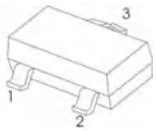
BC846/BC847/BC848
NPN TRANSISTOR

SOT-23



1.BASE
2.EMITTER
3.COLLECTOR

FEATURES

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

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℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Collector–Base Voltage	BC846 BC847 BC848	V_{CBO}	80 50 30	V
Collector–Emitter Voltage	BC846 BC847 BC848	V_{CEO}	65 45 30	V
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 JunctionTo Ambient		R_{thJA}	625	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{stg}	-55~+150	℃

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 =10uA, 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 =10uA, 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	uA
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	uA
Emitter cut-off current		I_{EBO}	V_{EB} =5V, I_C = 0			0.1	uA
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

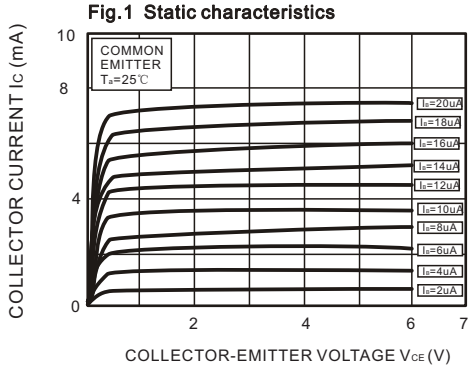


Fig.2 P_C —— T_a

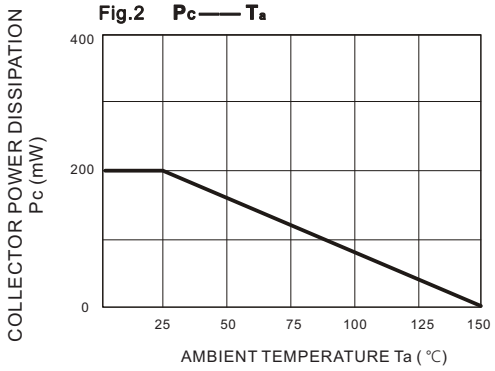


Fig.3 C_{ob} / C_{ib} —— V_{CB} / V_{EB}

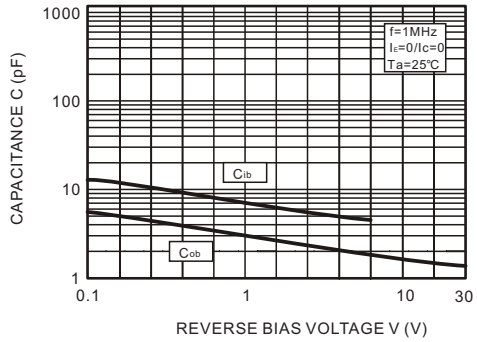


Fig.4 V_{CEsat} —— Ic

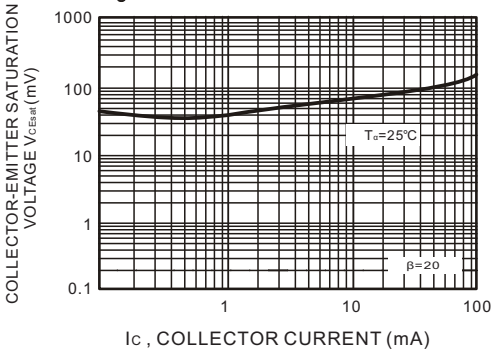


Fig.5 h_{FE}--Ic

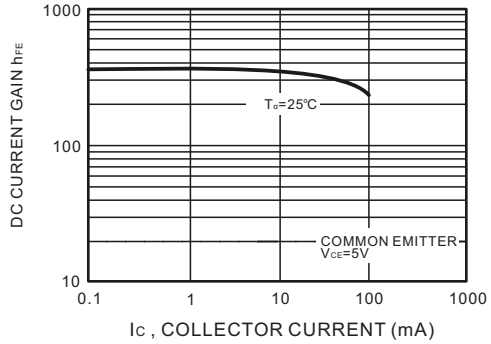


Fig.6 V_{BEsat} —— Ic

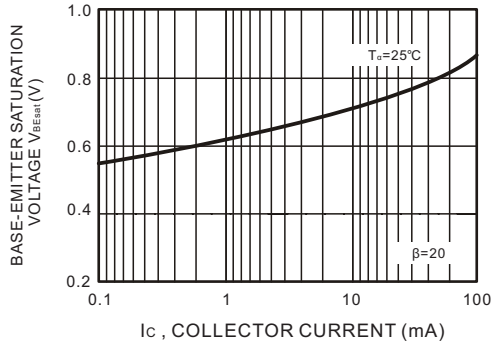


Fig.7 Ic —— V_{BE}

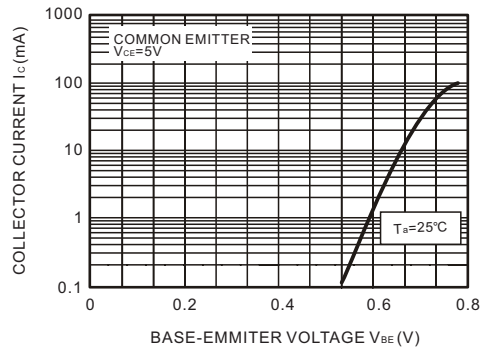
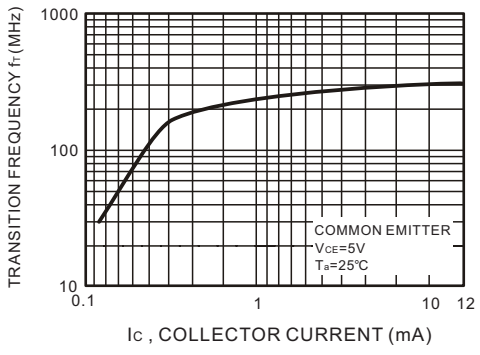


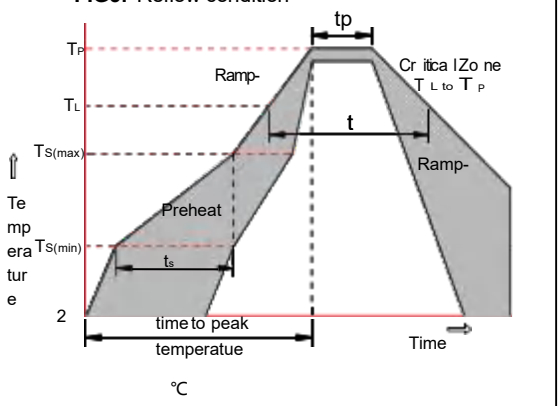
Fig.8 f_T ——Ic



Soldering parameters

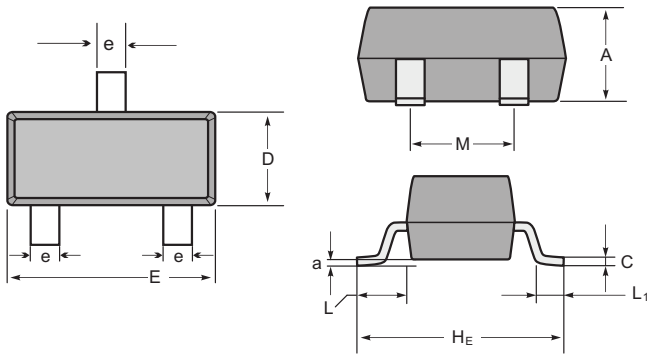
Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid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

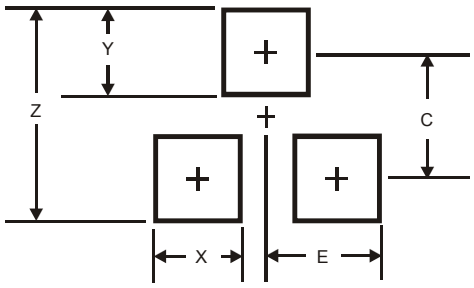
FIG5: Reflow condition



Package Dimensions & Suggested Pad Layout

SOT23





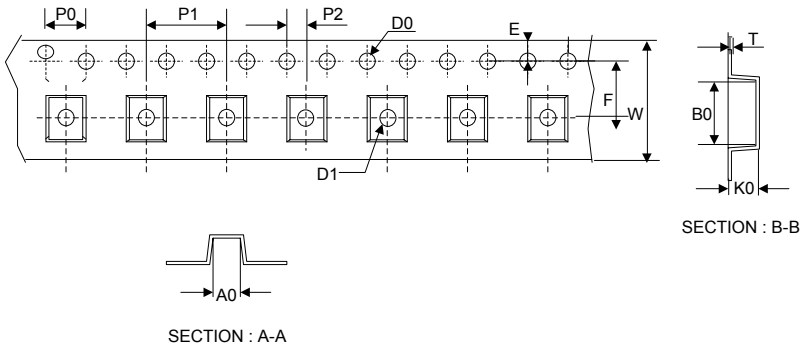
SOT-23 mechanical data

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

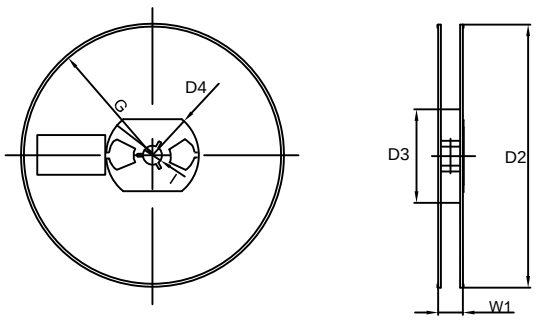
Tape & rell specification

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

7” Reel



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