



# BC857BS

## PNP GENERAL PURPOSE DUALTRANSISTORS

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

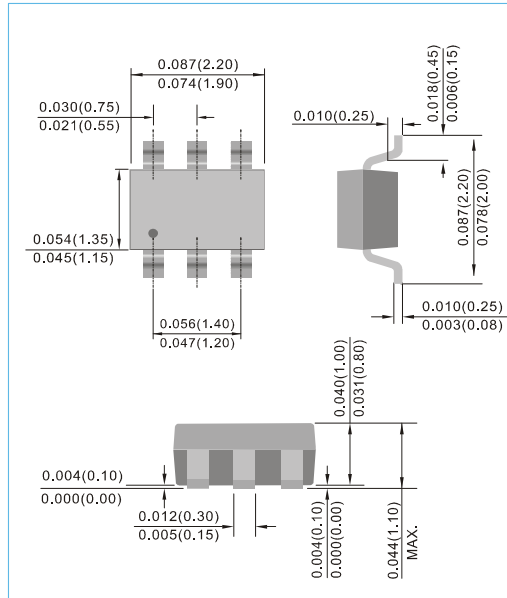
**SOT-363** Unit : inch(mm)

### 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°C	$P_D$	300 150 3.0	mW mW/°C
Thermal Resistance , Junction to Ambient	$R_{\theta JA}$	328	°C/W
Junction Temperature	$T_J$	-55 to 150	°C
Storage Temperature	$T_{STG}$	-55 to 150	°C

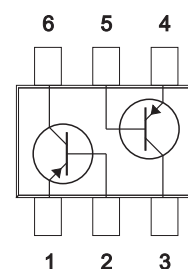
Note : 1.FR-4 board 70 x 60 x 1mm.



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## ELECTRICAL CHARACTERISTICS ( $T_J=25^{\circ}\text{C}$ , unless otherwise noted)

PARAMETER	Symbol	Test Condition	MIN.	TYP.	MAX.	Unit
<b>OFF CHARACTERISTICS</b>						
Collector - Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -10\text{mA}$	-45	-	-	V
Collector - Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C = -10\mu\text{A}$ , $V_{EB} = 0$	-50	-	-	
Collector - Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu\text{A}$	-50	-	-	V
Emitter - Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -1\mu\text{A}$	-5.0	-	-	V
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = -30\text{V}$ , $V_{CB} = -30\text{V}$ , $T_A = 150^{\circ}\text{C}$	-	-	-15 -5.0	nA uA
<b>ON CHARACTERISTICS</b>						
DC Current Gain	$h_{FE}$	$I_C = -10\mu\text{A}$ , $V_{CE} = -5\text{V}$	-	150	-	-
DC Current Gain	$h_{FE}$	$I_C = -2.0\text{mA}$ , $V_{CE} = -5\text{V}$	220	290	475	-
Collector - Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = -10\text{mA}$ , $I_B = -0.5\text{mA}$ $I_C = -100\text{mA}$ , $I_B = -5.0\text{mA}$	-	-	-0.3 -0.65	V
Base - Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C = -10\text{mA}$ , $I_B = -0.5\text{mA}$ $I_C = -100\text{mA}$ , $I_B = -5.0\text{mA}$	-	-0.7 -0.9	-	V
Base - Emitter Voltage	$V_{BE(ON)}$	$I_C = -2\text{mA}$ , $V_{CE} = -5.0\text{V}$ $I_C = -10\text{mA}$ , $V_{CE} = -5.0\text{V}$	-0.6 -	-	-0.75 -0.82	V
<b>SMALL-SIGNAL CHARACTERISTICS</b>						
Current-Gain-Bandwidth Product	$f_T$	$I_C = -10\text{mA}$ , $V_{CE} = -5.0\text{Vdc}$ $f = 100\text{MHz}$	100	-	-	$\text{MHz}$
Output Capacitance	$C_{obo}$	$V_{CB} = -10\text{V}$ , $f = 1.0\text{MHz}$	-	-	4.5	pF
Noise Figure	NF	$I_C = 0.2\text{mA}$ , $V_{CE} = 5.0\text{Vdc}$ , $R_S = 2.0\text{k}\Omega$ , $f = 1.0\text{kHz}$ , $\text{BW} = 200\text{Hz}$	-	-	10	dB



**Fig.53**



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## ELECTRICAL CHARACTERISTICS CURVE

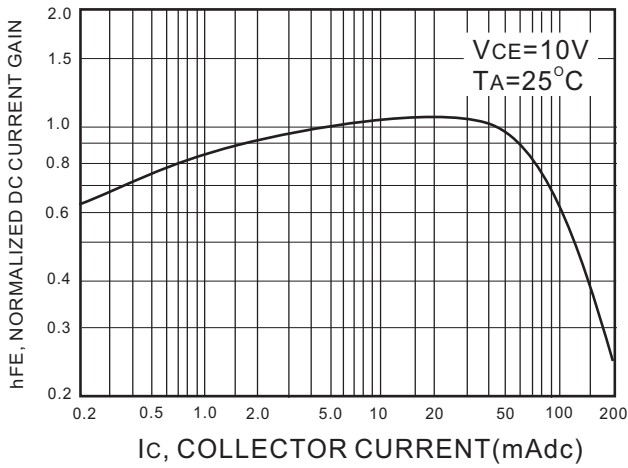


Figure 1. Normalized DC Current Gain

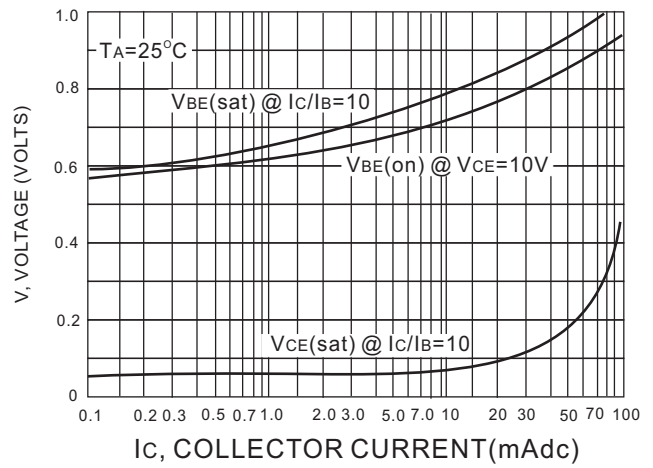


Figure 2. "Saturation" and "On" Voltages

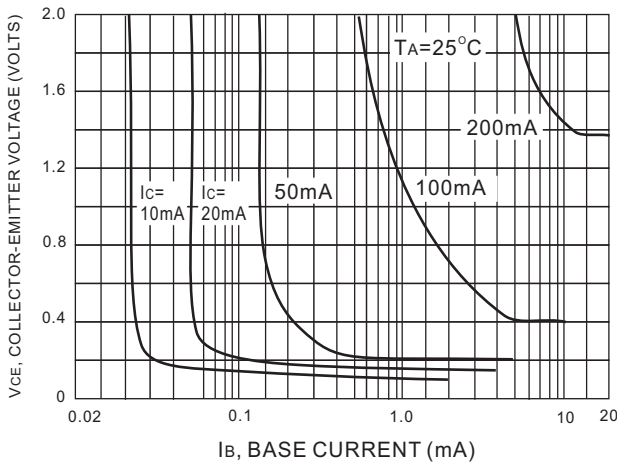


Figure 3. Collector Saturation Region

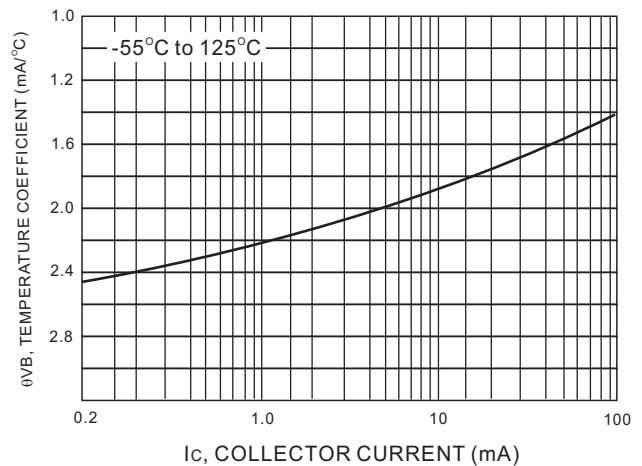


Figure 4. Base-Emitter Temperature Coefficient

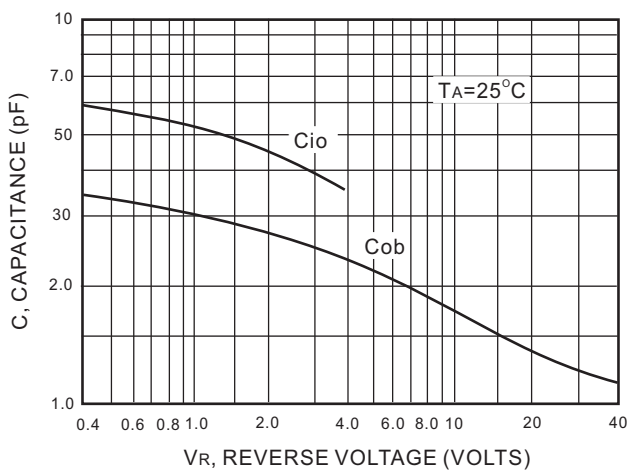


Figure 5. Capacitance

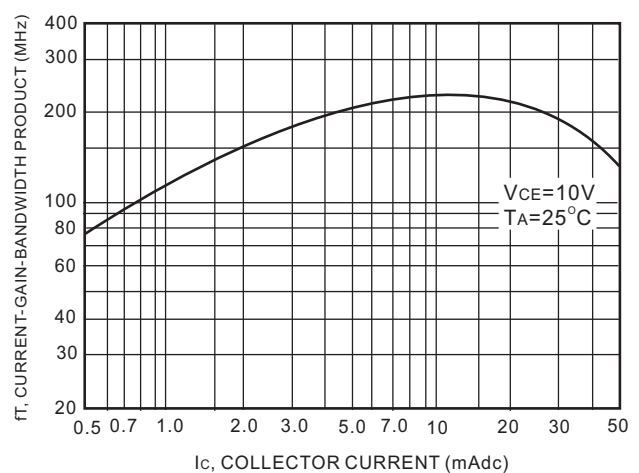


Figure 6. Current-Gain-Bandwidth Product

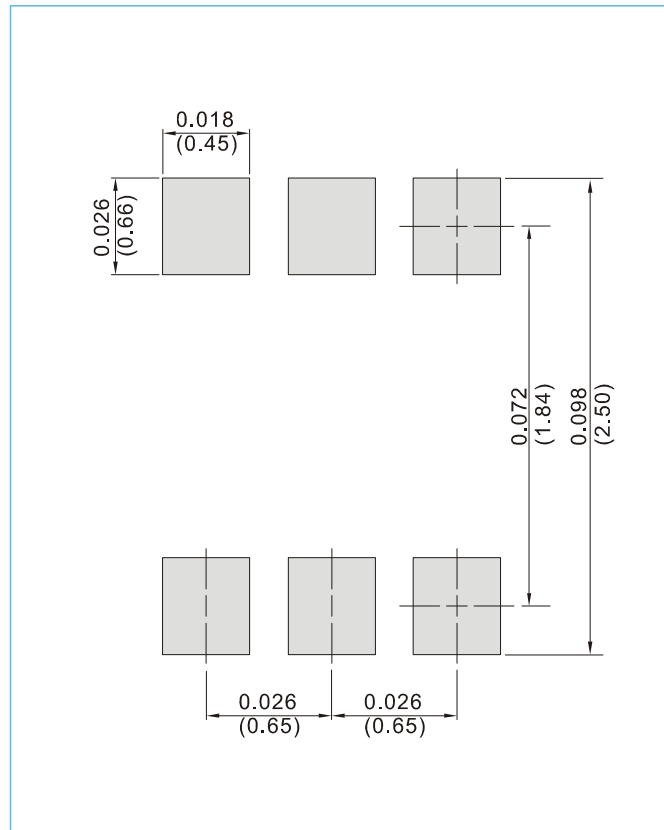


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### MOUNTING PAD LAYOUT

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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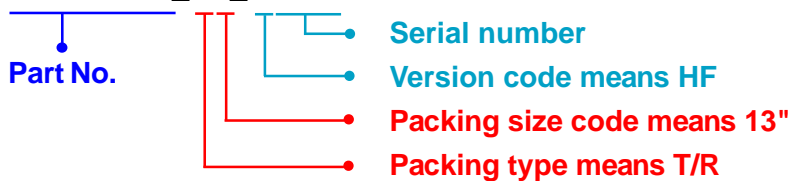
## Part No\_packing code\_Version

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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