

BC847CT-TP Datasheet

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DiGi Electronics Part Number	BC847CT-TP-DG
Manufacturer	Micro Commercial Co
Manufacturer Product Number	BC847CT-TP
Description	TRANS NPN 45V 0.1A SOT523
Detailed Description	Bipolar (BJT) Transistor NPN 45 V 100 mA 100MHz 1 50 mW Surface Mount SOT-523

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Purchase and inquiry

Manufacturer Product Number:

BC847CT-TP

Series:

-

Transistor Type:

NPN

Voltage - Collector Emitter Breakdown (Max):

45 V

Current - Collector Cutoff (Max):

15nA (ICBO)

Power - Max:

150 mW

Operating Temperature:

-55°C ~ 150°C (TJ)

Package / Case:

SOT-523

Base Product Number:

BC847

Manufacturer:

Micro Commercial Co

Product Status:

Active

Current - Collector (Ic) (Max):

100 mA

Vce Saturation (Max) @ Ib, Ic:

600mV @ 5mA, 100mA

DC Current Gain (hFE) (Min) @ Ic, Vce:

420 @ 2mA, 5V

Frequency - Transition:

100MHz

Mounting Type:

Surface Mount

Supplier Device Package:

SOT-523

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.21.0075

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

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)

Maximum Ratings @ 25°C Unless Otherwise Specified

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 833°C/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

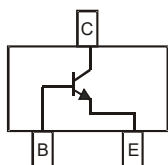
Classification Of h_{FE}

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.

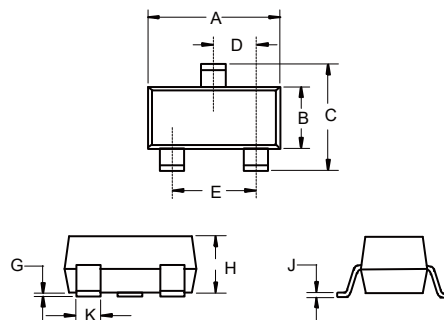
2. Device mounted on FR-4 PCB with recommended pad layout

Internal Structure



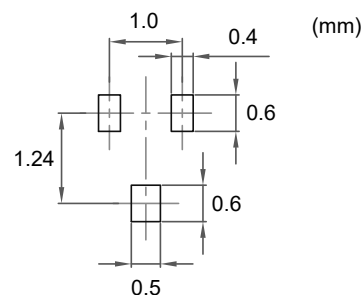
NPN Small Signal Surface Mount Transistor

SOT-523



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	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	$I_C=10\mu A, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	45			V	$I_C=10mA, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6			V	$I_E=1\mu A, I_C=0$
Collector-Base Cutoff Current	I_{CBO}			15	nA	$V_{CB}=30V, I_E=0$
				5	μA	$V_{CB}=30V, I_E=0, T_J=125^\circ C$
DC Current Gain ^(Note3)	BC847AT	110		222		$V_{CE}=5V, I_C=2mA$
	BC847BT	200	290	450		
	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			10	dB	$V_{CE}=5V, I_C=0.2mA$
	BC847CT			4	dB	$R_S=2K\Omega, f=1KHz, BW=200Hz$

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

Curve Characteristics

Fig. 1 - Static Characteristics

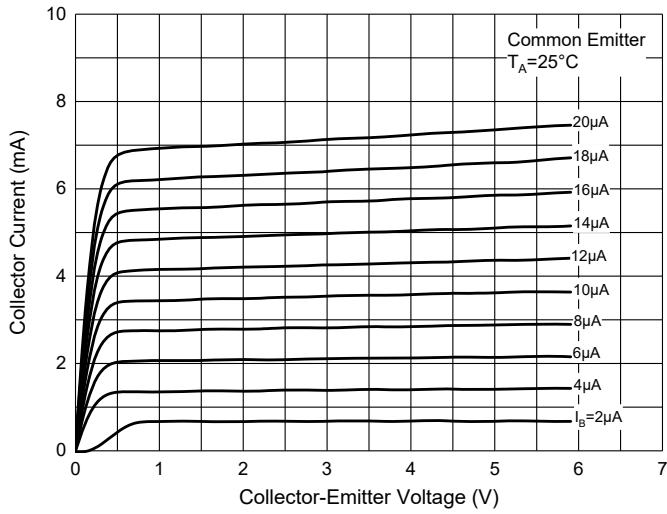


Fig. 2 - DC Current Gain Characteristics

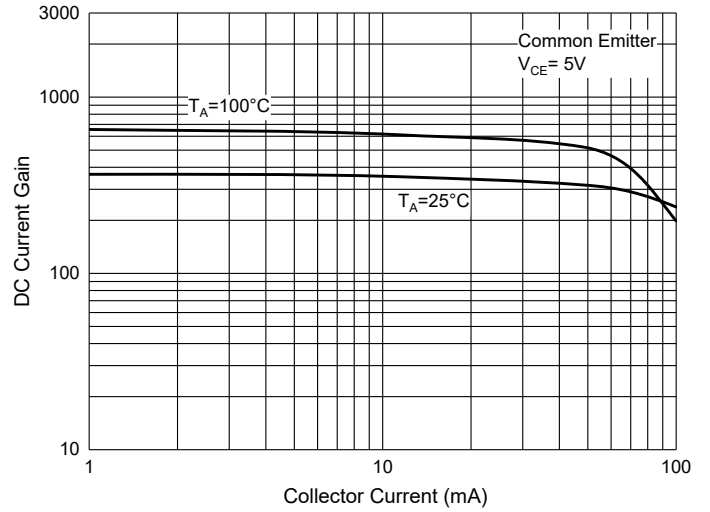


Fig. 3 - Base-Emitter Saturation Voltage Characteristics

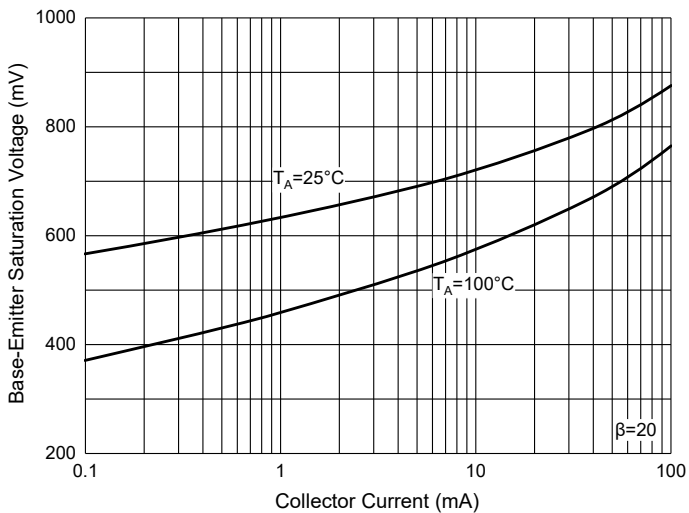


Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

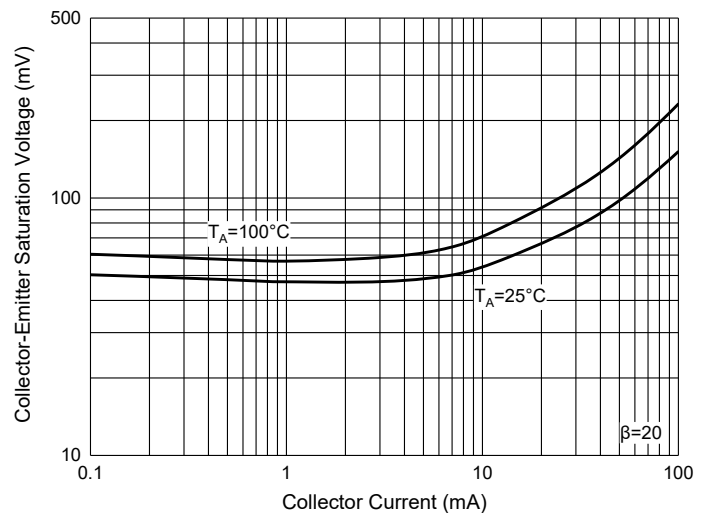


Fig. 5 - Base-Emitter Voltage Characteristics

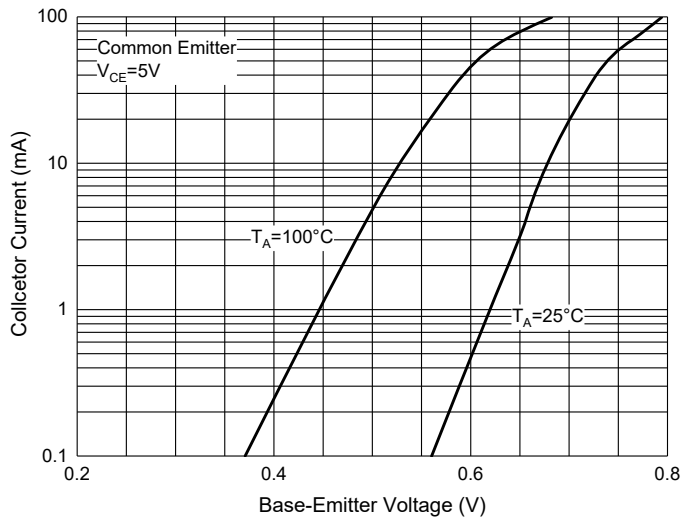
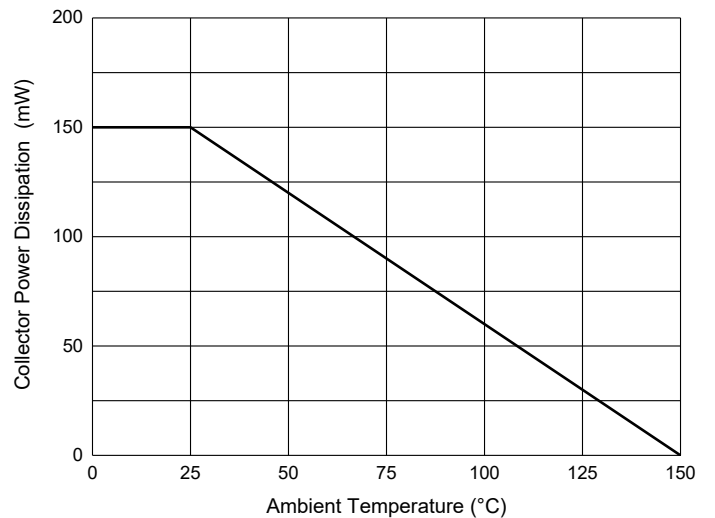


Fig. 3 - Collector Power Derating Curve



Ordering Information

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

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