



# DATA SHEET

## BC856 SERIES

### PNP GENERAL PURPOSE TRANSISTORS

**VOLTAGE** 65/45/30 Volts **POWER** 225 mW

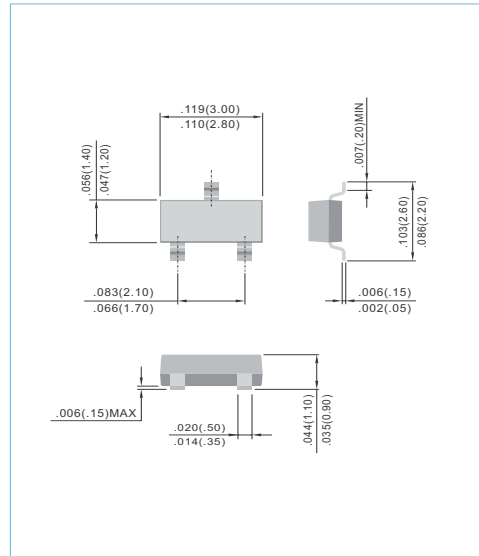
**SOT-23** Unit: inch (mm)

#### FEATURES

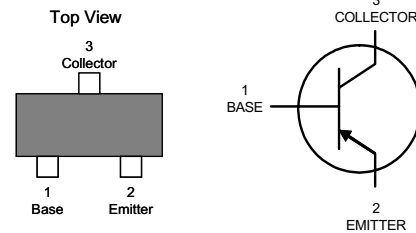
General Purpose Amplifier Applications  
 NPN Epitaxial Silicon, Planar Design  
 Collector Current  $I_C = -100\text{mA}$   
 Complimentary (PNP) Devices : BC846/BC847/BC848/BC849 Series  
 Pb free product are available : 99% Sn above can meet RoHS environment substance directive request

#### MECHANICAL DATA

Case: SOT-23  
 Terminals : Solderable per MIL-STD-750, Method 2026  
 Approx Weight: 0.008 grams  
 Device Marking :



BC856A=56A	BC857A=57A	BC858A=58A	
BC856B=56B	BC857B=57B	BC858B=58B	BC859B=59B
	BC857C=57C	BC858C=58C	BC859C=59C



#### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	BC856	BC857	BC858	BC859	UNITS
Collector-Emitter Voltage	$V_{CE0}$	-65	-45	-30		V
Collector-Base Voltage	$V_{CBO}$	-80	-50	-30		V
Emitter-Base Voltage	$V_{EBO}$		-5			V
Collector Current-Continuous	$I_C$		-100			mA
Max Power Dissipation (Note 1)	$P_{TOT}$		225			mW
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$		-50 TO +150			°C



# BC856 SERIES

## THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	Value	UNIT
Thermal Resistance , Junction to Ambient	$R_{\theta JA}$	556	$^{\circ}\text{C}/\text{W}$

Note 1: Transistor mounted on FR-5 board 1.0 x 0.75 x 0.062 in. Minimum pad layout.

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Collector - Emitter Breakdown Voltage ( $I_C=10\text{mA}$ , $I_B=0$ )	BC856A,B	-65	-	-	V
	BC857A,B,C	-45	-	-	
	BC858A,B,C, BC859B,C	-30	-	-	
Collector - Base Breakdown Voltage ( $I_C=10\mu\text{A}$ , $I_E=0$ )	BC856A,B	-80	-	-	V
	BC857A,B,C	-50	-	-	
	BC858A,B,C, BC859B,C	-30	-	-	
Emitter - Base Breakdown Voltage ( $I_E=-1\mu\text{A}$ , $I_C=0$ )	$V_{(BR)EB0}$	-5.0	-	-	V
Emitter-Base Cutoff Current ( $V_{EB}=-5\text{V}$ )	$I_{EBO}$	-	-	-100	nA
Collector-Base Cutoff Current ( $V_{CB}=-30\text{V}$ , $I_E=0$ )	$I_{CBO}$	-	-	-15	nA
		$T_j=150\text{ }^{\circ}\text{C}$	-	-	-4.0
DC Current Gain ( $I_C=10\mu\text{A}$ , $V_{CE}=-5\text{V}$ )	BC856A, BC857A, BC858A	-	90	-	-
	BC856B, BC857B, BC858B, BC859B	-	150	-	
	BC857C, BC858C, BC859C	-	270	-	
( $I_C=2.0\text{mA}$ , $V_{CE}=-5\text{V}$ )	BC856A, BC857A, BC858A	110	180	220	-
	BC856B, BC857B, BC858B, BC859B	200	290	450	
	BC857C, BC858C, BC859C	420	520	800	
Collector - Emitter Saturation Voltage ( $I_C=-10\text{mA}$ , $I_B=-0.5\text{mA}$ )	$V_{CE(SAT)}$	-	-	-0.3	V
		( $I_C=100\text{mA}$ , $I_B=-5.0\text{mA}$ )	-	-	
Base - Emitter Saturation Voltage ( $I_C=-10\text{mA}$ , $I_B=-0.5\text{mA}$ )	$V_{BE(SAT)}$	-	-0.7	-	V
		( $I_C=100\text{mA}$ , $I_B=-5.0\text{mA}$ )	-	-0.9	
Base - Emitter On Voltage ( $I_C=2.0\text{mA}$ , $V_{CE}=-5.0\text{V}$ )	$V_{BE(ON)}$	-0.60	-	-0.75	V
		( $I_C=10\text{mA}$ , $V_{CE}=-5.0\text{V}$ )	-	-	
Collector - Base Capacitance ( $V_{CB}=-10\text{V}$ , $I_E=0$ , $f=1\text{MHz}$ )	$C_{CB}$	-	-	4.5	pF
Current-Gain - Bandwidth Product ( $I_C=10\text{mA}$ , $V_{CE}=-5.0\text{V}$ , $f=100\text{MHz}$ )	$F_T$	-	200	-	MHz



# BC856 SERIES

## ELECTRICAL CHARACTERISTICS CURVES

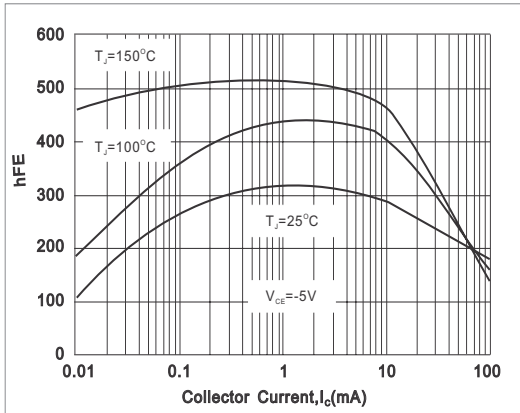


Fig.1- TYPICAL  $h_{FE}$  vs. Collector Current

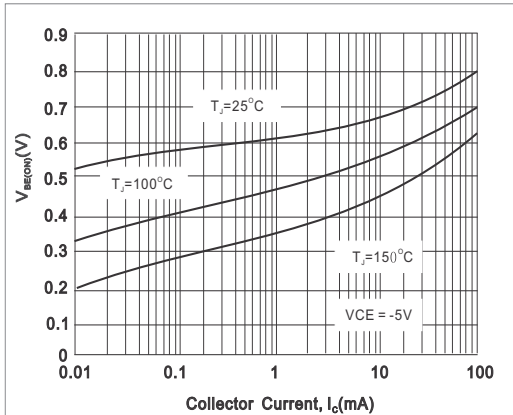


Fig.2- TYPICAL  $V_{BE(ON)}$  vs. Collector Current

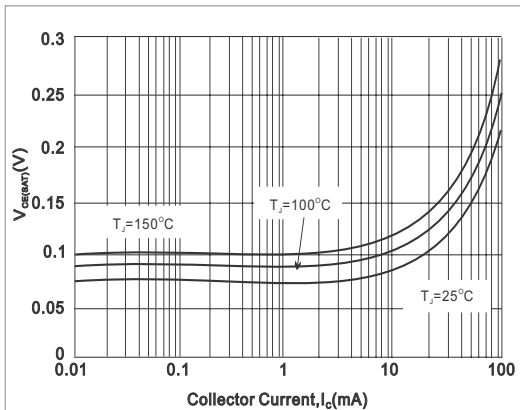


Fig.3- TYPICAL  $V_{CE(SAT)}$  vs. Collector Current

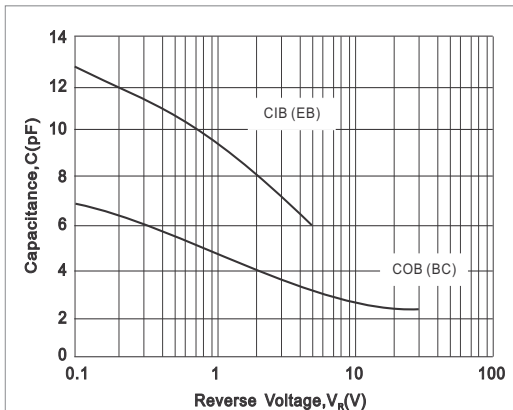
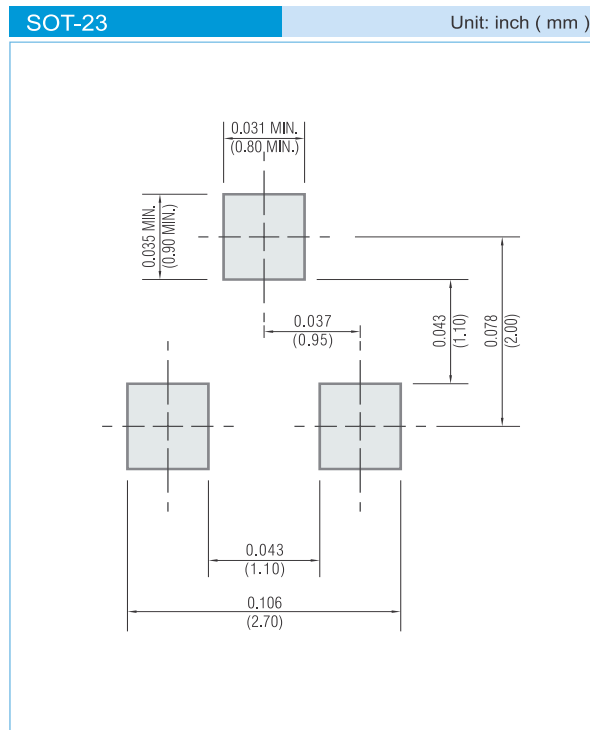


Fig.4- TYPICAL CAPACITANCES vs. REVERSE VOLTAGE



## MOUNTING PAD LAYOUT



## ORDER INFORMATION

- Packing information
  - T/R - 12K per 13" plastic Reel
  - T/R - 3K per 7" plastic Reel

## LEGAL STATEMENT

### IMPORTANT NOTICE

This information is intended to unambiguously characterize the product in order to facilitate the customer's evaluation of the device in the application. The information will help the customer's technical experts determine that the device is compatible and interchangeable with similar devices made by other vendors. The information in this data sheet is believed to be reliable and accurate. The specifications and information herein are subject to change without notice. New products and improvements in products and product characterization are constantly in process. Therefore, the factory should be consulted for the most recent information and for any special characteristics not described or specified.

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