



# BC857BS

## PNP GENERAL PURPOSE DUALTRANSISTORS

**VOLTAGE** 45 Volt **POWER** 150 mWatt

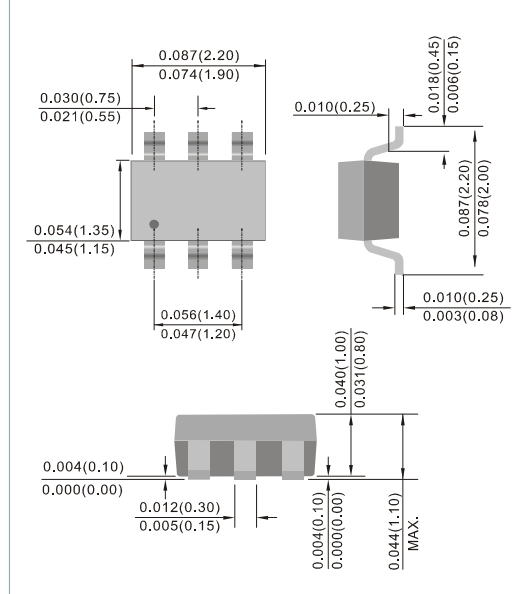
**SOT-363** Unit : inch(mm)

### FEATURES

- General purpose amplifier applications
- PNP epitaxial silicon, planar design
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### MECHANICAL DATA

- Case: SOT-363, Plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.00021 ounce, 0.006 gram
- Marking: 57S



### ABSOLUTE MAXIMUM RATINGS

PARAMETER	Symbol	Value	Units
Collector - Emitter Voltage	$V_{CEO}$	-45	V
Collector - Base Voltage	$V_{CBO}$	-50	V
Emitter - Base Voltage	$V_{EBO}$	-5.0	V
Collector Current - Continuous	$I_C$	100	mA

### THERMAL CHARACTERISTICS

PARAMETER	Symbol	Value	Units
Total Device Dissipation Per Device FR-5 Board (Note 1) $T_A=25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	300 150 3.0	mW mW/ $^\circ\text{C}$
Thermal Resistance , Junction to Ambient	$R_{\theta JA}$	328	$^\circ\text{C/W}$
Junction Temperature	$T_J$	-55 to 150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 to 150	$^\circ\text{C}$

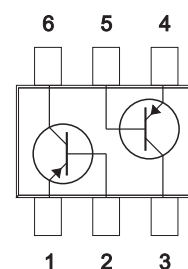
Note : 1.FR-4 board 70 x 60 x 1mm.



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## ELECTRICAL CHARACTERISTICS (T<sub>J</sub>=25°C, unless otherwise noted)

PARAMETER	Symbol	Test Condition	MIN.	TYP.	MAX.	Unit
<b>OFF CHARACTERISTICS</b>						
Collector - Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =-10mA	-45	-	-	V
Collector - Emitter Breakdown Voltage	V <sub>(BR)CES</sub>	I <sub>C</sub> =-10μA, V <sub>EB</sub> =0	-50	-	-	
Collector - Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =-10μA	-50	-	-	V
Emitter - Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =-1μA	-5.0	-	-	V
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> =-30V, V <sub>CB</sub> =-30V, T <sub>A</sub> =150°C	-	-	-15 -5.0	nA μA
<b>ON CHARACTERISTICS</b>						
DC Current Gain	h <sub>FE</sub>	I <sub>C</sub> =-10μA, V <sub>CE</sub> =-5V	-	150	-	-
DC Current Gain	h <sub>FE</sub>	I <sub>C</sub> =-2.0mA, V <sub>CE</sub> =-5V	220	290	475	-
Collector - Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	I <sub>C</sub> =-10mA, I <sub>B</sub> =-0.5mA I <sub>C</sub> =-100mA, I <sub>B</sub> =-5.0mA	-	-	-0.3 -0.65	V
Base - Emitter Saturation Voltage	V <sub>BE(SAT)</sub>	I <sub>C</sub> =-10mA, I <sub>B</sub> =-0.5mA I <sub>C</sub> =-100mA, I <sub>B</sub> =-5.0mA	-	-0.7 -0.9	-	V
Base - Emitter Voltage	V <sub>BE(ON)</sub>	I <sub>C</sub> =-2mA, V <sub>CE</sub> =-5.0V I <sub>C</sub> =-10mA, V <sub>CE</sub> =-5.0V	-0.6 -	-	-0.75 -0.82	V
<b>SMALL-SIGNAL CHARACTERISTICS</b>						
Current-Gain-Bandwidth Product	f <sub>T</sub>	I <sub>C</sub> =-10mA, V <sub>CE</sub> =-5.0Vdc f=100MHz	100	-	-	MHz
Output Capacitance	C <sub>obo</sub>	V <sub>CB</sub> =-10V, f=1.0MHz	-	-	4.5	pF
Noise Figure	NF	I <sub>C</sub> =0.2mA, V <sub>CE</sub> =5.0Vdc, R <sub>S</sub> =2.0kΩ, f=1.0kHz, BW=200Hz	-	-	10	dB



**Fig.53**



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## ELECTRICAL CHARACTERISTICS CURVE

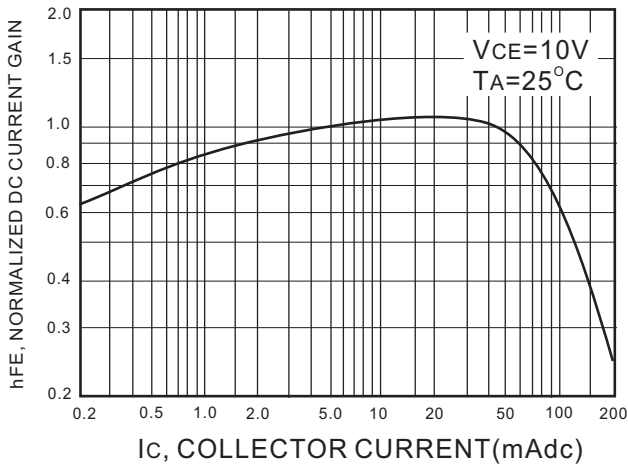


Figure 1. Normalized DC Current Gain

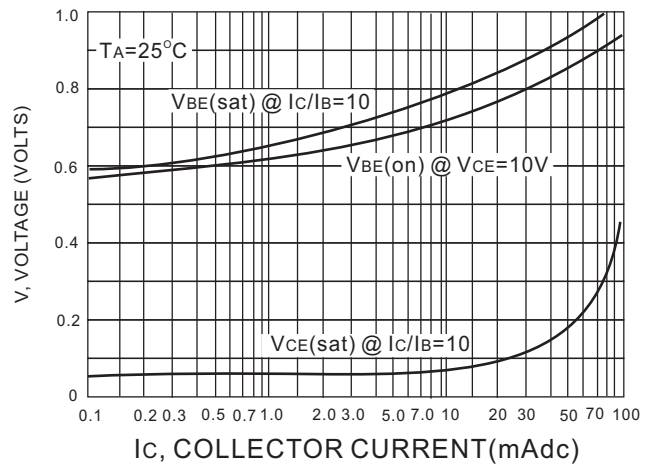


Figure 2. "Saturation" and "On" Voltages

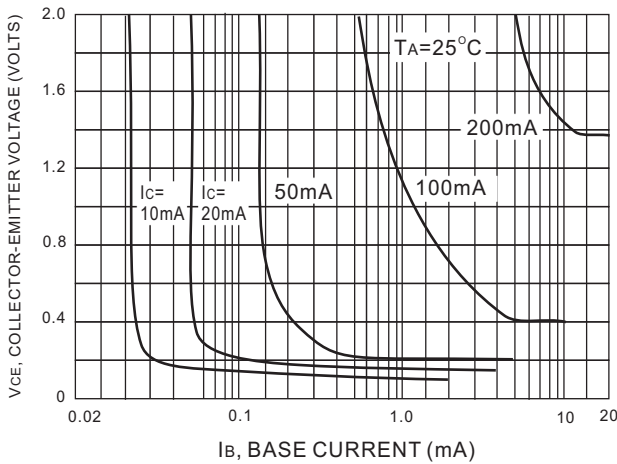


Figure 3. Collector Saturation Region

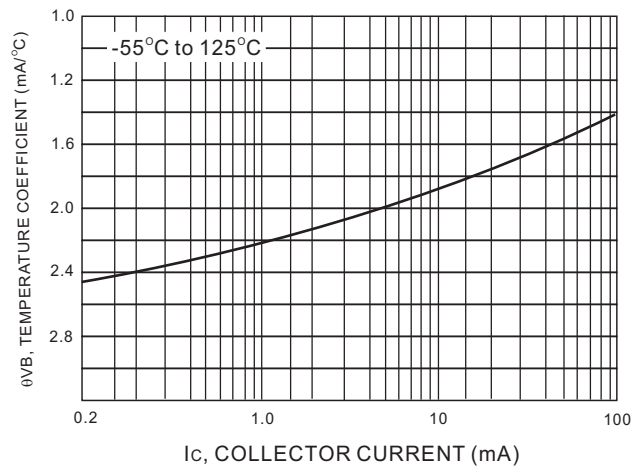


Figure 4. Base-Emitter Temperature Coefficient

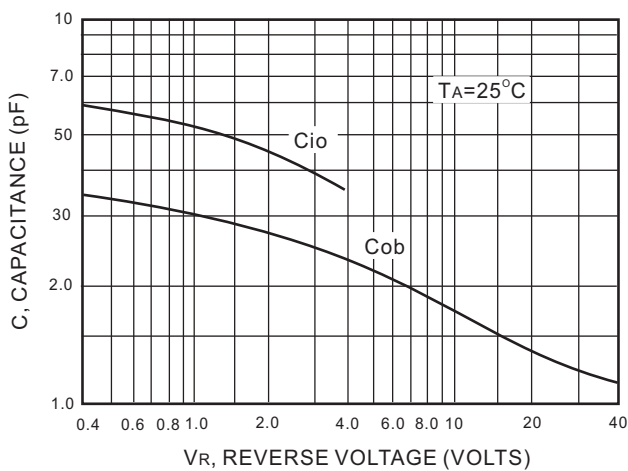


Figure 5. Capacitance

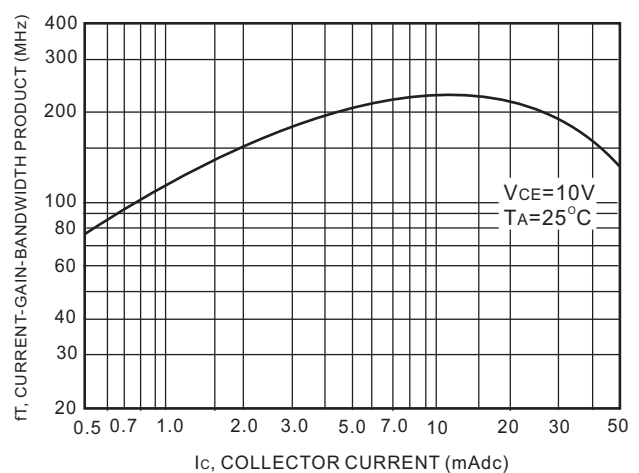


Figure 6. Current-Gain-Bandwidth Product

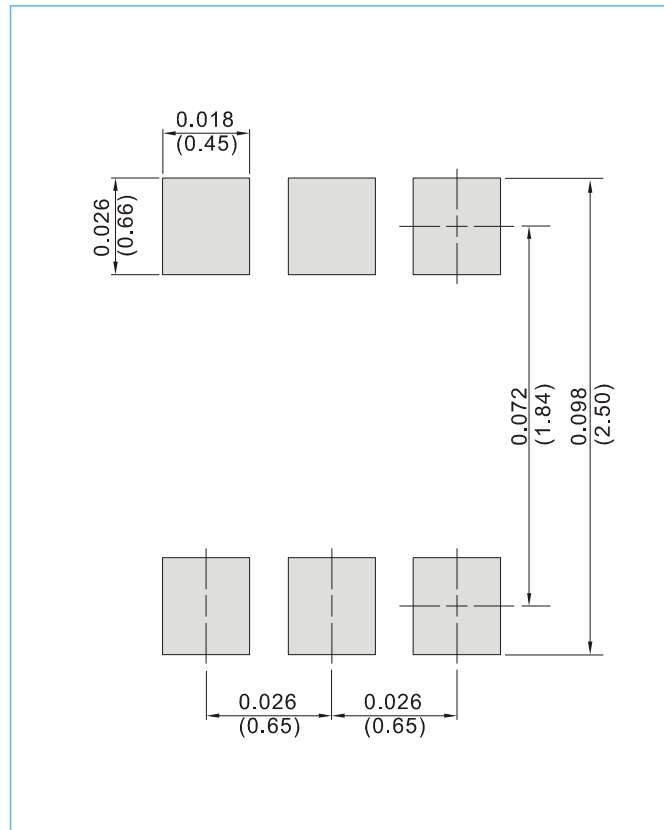


## BC857BS

### MOUNTING PAD LAYOUT

SOT-363

Unit : inch(mm)



### ORDER INFORMATION

- Packing information  
T/R - 10K per 13" plastic Reel  
T/R - 3K per 7" plastic Reel



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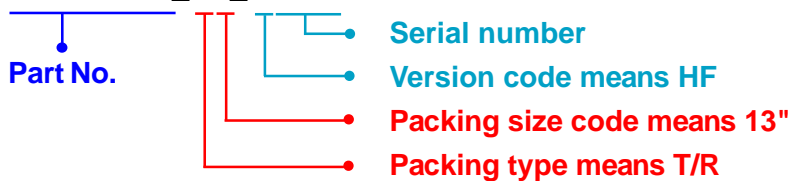
### Part No\_packing code\_Version

BC857BS\_R1\_00001

BC857BS\_R2\_00001

For example :

**RB500V-40\_R2\_00001**



Packing Code <b>XX</b>				Version Code <b>XXXXX</b>		
Packing type	1 <sup>st</sup> Code	Packing size code	2 <sup>nd</sup> Code	HF or RoHS	1 <sup>st</sup> Code	2 <sup>nd</sup> ~5 <sup>th</sup> Code
Tape and Ammunition Box (T/B)	A	N/A	0	HF	0	serial number
Tape and Reel (T/R)	R	7"	1	RoHS	1	serial number
Bulk Packing (B/P)	B	13"	2			
Tube Packing (T/P)	T	26mm	X			
Tape and Reel (Right Oriented) (TRR)	S	52mm	Y			
Tape and Reel (Left Oriented) (TRL)	L	PANASERT T/B CATHODE UP (PBCU)	U			
FORMING	F	PANASERT T/B CATHODE DOWN (PBCD)	D			



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