BC857C-TP Datasheet

DiGi Electronics Part Number	BC857C-TP-DG
Manufacturer	Micro Commercial Co
Manufacturer Product Number	BC857C-TP
Description	TRANS PNP 45V 0.1A SOT23
Detailed Description	Bipolar (BJT) Transistor PNP 45 V 100 mA 200MHz 310 mW Surface Mount SOT-23

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RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
BC857C-TP	Micro Commercial Co
Series:	Product Status:
-	Active
Transistor Type:	Current - Collector (Ic) (Max):
PNP	100 mA
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
45 V	650mV @ 5mA, 100mA
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
15nA	420 @ 2mA, 5V
Power - Max:	Frequency - Transition:
310 mW	200MHz
Operating Temperature:	Mounting Type:
-55°C ~ 150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
TO-236-3, SC-59, SOT-23-3	SOT-23
Base Product Number:	
BC857	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.21.0075	

Features

- For Switching and AF Amplifier Applications
- 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)

PNP Small Signal Transistor

Maximum Ratings

- Operating Junction Temperature Range: -55℃ to +150℃
- Storage Temperature Range: -55℃ to +150℃
- Thermal Resistance: 320℃/W Junction to Solder-point (Note2)
- Thermal Resistance: 403℃/W Junction to Ambient (Note2)

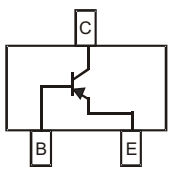
Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	-50	V
Collector-Emitter Voltage	V_{CEO}	-45	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-100	mA
Peak Collector Current	I_{CM}	-200	mA
Peak Emitter Current	I_{EM}	-200	mA
Power Dissipation T_S=50℃ (Note2)	P_D	310	mW

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

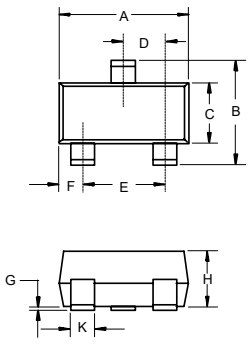
2. Package Mounted 1.0*1.0mm Pad Layout 1oz Copper That is On a Single-sided FR4 PCB.

Part Number	BC857A	BC857B	BC857C
Marking	3E	3F	3G

Internal Structure

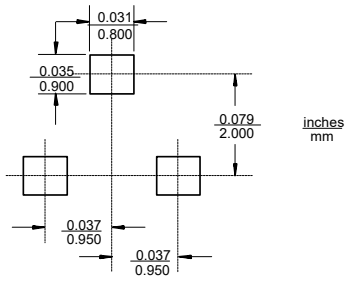


SOT-23



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 @ 25°C Unless Otherwise Specified

Parameter		Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage (Note3)		$V_{(BR)CBO}$	-50			V	I_C=-10μA, I_E=0
Collector-Emitter Breakdown Voltage (Note3)		$V_{(BR)CEO}$	-45			V	I_C=-10mA, I_B=0
Emitter-Base Breakdown Voltage (Note3)		$V_{(BR)EBO}$	-5			V	I_E=-1μA, I_C=0
Collector-Cutoff Current (Note3)		I_{CES}			-15	nA	V_{CE}=-50V
		I_{CBO}			-15	nA	V_{CB}=-30V
					-4	μA	V_{CB}=-30V, T_A=150°C
DC Current Gain (Note3)	BC857 A	h_{FE}	125	180	250		V_{CE}=-5Vdc, I_C=-2mA
	BC857 B		220	290	475		
	BC857 C		420	520	800		
Small Signal Current Gain	BC857 A	h_{fe}		200			V_{CE}=-5V I_C=-2mA f=1KHz
	BC857 B			330			
	BC857 C			600			
Input Impedance	BC857 A	h_{ie}		2.7		KΩ	
	BC857 B			4.5			
	BC857 C			8.7			
Output Admittance	BC857 A	h_{oe}		18		μS	
	BC857 B			30			
	BC857 C			60			
Reverse Voltage Transfer Ratio	BC857 A	h_{re}		$1.5x10^{-4}$			
	BC857 B			$2x10^{-4}$			
	BC857 C			$3x10^{-4}$			
Collector-Emitter Saturation Voltage (Note3)		$V_{CE(sat)}$		-75	-300	mV	I_C=-10mA, I_B=-0.5mA
				-250	-650	mV	I_C=-100mA, I_B=-5mA
Base-Emitter Saturation Voltage (Note3)		$V_{BE(sat)}$		-700		mV	I_C=-10mA, I_B=-0.5mA
				-850		mV	I_C=-100mA, I_B=-5mA
Base-Emitter Voltage (Note3)		V_{BE}	-600	-650	-750	mV	V_{CE}=-5V, I_C=-2mA
					-820	mV	V_{CE}=-5V, I_C=-10mA
Current Gain-Bandwidth Product		f_T	100	200		MHz	V_{CE}=-5V, I_C=-10mA, f=100MHz
Collector-Base Capacitance		C_{CBO}		3		pF	V_{CB}=-10V, f=1MHz
Noise Figure		NF		2	10	dB	V_{CE}=-5V, I_C=-200μA R_S=2KΩ, f=1KHz, Δf=200Hz

Note: 3. Short Duration Pulse Test to Minimize Self-heating Effect.

Curve Characteristics

Fig. 1 - Static Characteristics

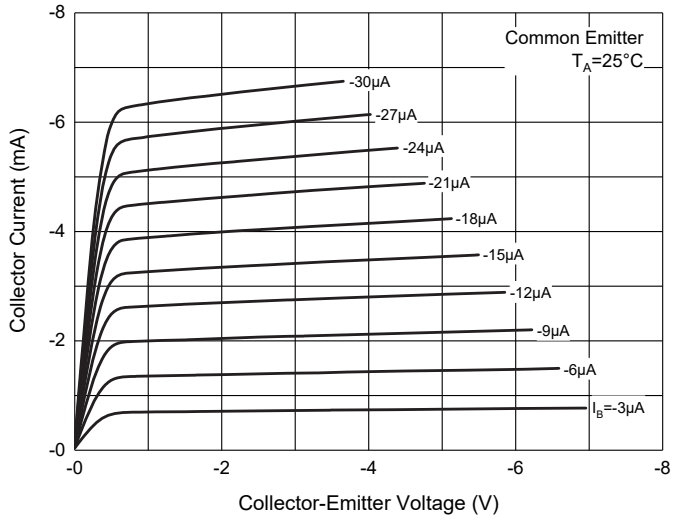


Fig. 2 - DC Current Gain Characteristics

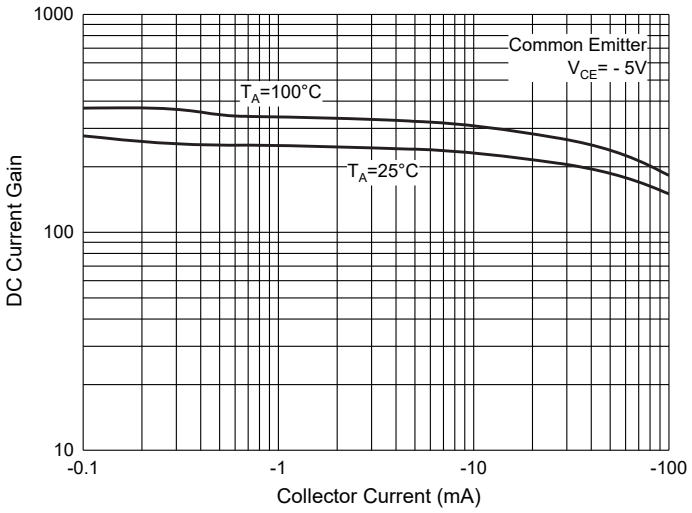


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

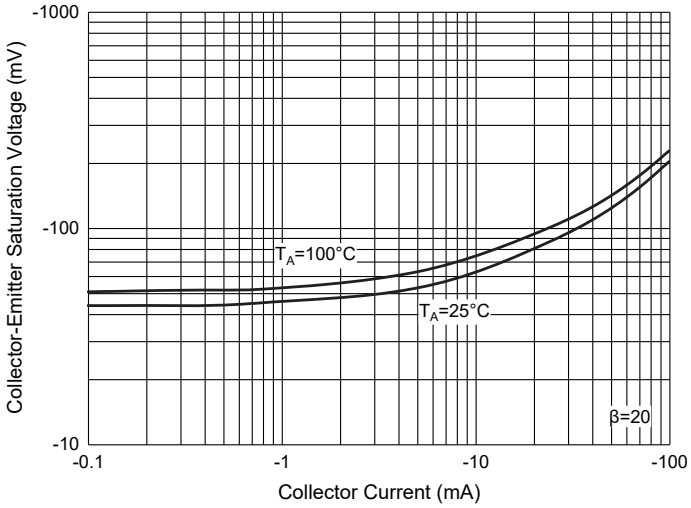


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

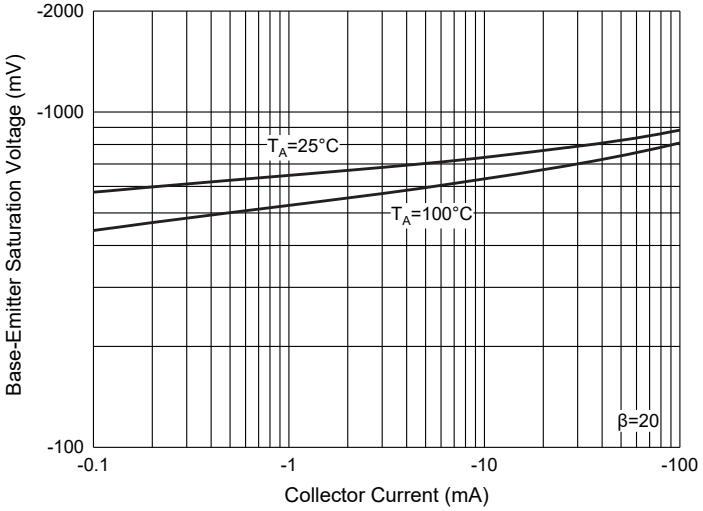


Fig. 5 - Base-Emitter Voltage Characteristics

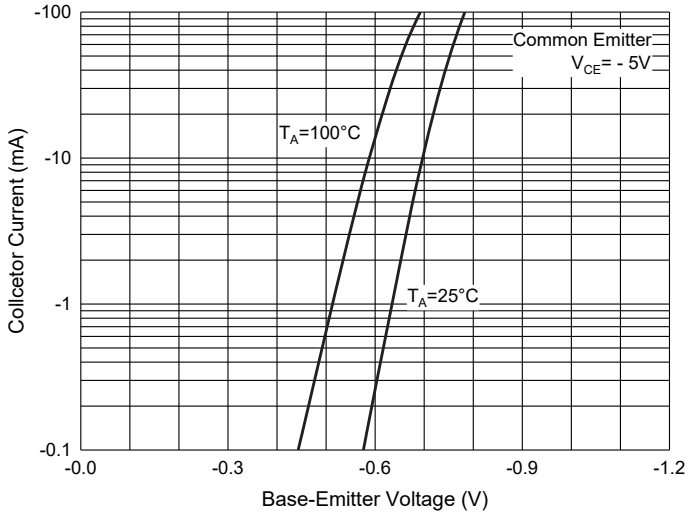
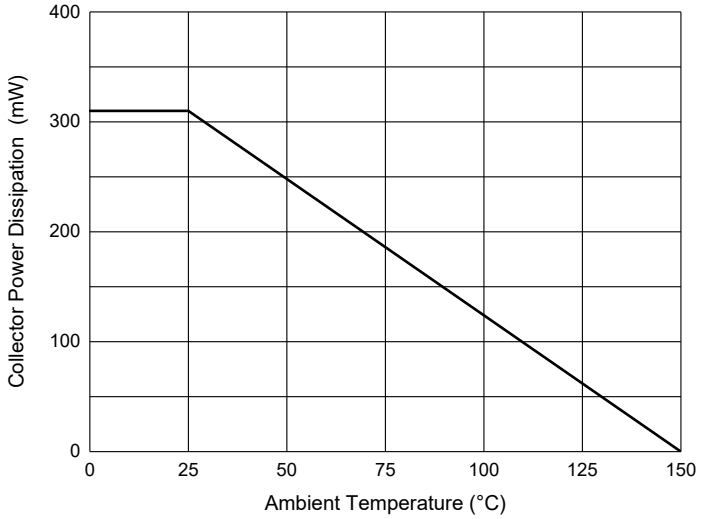


Fig. 6 - Collector Power Derating Curve



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:3Kpcs/Reel
Part Number-13P	Tape&Reel:10Kpcs/Reel

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