

FEATURES

Ideally suited for automatic insertion
For Switching and AF Amplifier Applications

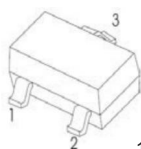
MARKING

BC856A=3A;BC856B=3B;

BC857A=3E;BC857B=3F;BC857C=3G;

BC858A=3J; BC858B=3K; BC858C=3L

3 x



1.BASE
2.EMITTER
3.COLLECTOR

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

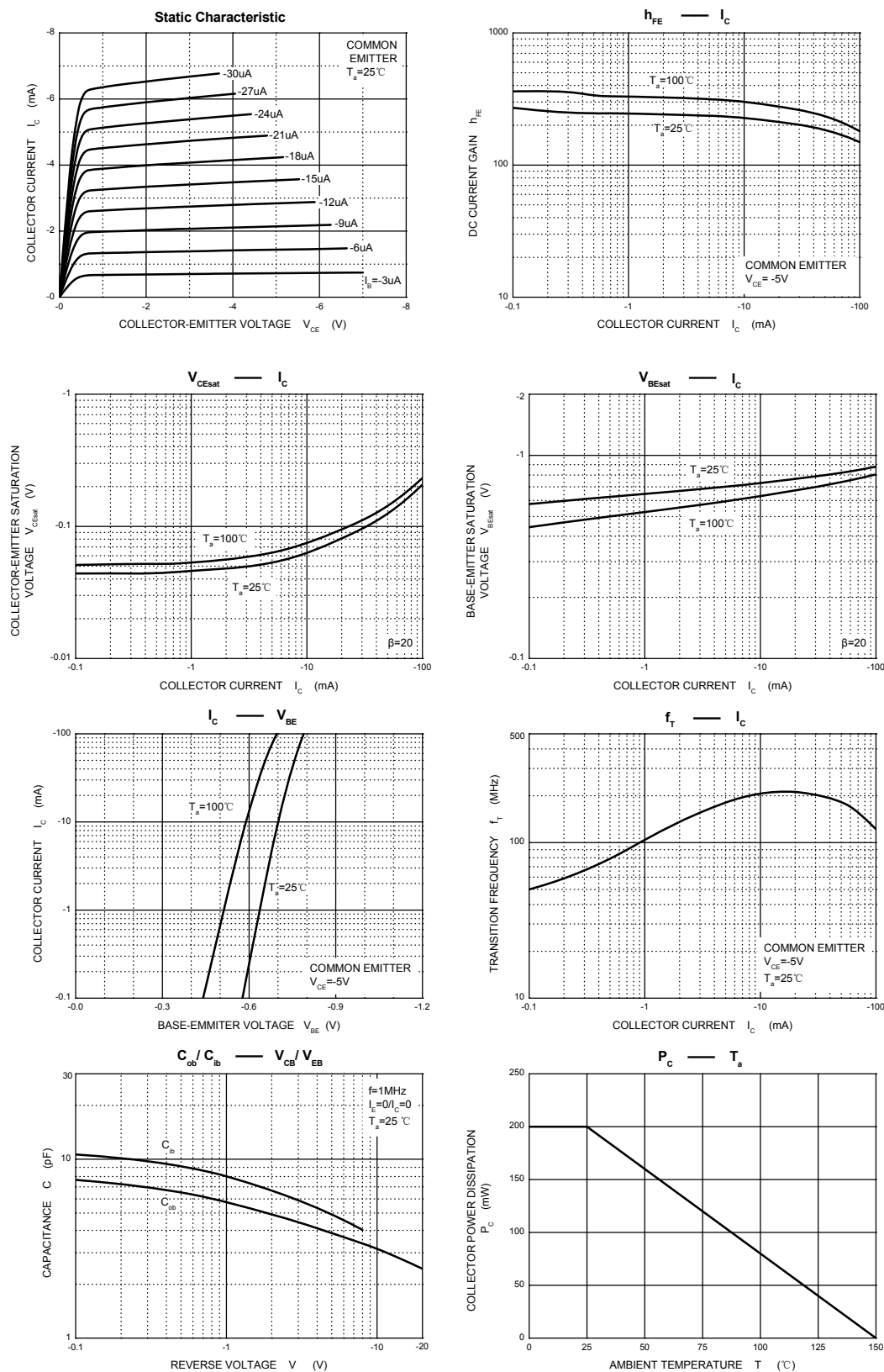
Maximum ratings ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage		
	BC856	-80	V
	BC857	-50	
	BC858	-30	
V_{CEO}	Collector-Emitter Voltage		
	BC856	-65	V
	BC857	-45	
	BC858	-30	
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current –Continuous	-0.1	A
P_C	Collector Power Dissipation	225	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	625	$^{\circ}\text{C}/\text{W}$
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-65~+150	$^{\circ}\text{C}$

Electrical Characteristics

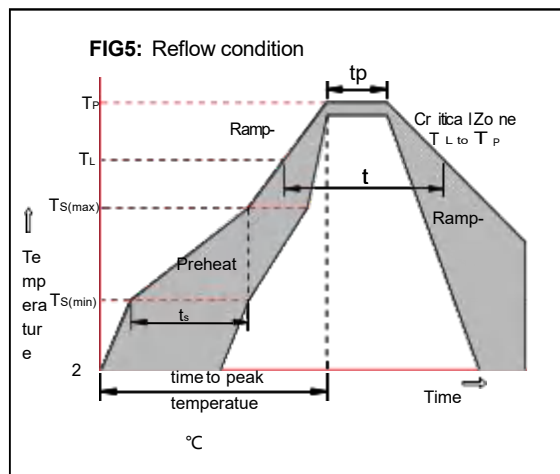
Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	BC856 BC857 BC858	V_{CBO}	$I_C = -10\mu A, I_E = 0$	-80 -50 -30	V
Collector-emitter breakdown voltage	BC856 BC857 BC858	V_{CEO}	$I_C = -10mA, I_B = 0$	-65 -45 -30	V
Emitter-base breakdown voltage		V_{EBO}	$I_E = -1\mu A, I_C = 0$	-5	V
Collector cut-off current	BC856 BC857 BC858	I_{CBO}	$V_{CB} = -70V, I_E = 0$ $V_{CB} = -45V, I_E = 0$ $V_{CB} = -25V, I_E = 0$	-0.1	μA
Collector cut-off current	BC856 BC857 BC858	I_{CEO}	$V_{CE} = -60V, I_B = 0$ $V_{CE} = -40V, I_B = 0$ $V_{CE} = -25V, I_B = 0$	-0.1	μA
Emitter cut-off current		I_{EBO}	$V_{EB} = -5V, I_C = 0$	-0.1	μA
DC current gain	BC856 BC857 BC856A, 857A, 858A BC856B, 857B, 858B BC857C, BC858C	h_{FE}	$V_{CE} = -5V, I_C = -2mA$	125 125 125 220 420	475 800 250 475 800
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = -100mA, I_B = -5mA$	-0.5	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = -100mA, I_B = -5mA$	-1.1	V
Transition frequency		f_T	$V_{CE} = -5V, I_C = -10mA$ $f = 100MHz$	100	MHz
Collector capacitance		C_{ob}	$V_{CB} = -10V, f = 1MHz$	4.5	pF

RATING AND CHARACTERISTIC CURVES



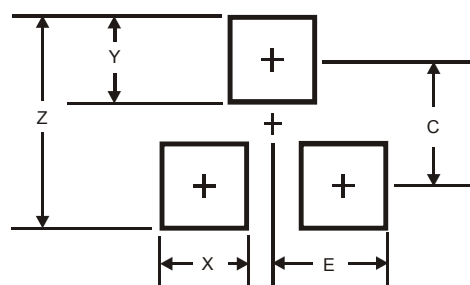
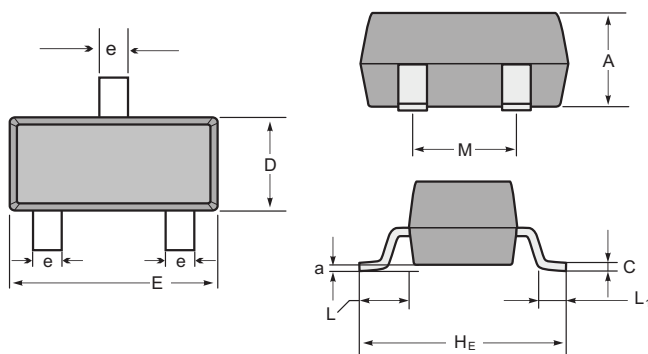
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_P)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C



Package Dimensions & Suggested Pad Layout

SOT23



SOT-23 mechanical data

UNIT		A	C	D	E	H _E	e	M	L	L ₁	a
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)	0.0
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7			0.15
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)	0.0
	min	35	3	47	110	87	12	67			6

Dimensions	SOT23
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

Tape & reel specification

Tape

Technical drawing of a tape component. The top view shows a rectangular tape with a central row of circular holes. Dimensions include: $P0$, $P2$, $P1$ (pitch dimensions); $\varnothing D0$, $\varnothing D1$ (hole diameters); E , F (vertical dimensions); W (width); and $A0$ (flange width). The side view, labeled 'SECTION : B-B', shows the profile of the tape with dimensions T (thickness), $B0$ (height), and $K0$ (flange height). A cross-section 'SECTION : A-A' shows the flange profile.

Symbol

Dimension (mm)

P0

4.00 ± 0.10

P1

4.00 ± 0.10

P2

2.00 ± 0.10

D0

1.55 ± 0.10

D1

1.05 ± 0.10

E

1.55 ± 0.10

F

3.60 ± 0.10

W

8.00 ± 0.10

A0

3.80 ± 0.20

B0

3.25 ± 0.20

K0

1.45 ± 0.10

T

0.25 ± 0.05

D2

178.0 ± 3.0

D3

55Min.

D4

$R24.0 \pm 3.0$

G

$R82.0 \pm 3.0$

I

13.0 ± 2.0

W1

11.0 ± 3.0

Quantity: 3000PCS

7" Reel

Technical drawing of a 7-inch reel. The top view shows a circular reel with a central hub and a rectangular label. Dimensions include: $D4$ (outer diameter), G (inner diameter), and I (hub diameter). The side view shows the reel's profile with dimensions $D3$ (height), $D2$ (width), and $W1$ (flange width).