



# BC846BS / BC847AS

## NPN GENERAL PURPOSE TRANSISTORS

**VOLTAGE** 45/65 Volt **POWER** 250 mWatt

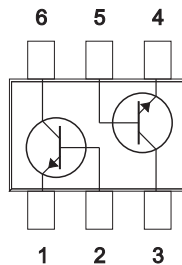
### FEATURES

- General purpose amplifier applications
- NPN epitaxial silicon, planar design
- Collector current  $I_c = 100\text{mA}$
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

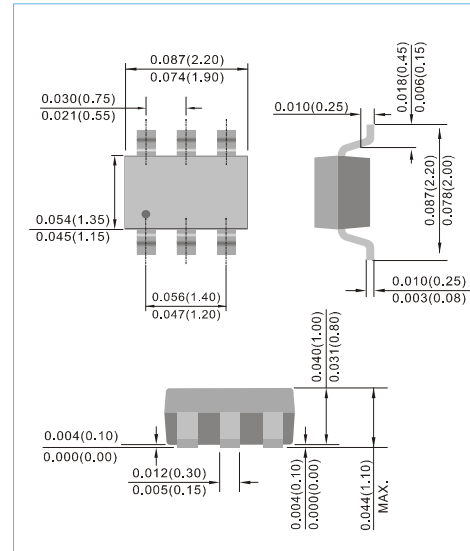
### MECHANICAL DATA

- Case: SOT-363, Plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0002 ounces, 0.006 grams
- Marking: 

BC846BS=46S	BC847AS=47A
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### SOT-363 Unit: inch(mm)



### ABSOLUTE RATINGS

Parameter	Symbol	Value	Units
Collector - Emitter Voltage	$V_{CE0}$	65 45	V
Collector - Base Voltage	$V_{CB0}$	80 50	V
Emitter - Base Voltage	$V_{EB0}$	6.0	V
Collector Current - Continuous	$I_c$	100	mA

### THERMAL CHARACTERISTICS

Parameter	Symbol	Value	Units
Max Power Dissipation	$P_{TOT}$	250	mW
Junction Temperature	$T_J$	-55 to 150	°C
Storage Temperature	$T_{STG}$	-55 to 150	°C



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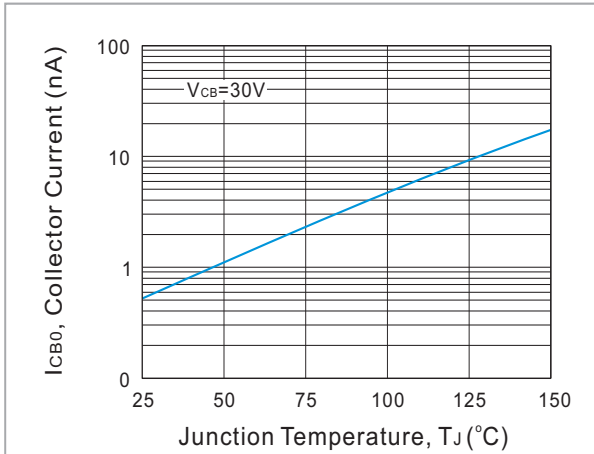
## ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Condition	MIN.	TYP.	MAX.	Units
Collector - Emitter Breakdown Voltage BC846BS BC847AS	$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	65 45	-	-	V
Collector - Base Breakdown Voltage BC846BS BC847AS	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	80 50	-	-	V
Emitter - Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1\mu A, I_C=0$	6	-	-	V
Emitter-Base Cutoff Current	$I_{EBO}$	$V_{EB}=5$	-	-	100	nA
Collector-Base Cutoff Current	$I_{CBO}$	$V_{CB}=30V, I_E=0$ $V_{CB}=30V, I_E=0, T_J=150^\circ C$	-	-	15 5	nA uA
DC Current Gain BC846BS BC847AS	$h_{FE}$	$I_C=10\mu A, V_{CE}=5V$	-	150 90	-	-
DC Current Gain BC846BS BC847AS	$h_{FE}$	$I_C=2mA, V_{CE}=5V$	200 110	290 180	450 220	-
Collector - Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=10mA, I_B=0.5mA$ $I_C=100mA, I_B=5mA$	- -	55 200	100 300	mV
Base - Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C=10mA, I_B=0.5mA$ $I_C=100mA, I_B=5mA$	-	0.7 0.9	-	V
Base - Emitter Turn on Voltage	$V_{BE(ON)}$	$I_C=2mA, V_{CE}=5V$ $I_C=10mA, V_{CE}=5V$	0.58 -	0.66 -	0.7 0.77	V
Collector - Base Capacitance	$C_{CBO}$	$V_{CB}=10V, I_E=0, f=1MHz$	-	-	4.5	pF

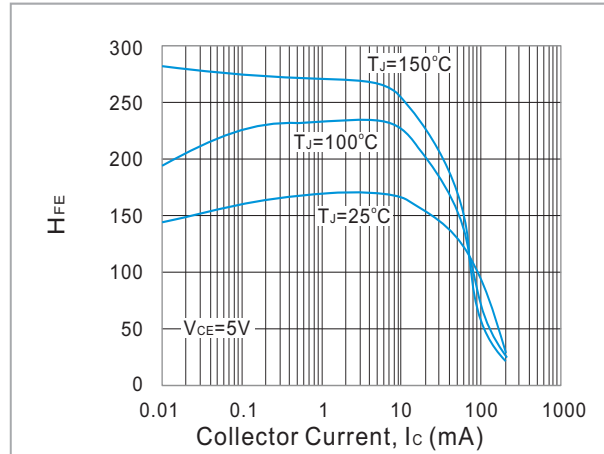


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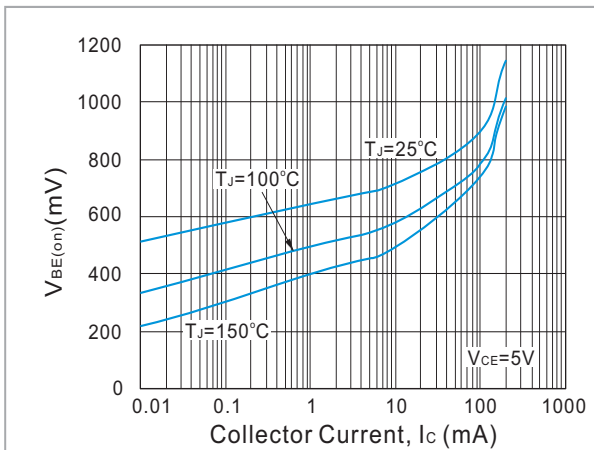
## ELECTRICAL CHARACTERISTICS CURVE



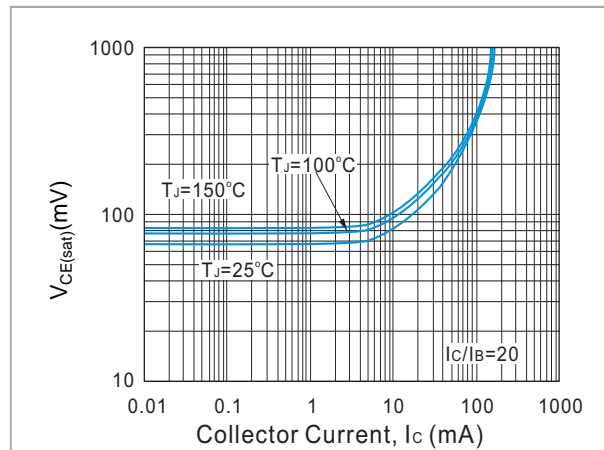
**Fig. 1. Typical  $I_{CBO}$  vs. Junction Temperature**



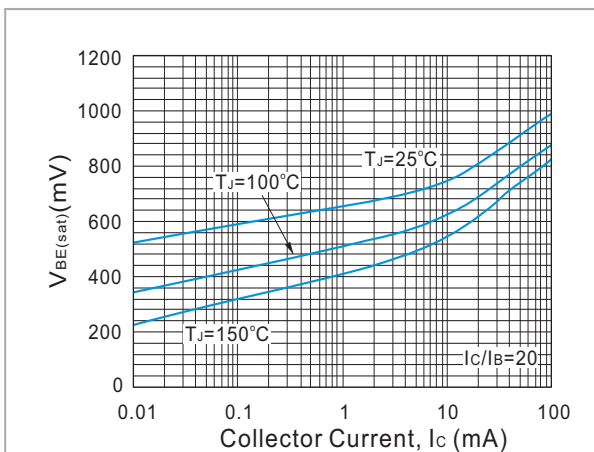
**Fig. 2. Typical  $h_{FE}$  vs. Collector Current**



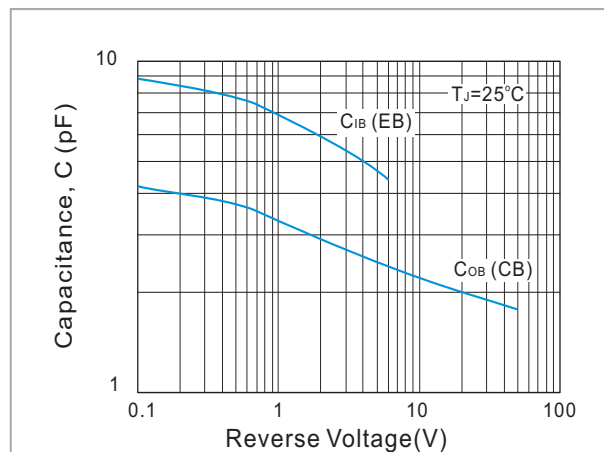
**Fig. 3. Typical  $V_{BE(on)}$  vs. Collector Current**



**Fig. 4. Typical  $V_{CE(sat)}$  vs. Collector Current**



**Fig. 5. Typical Capacitances vs. Reverse Voltage**

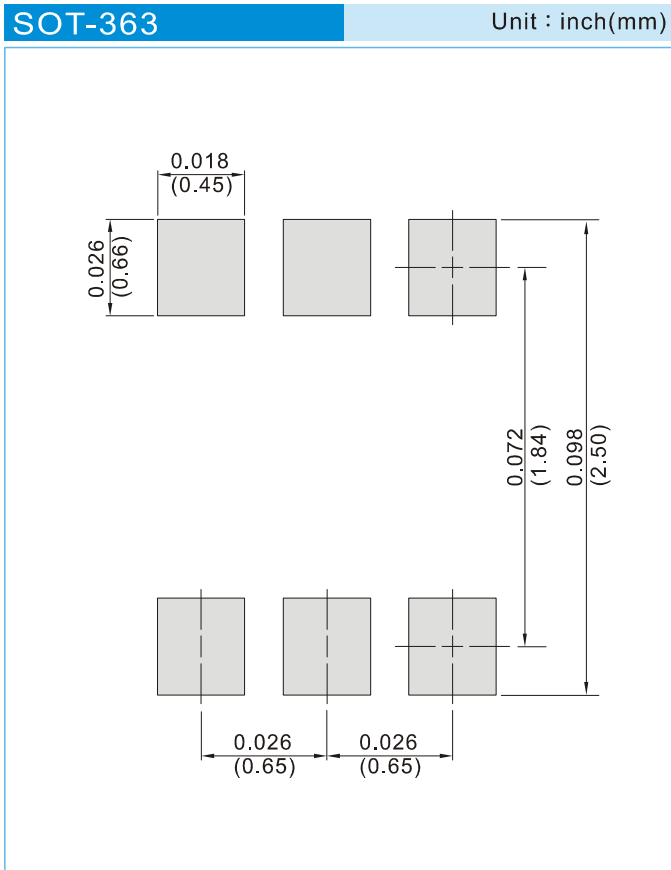


**Fig. 6. Typical Capacitances vs. Reverse Voltage**



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## MOUNTING PAD LAYOUT



## 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

BC846BS\_R1\_00001

BC846BS\_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			