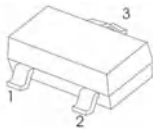
BC817
NPN TRANSISTOR

SOT-23



1.BASE
2.EMITTER
3.COLLECTOR

FEATURES

- For general AF applications
- Low collector-emitter saturation voltage
- Complementary types: BC807(PNP)

Classification of h_{FE}

Type	BC817-16	BC817-25	BC817-40
Range	100-250	160-400	250-630
Marking	6A	6B	6C

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

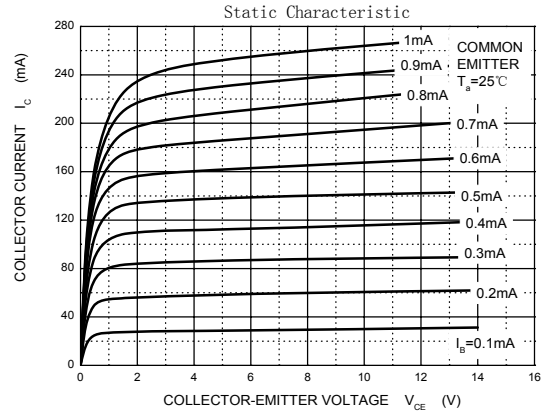
Absolute Maximum Ratings Ta = 25℃

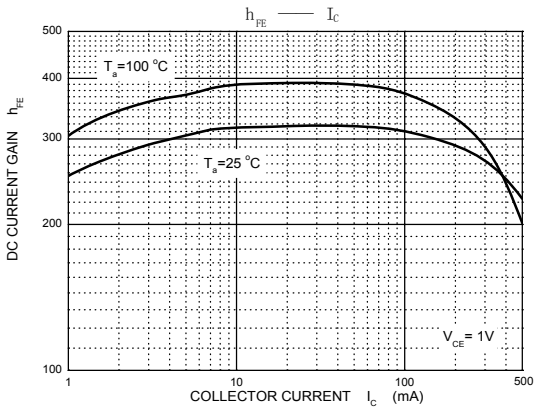
Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	50	V
Collector - Emitter Voltage	V_{CEO}	45	
Emitter - Base Voltage	V_{EBO}	5	
Collector Current - Continuous	I_C	0.5	A
Collector Power Dissipation	P_C	0.3	W
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	-55 to 150	

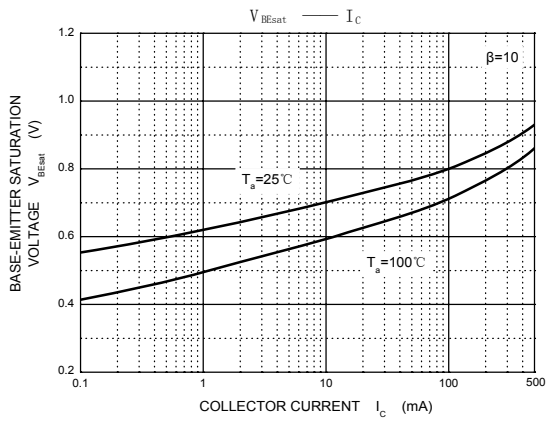
Characteristics (T_a = 25°C)

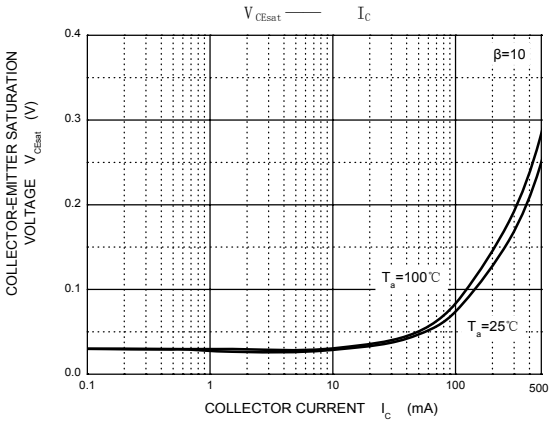
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	I_C= 100 μA， I_E= 0	50			V
Collector- emitter breakdown voltage	V_{CEO}	I_C= 10 mA， I_B= 0	45			
Emitter - base breakdown voltage	V_{EBO}	I_E= 100 μA， I_C= 0	5			
Collector-base cut-off current	I_{CBO}	V_{CB}= 45 V , I_E= 0			0.1	uA
Emitter cut-off current	I_{EBO}	V_{EB}= 4V , I_C=0			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=500 mA, I_B=50mA			0.7	V
Base - emitter saturation voltage	$V_{BE(sat)}$	I_C= 500 mA, I_B= 50mA			1.2	
Base - emitter voltage	V_{BE}	V_{CE}= 1V, I_C= 500mA			1.2	
DC current gain	$h_{FE(1)}$	V_{CE}= 1V, I_C= 100mA	100		630	
	$h_{FE(2)}$	V_{CE}= 1V, I_C= 500mA	40			
Collector output capacitance	C_{ob}	V_{CB}= 10V, f=1MHz		10		pF
Transition frequency	f_T	V_{CE}= 5V, I_C= 10mA,f=100MHz	100			MHz

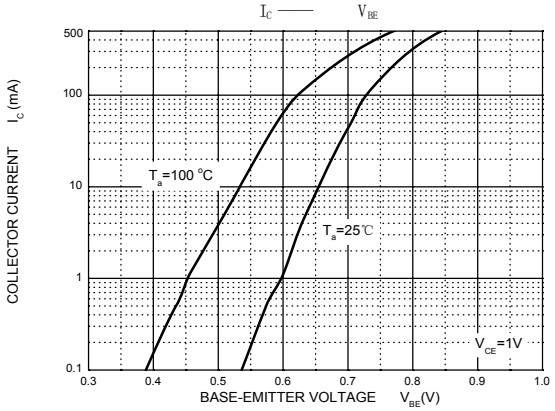
RATING AND CHARACTERISTIC CURVES

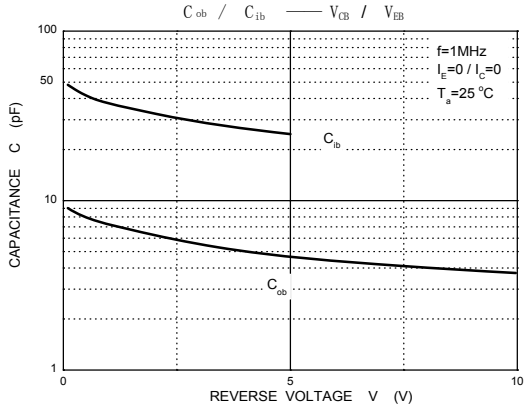


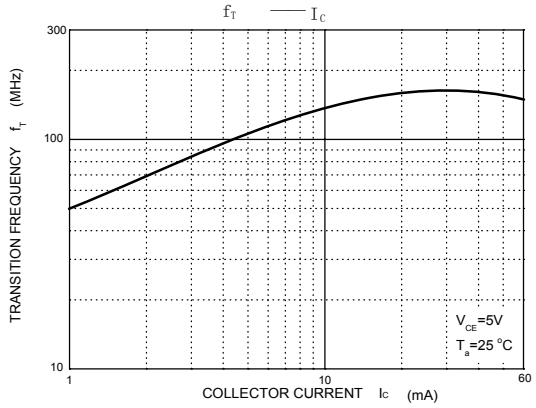


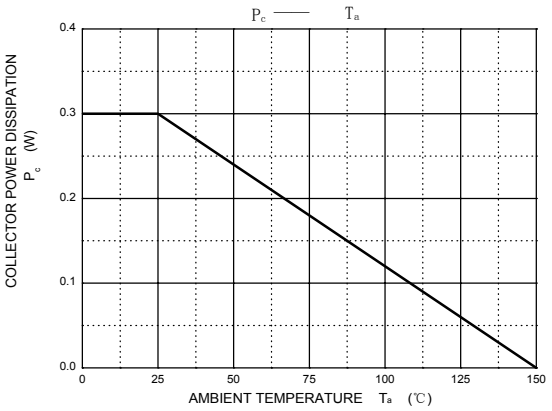








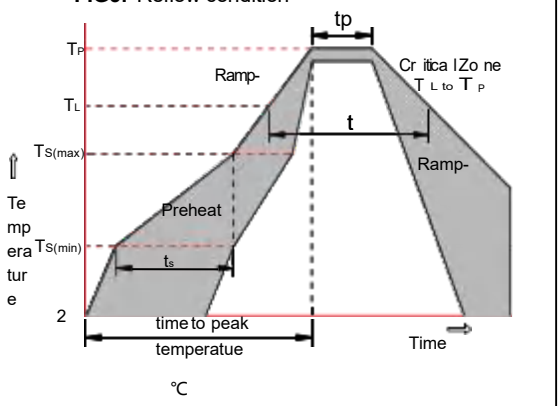




Soldering parameters

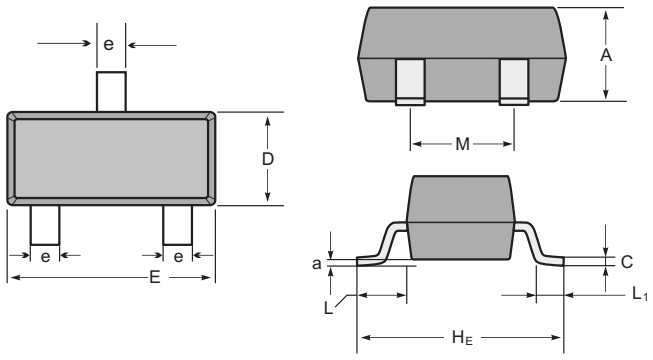
Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid 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℃

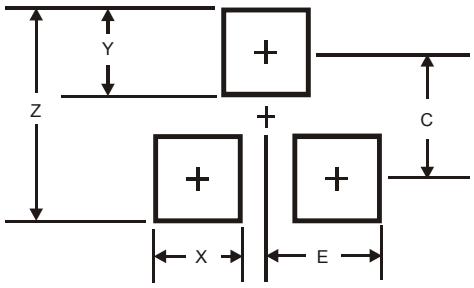
FIG5: Reflow condition



Package Dimensions & Suggested Pad Layout

SOT23





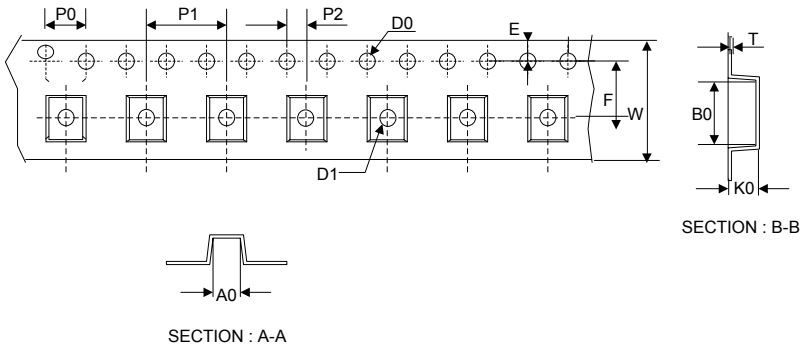
SOT-23 mechanical data

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

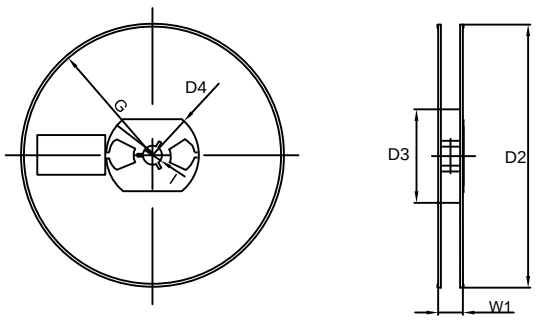
Tape & rell specification

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