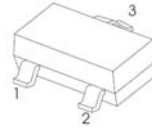




## FEATURES

- 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)

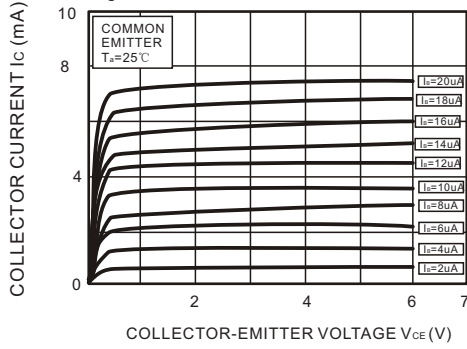
Parameter		Symbol	Value	Unit
Collector–Base Voltage	BC846	$V_{CBO}$	80	V
	BC847		50	
	BC848		30	
Collector–Emitter Voltage	BC846	$V_{CEO}$	65	V
	BC847		45	
	BC848		30	
Emitter–Base Voltage		$V_{EBO}$	6	V
Collector Current — Continuous		$I_C$	0.1	A
Collector Power Dissipation		$P_C$	200	mW
Thermal Resistance 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.)

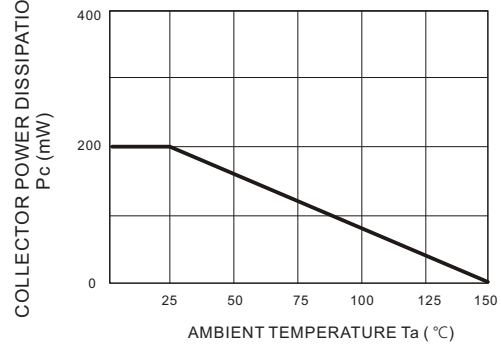
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage BC846 BC847 BC848	$V_{CBO}$	$I_C = 10\mu A, I_E = 0$	80 50 30			V
Collector-emitter breakdown voltage BC846 BC847 BC848	$V_{CEO}$	$I_C = 10mA, I_B = 0$	65 45 30			V
Emitter-base breakdown voltage	$V_{EBO}$	$I_E = 10\mu A, I_C = 0$	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	$\mu A$
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	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 5V, I_C = 0$			0.1	$\mu A$
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**

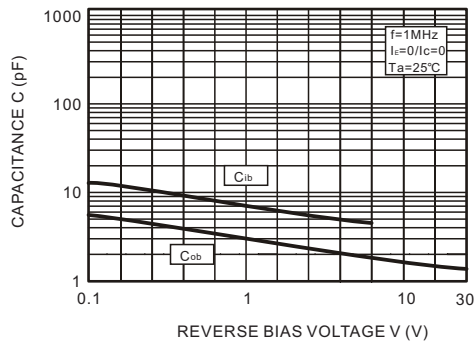
**Fig.1 Static characteristics**



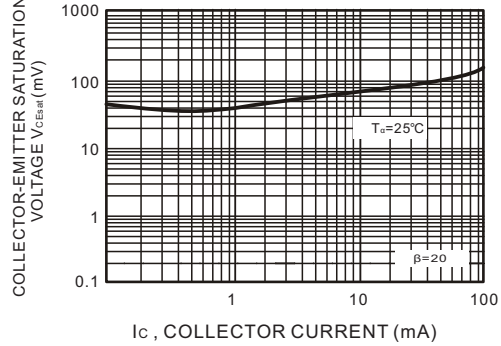
**Fig.2 Pc — Ta**



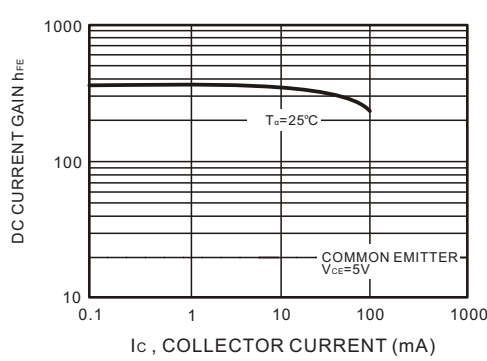
**Fig.3 Cob / C1b — VCB / VEB**



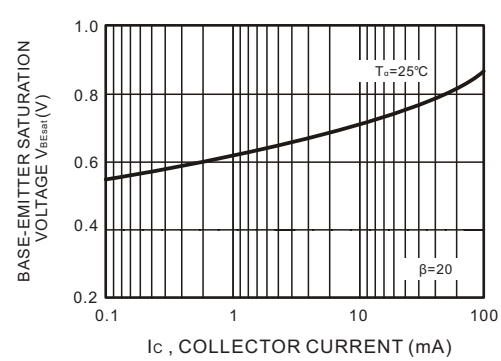
**Fig.4 VCEsat — Ic**



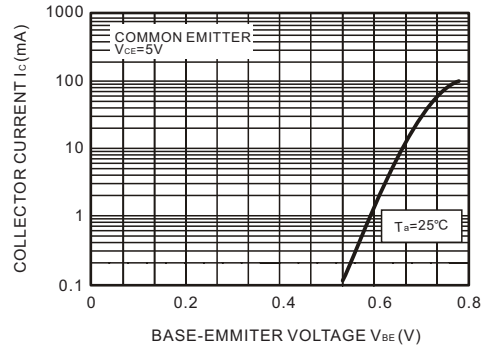
**Fig.5 hFE — Ic**



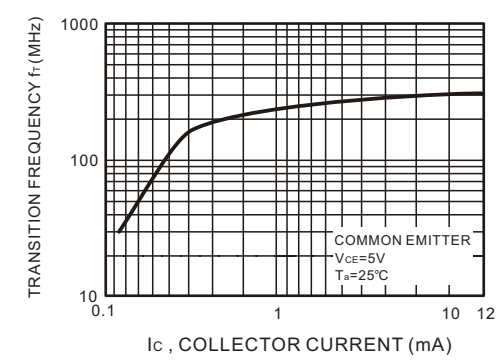
**Fig.6 VBEsat — Ic**



**Fig.7 Ic — VBE**

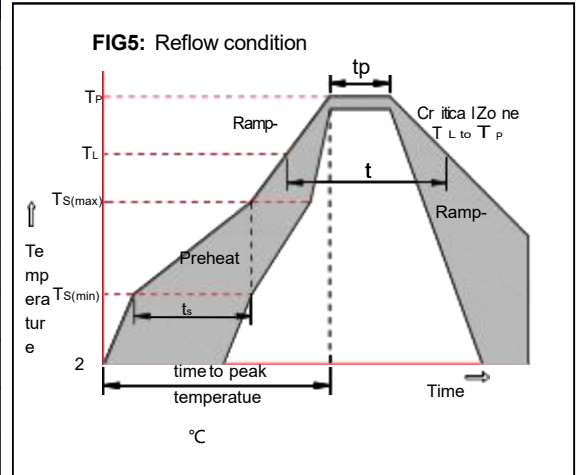


**Fig.8 fr — Ic**



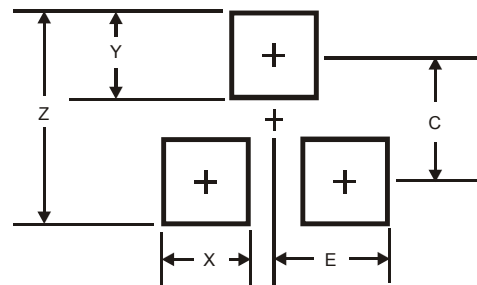
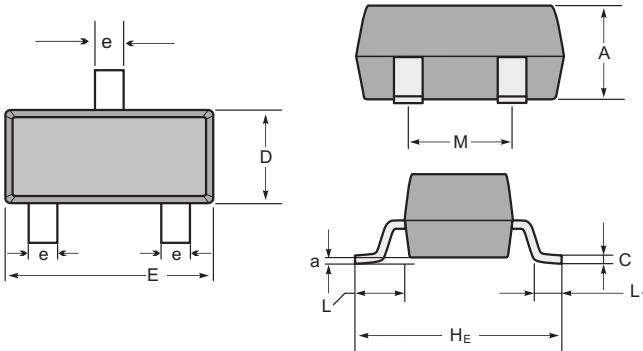
**Soldering parameters**

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**



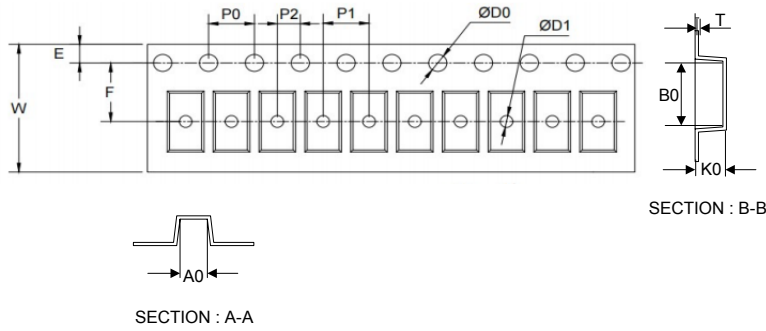
**SOT-23 mechanical data**

UNIT	A	C	D	E	He	e	M	L	L1	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



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

7" Reel



Quantity: 3000PCS