

## DATA SHEET

### BC856A/B, BC857A/B/C, BC858A/B/C

PNP GENERAL PURPOSE TRANSISTOR

**VOLTAGE**    -30 ~ -65 V    **CURRENT**    -100 mA

#### FEATURES

- PNP SILICON EPITAXIAL PLANAR TRANSISTOR FOR SWITCHING AND AMPLIFIER APPLICATIONS
- COLLECTOR CURRENT  $I_C = -100\text{mA}$
- LEAD FREE AND HALOGEN-FREE

#### MECHANICAL DATA

- CASE: SOT-23
- TERMINALS: SOLDERABLE PER MIL-STD-202G, METHOD 208
- APPROX. WEIGHT: 0.008 GRAMS



CASE: SOT-23

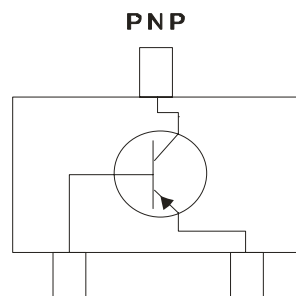
#### MAXIMUM RATINGS

RATINGS AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE SPECIFIED.

PARAMETER	SYMBOL	BC856	BC857	BC858	UNITS
COLLECTOR-EMITTER VOLTAGE	$V_{CEO}$	-65	-45	-30	V
COLLECTOR-BASE VOLTAGE	$V_{CBO}$	-80	-50	-30	V
EMITTER-BASE VOLTAGE	$V_{EBO}$	-5.0			V
CONTINUOUS COLLECTOR CURRENT	$I_C$	-100			mA
COLLECTOR DISSIPATION	$P_C$	225			mW
OPERATING AND STORAGE TEMPERATURE RANGE	$T_J, T_{STG}$	-55 TO +150			°C

**NOTE:**

1. INDICATES DATA IN ADDITION TO JEDEC REQUIREMENTS.



## ELECTRICAL CHARACTERISTICS

ELECTRICAL CHARACTERISTICS (AT T <sub>A</sub> =25°C UNLESS OTHERWISE NOTED)						
PARAMETER		SYMBOL	TEST CONDITIONS	MIN.	MAX.	UNITS
<b>OFF CHARACTERISTICS</b>						
COLLECTOR-BASE BREAKDOWN VOLTAGE	BC856	V <sub>(BR)CBO</sub>	I <sub>C</sub> = -10μA , I <sub>E</sub> = 0	-80	-	V
	BC857			-50	-	
	BC858			-30	-	
COLLECTOR-EMITTER-BREAKDOWN VOLTAGE	BC856	V <sub>(BR)CEO</sub>	I <sub>C</sub> = -10mA , I <sub>B</sub> = 0	-65	-	V
	BC857			-45	-	
	BC858			-30	-	
EMITTER-BASE BREAKDOWN VOLTAGE		V <sub>(BR)EBO</sub>	I <sub>E</sub> = -1μA , I <sub>C</sub> = 0	-5	-	V
COLLECTOR CUT-OFF CURRENT	BC856	I <sub>CBO</sub>	V <sub>CB</sub> = -70V , I <sub>E</sub> = 0	-	-0.1	μA
	BC857		V <sub>CB</sub> = -45V , I <sub>E</sub> = 0			
	BC858		V <sub>CB</sub> = -25V , I <sub>E</sub> = 0			
COLLECTOR CUT-OFF CURRENT	BC856	I <sub>CEO</sub>	V <sub>CE</sub> = -60V , I <sub>B</sub> = 0	-	-0.1	μA
	BC857		V <sub>CE</sub> = -40V , I <sub>B</sub> = 0			
	BC858		V <sub>CE</sub> = -25V , I <sub>B</sub> = 0			
EMITTER CUT-OFF CURRENT		I <sub>EBO</sub>	V <sub>EB</sub> = -5V , I <sub>C</sub> = 0	-	-0.1	μA
<b>ON CHARACTERISTICS (NOTE.1)</b>						
DC CURRENT GAIN	BC856A,857A,858A	h <sub>FE</sub>	V <sub>CE</sub> = -5V , I <sub>C</sub> = -2mA	125	250	-
	BC856B,857B,858B			220	475	
	BC857C,BC858C			420	800	
COLLECTOR-EMITTER SATURATION VOLTAGE		V <sub>CE(sat)</sub>	I <sub>C</sub> = -100mA , I <sub>B</sub> = -5mA	-	-0.5	V
BASE-EMITTER SATURATION VOLTAGE		V <sub>BE(sat)</sub>	I <sub>C</sub> = -100mA , I <sub>B</sub> = -5mA	-	-1.1	V
<b>SMALL-SIGNAL CHARACTERISTICS</b>						
TRANSITION FREQUENCY		f <sub>T</sub>	V <sub>CE</sub> = -5V , I <sub>C</sub> = -10mA f = 100MHz	100	-	MHz
OUTPUT CAPACITANCE		C <sub>ob</sub>	V <sub>CB</sub> = -10V , f = 1MHz	-	4.5	pF

**NOTE:**

1. PULSE TEST: PULSE WIDTH ≤ 300μS; DUTY CYCLE ≤ 2%.

## CLASSIFICATION OF h<sub>FE</sub>

PART NUMBER	BC856A	BC857A	BC858A	BC856B	BC857B	BC858B	BC857C	BC858C
RANK	125 ~ 250			220 ~ 475			420 ~ 800	
MARKING	3A	3E	3J	3B	3F	3K	3G	3L

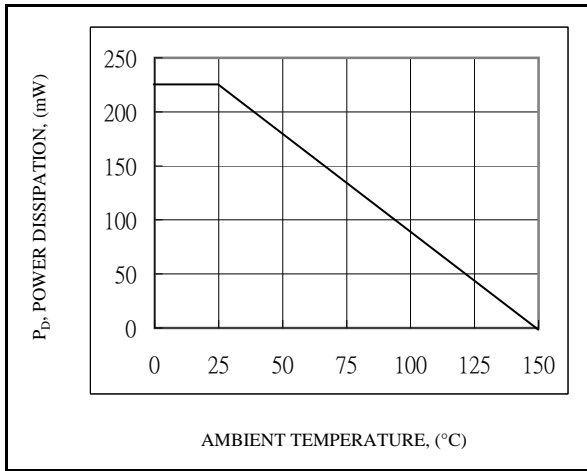


Fig.1-MAX POWER DISSIPATION VS AMBIENT TEMPERATURE

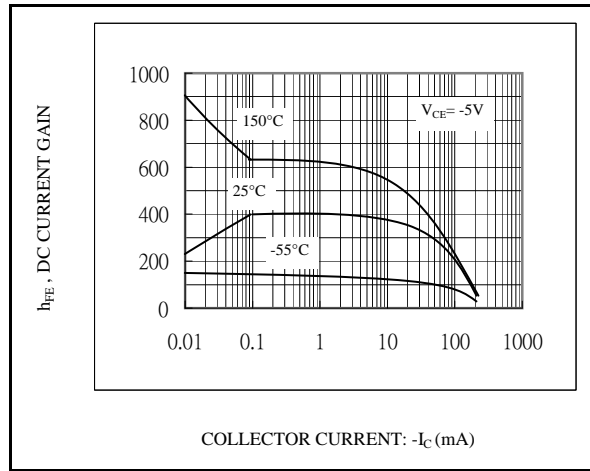


Fig.2-DC CURRENT GAIN AS A FUNCTION OF COLLECTOR CURRENT

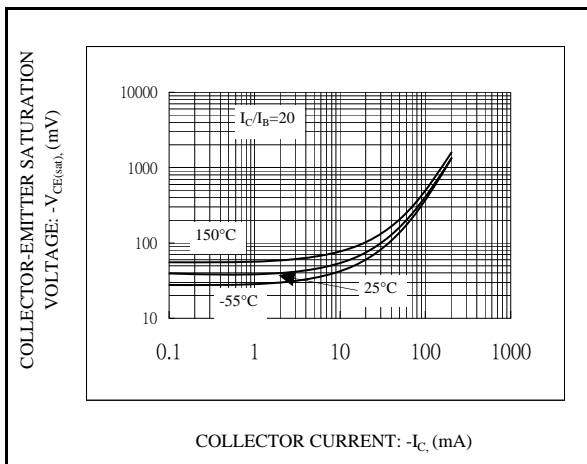


Fig.3-COLLECTOR-EMITTER SATURATION VOLTAGE AS A FUNCTION OF COLLECTOR CURRENT

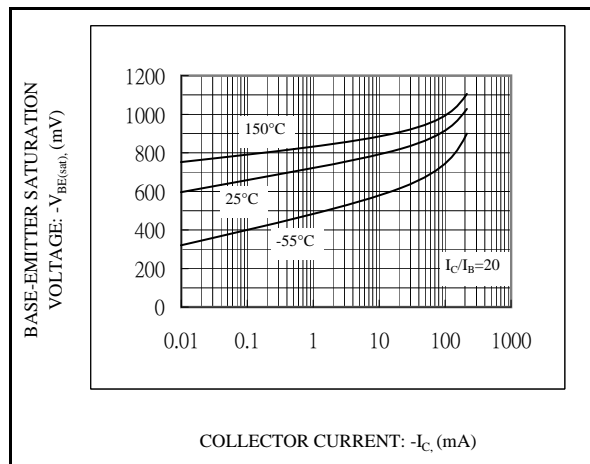
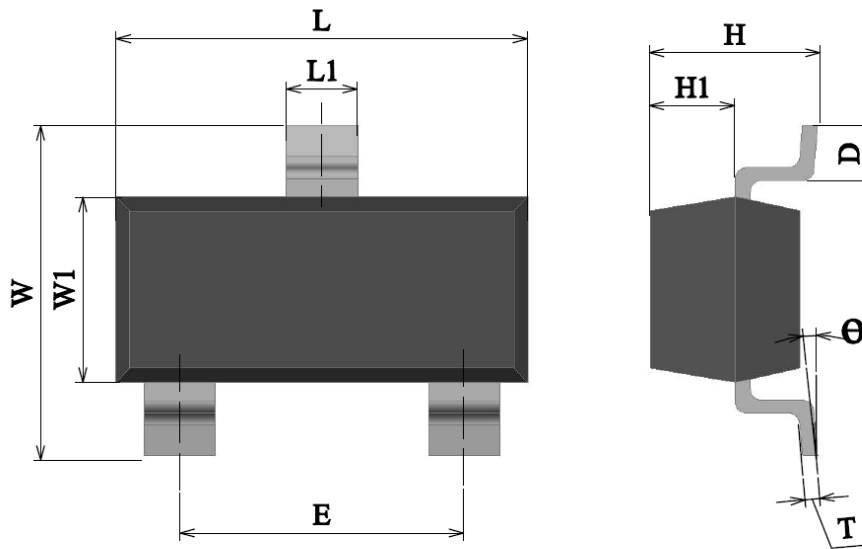


Fig.4-BASE-EMITTER SATURATION VOLTAGE AS A FUNCTION OF COLLECTOR CURRENT

## SOT-23 DIMENSION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
L	2.80	3.10	0.110	0.122
L1	0.30	0.50	0.012	0.020
W	2.25	2.54	0.089	0.100
W1	1.20	1.40	0.047	0.055
E	1.80	2.00	0.071	0.079
H	0.90	1.15	0.035	0.045
H1	0.40	0.80	0.016	0.031
D	0.30	0.50	0.012	0.020
T	0.08	0.15	0.003	0.006
θ	0°	8°	0°	8°