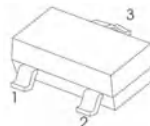




FEATURES

- Ideally suited for automatic insertion
- For switching and AF amplifier applications

SOT-23



1.BASE
2.EMITTER
3.COLLECTOR

1 x

Type number	Marking code
BC846A	1A
BC846B	1B
BC847A	1E
BC847B	1F
BC847C	1G
BC848A	1J
BC848B	1K
BC848C	1L

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Parameter		Symbol	Value	Unit
Collector–Base Voltage	BC846	V_{CBO}	80	V
	BC847		50	
	BC848		30	
Collector–Emitter Voltage	BC846	V_{CEO}	65	V
	BC847		45	
	BC848		30	
Emitter–Base Voltage		V_{EBO}	6	V
Collector Current — Continuous		I_C	0.1	A
Collector Power Dissipation		P_C	200	mW
Thermal Resistance From Junction To Ambient		R_{thJA}	625	°C/W
Junction Temperature		T_J	150	°C
Storage Temperature		T_{stg}	-55~+150	°C

ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage BC846 BC847 BC848	V_{CBO}	$I_C = 10\mu A, I_E = 0$	80 50 30			V
Collector-emitter breakdown voltage BC846 BC847 BC848	V_{CEO}	$I_C = 10mA, I_B = 0$	65 45 30			V
Emitter-base breakdown voltage	V_{EBO}	$I_E = 10\mu A, I_C = 0$	6			V
Collector cut-off current BC846 BC847 BC848	I_{CBO}	$V_{CB} = 70V, I_E = 0$ $V_{CB} = 50V, I_E = 0$ $V_{CB} = 30V, I_E = 0$			0.1	μA
Collector cut-off current BC846 BC847 BC848	I_{CEO}	$V_{CE} = 60V, I_B = 0$ $V_{CE} = 45V, I_B = 0$ $V_{CE} = 30V, I_B = 0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5V, I_C = 0$			0.1	μA
DC current gain BC846A,847A,848A BC846B,847B,848B BC847C,BC848C	h_{FE}	$V_{CE} = 5V, I_C = 2mA$	110 200 420		220 450 800	
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 output capacitance	C_{ob}	$V_{CB} = 10V, f = 1MHz$			4.5	pF

RATING AND CHARACTERISTIC CURVES

Fig.1 Static characteristics

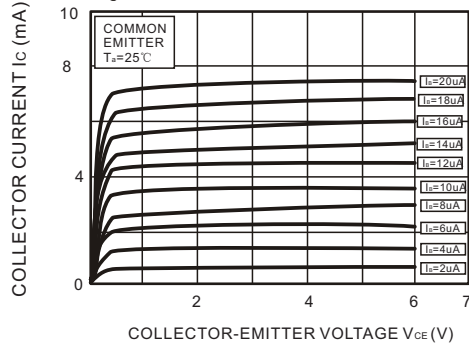


Fig.2 P_c — T_a

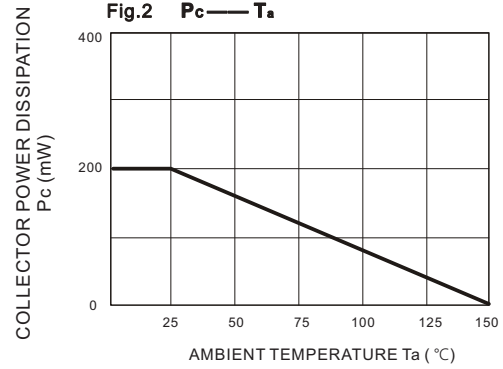


Fig.3 C_{ob}/C_{ib} — V_{CB}/V_{EB}

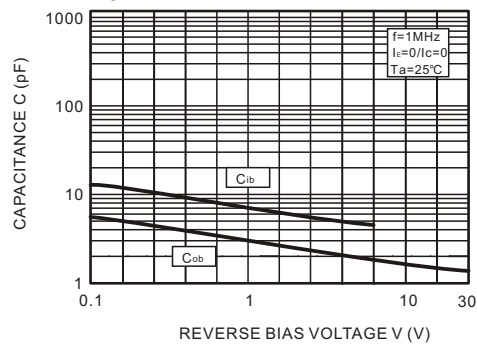


Fig.4 V_{CEsat} — I_c

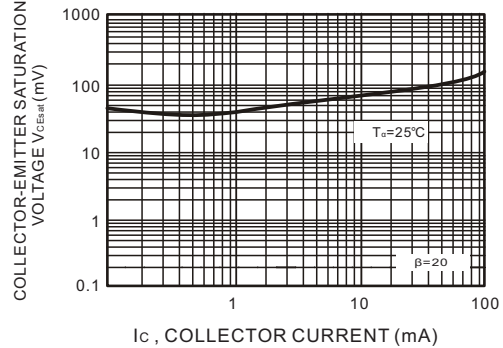


Fig.5 h_{FE} — I_c

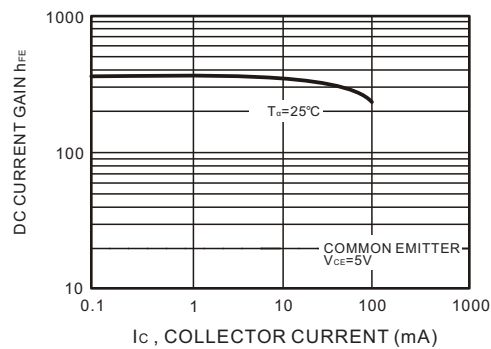


Fig.6 V_{BEsat} — I_c

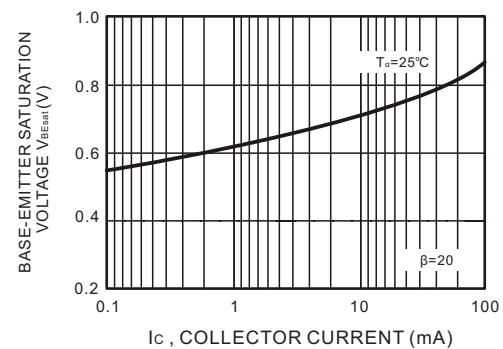


Fig.7 I_c — V_{BE}

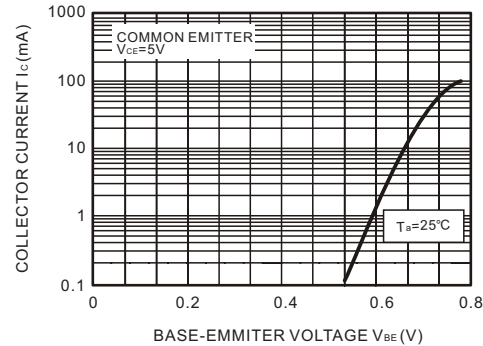
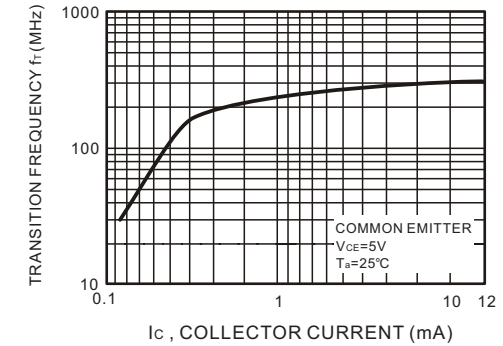
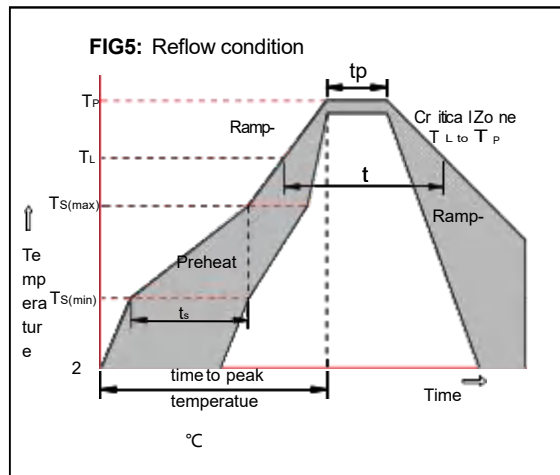


Fig.8 f_T — I_c



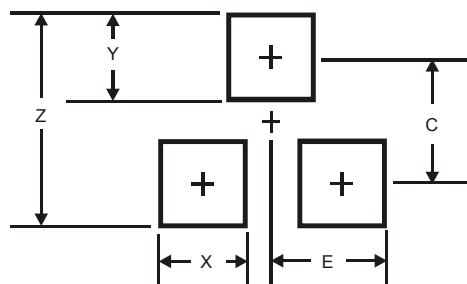
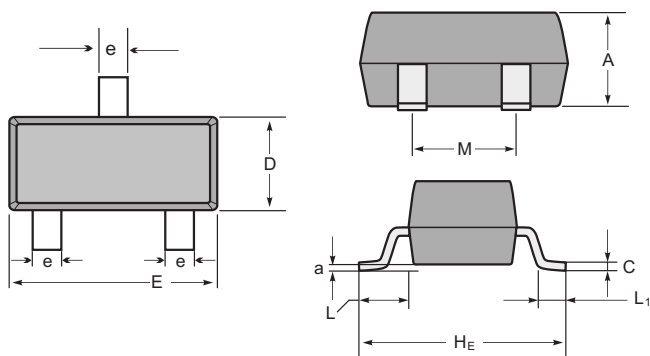
Soldering parameters

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)
	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)
	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 series of rectangular pads with circular vias. Dimensions include: $P0$, $P2$, $P1$ (pitch dimensions); $\varnothing D0$, $\varnothing D1$ (via diameters); E , F , W (width dimensions); and $A0$ (pad width). The side view, labeled 'SECTION : B-B', shows the profile of the tape with dimensions T (thickness), $B0$ (height), and $K0$ (width). A cross-section 'SECTION : A-A' shows the pad profile with dimension $A0$.

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±3.0
G	R82.0±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 four mounting holes. Dimensions include: $D4$ (hole diameter), G (hole position), and I (hole diameter). The side view shows the reel profile with dimensions $D3$ (height), $D2$ (width), and $W1$ (flange width).