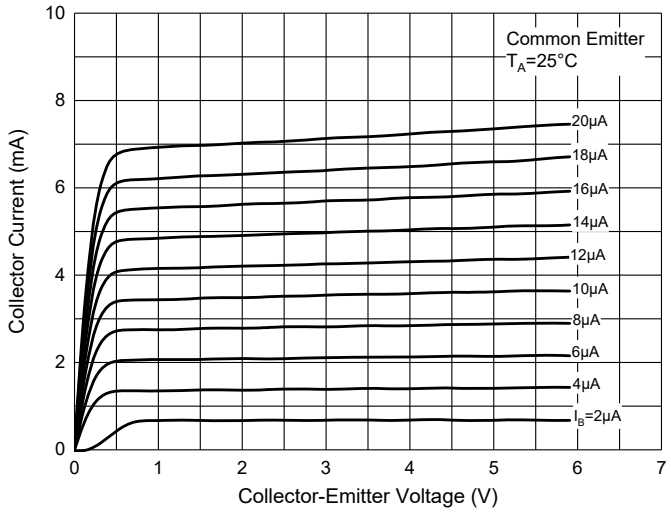


Fig. 2 - DC Current Gain Characteristics

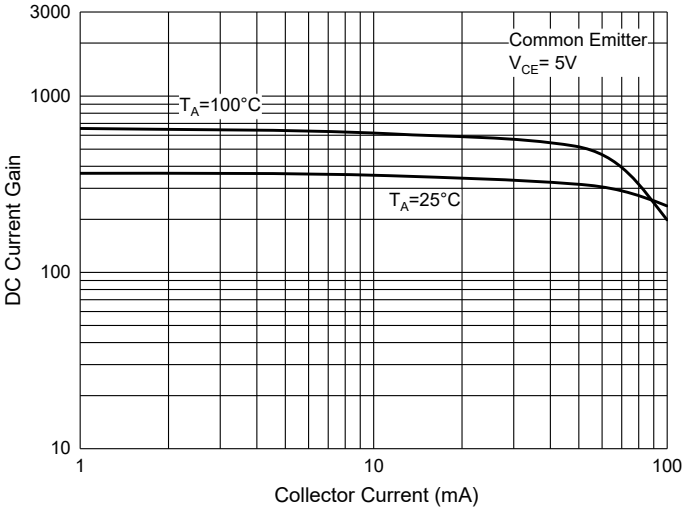


Fig. 3 - Base-Emitter Saturation Voltage Characteristics

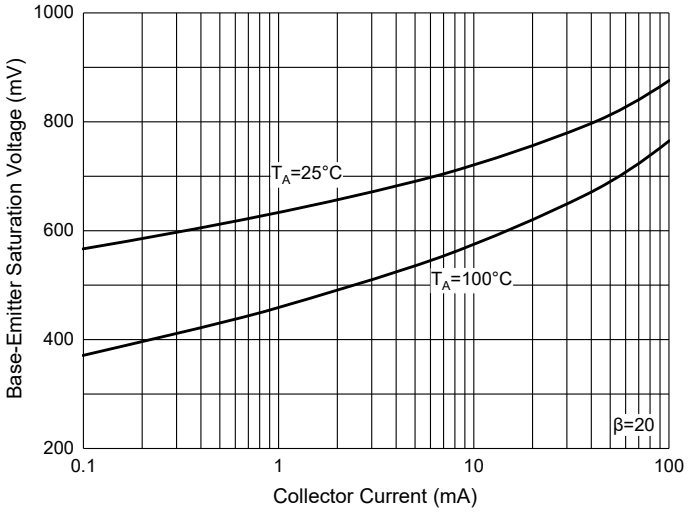


Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

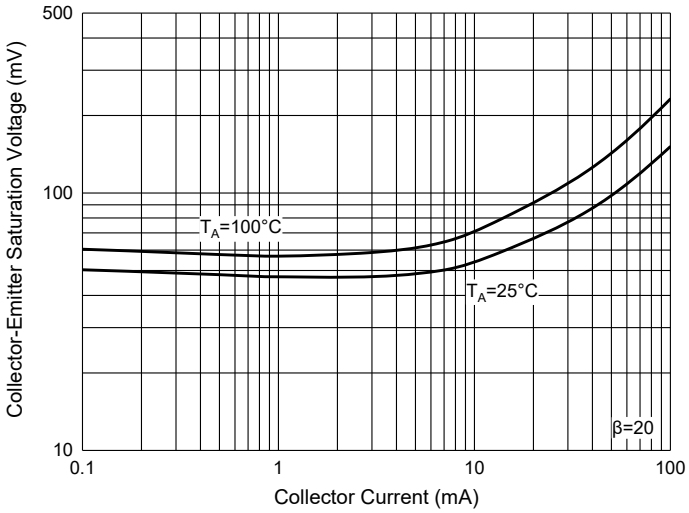


Fig. 5 - Base-Emitter Voltage Characteristics

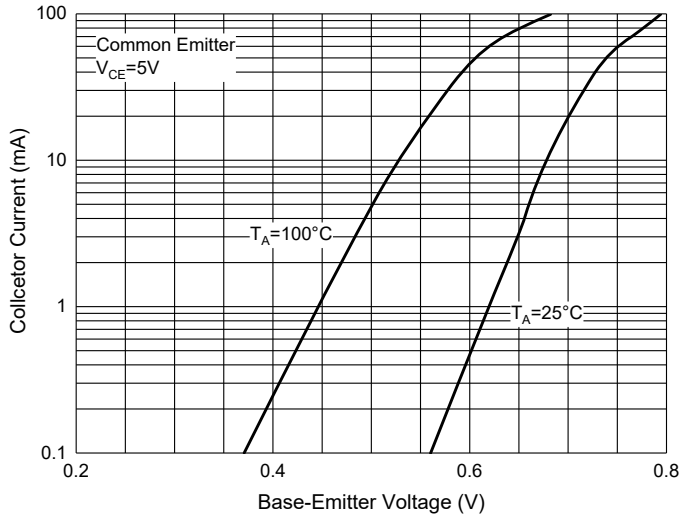
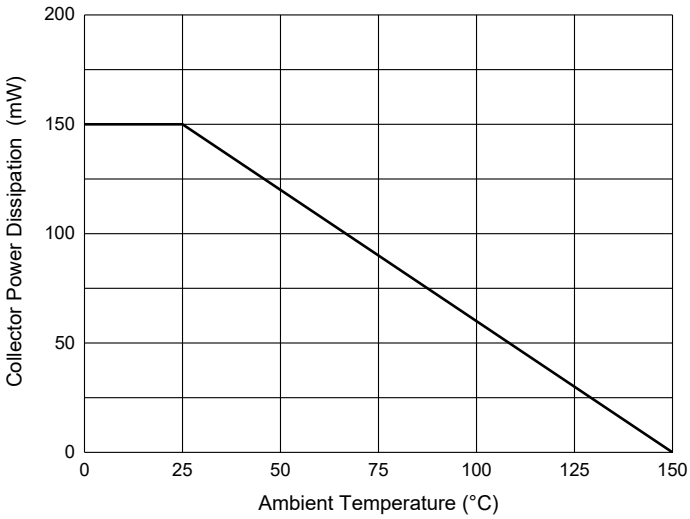


Fig. 3 - Collector Power Derating Curve



Ordering Information

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

*****IMPORTANT NOTICE*****

Micro Commercial Components Corp. reserves the right to make changes without further notice to any product herein to make corrections, modifications , enhancements , improvements , or other changes . ***Micro Commercial Components Corp*** . does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights ,nor the rights of others . The user of products in such applications shall assume all risks of such use and will agree to hold ***Micro Commercial Components Corp*** . and all the companies whose products are represented on our website, harmless against all damages. ***Micro Commercial Components Corp***. products are sold subject to the general terms and conditions of commercial sale, as published at **https://www.mccsemi.com/Home/TermsAndConditions.**

*****LIFE SUPPORT*****

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

*****CUSTOMER AWARENESS*****

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources**. MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.