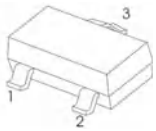
MMBTA92
PNP TRANSISTOR

SOT-23



1.BASE
2.EMITTER
3.COLLECTOR

FEATURES

- High breakdown voltage
- Low collector-emitter saturation voltag
- Complementary to MMBTA42

Marking

Type number	Marking code
MMBTA92	2D

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

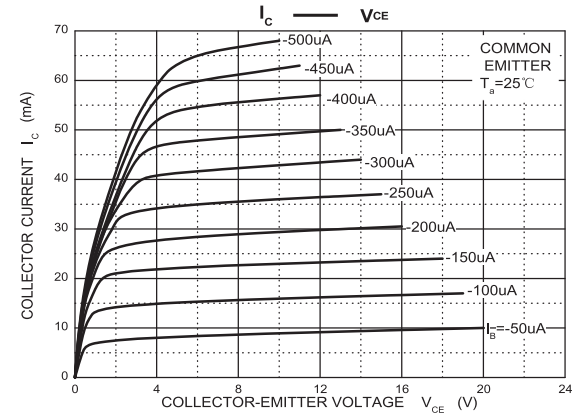
MAXIMUM RATINGS (Ta=25℃ unless otherwise noted)

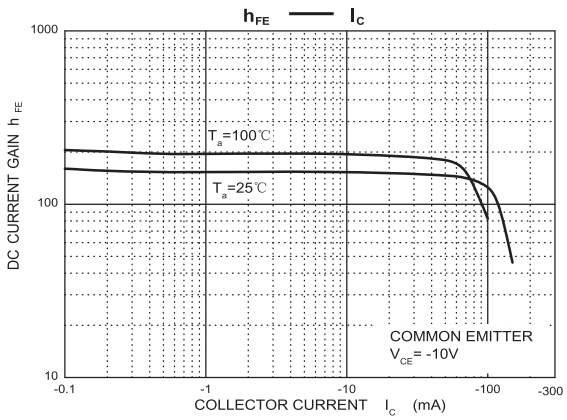
Parameter	Symbol	Value	Unit
Collector–Base Voltage	V_{CBO}	-300	V
Collector–Emitter Voltage	V_{CEO}	-300	V
Emitter–Base Voltage	V_{EBO}	-5	V
Collector Current — Continuous	I_C	-0.2	A
Collector Current-Peak	I_{CM}	-0.5	A
Collector Power Dissipation	P_C	0.3	W
Thermal Resistance, junction to Ambient	R_{thJA}	357	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{stg}	-55~+150	℃

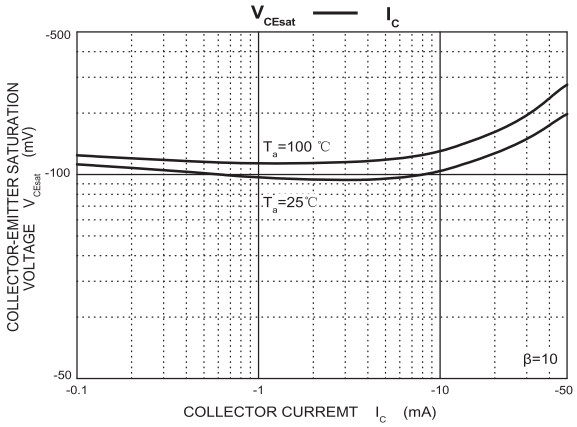
ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)

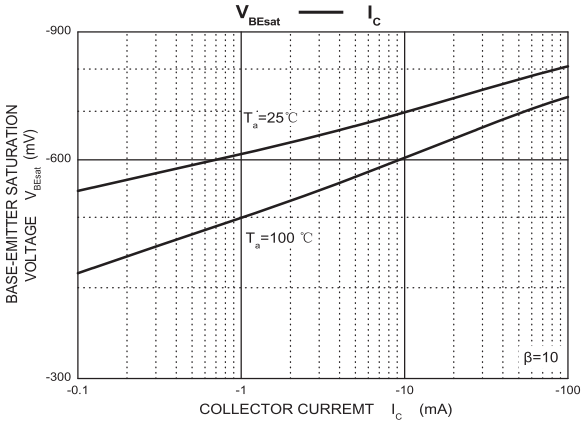
Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C= -100μA, I_E=0	-300		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C= -1mA, I_B=0	-300		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E= -100μA, I_C=0	-5		V
Collector cut-off current	I_{CBO}	V_{CB}=-200V, I_E=0		-0.25	μA
Emitter cut-off current	I_{EBO}	V_{EB}= -5V, I_C=0		-0.1	μA
DC current gain	$h_{FE(1)}$	V_{CE}= -10V, I_C= -1mA	60		
	$h_{FE(2)}$	V_{CE}= -10V, I_C=-10mA	100	200	
	$h_{FE(3)}$	V_{CE}= -10V, I_C=-30mA	60		
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=-20mA, I_B= -2mA		-0.2	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C= -20mA, I_B= -2mA		-0.9	V
Transition frequency	f_T	V_{CE}=-20V, I_C= -10mA f=30MHz	50		MHz

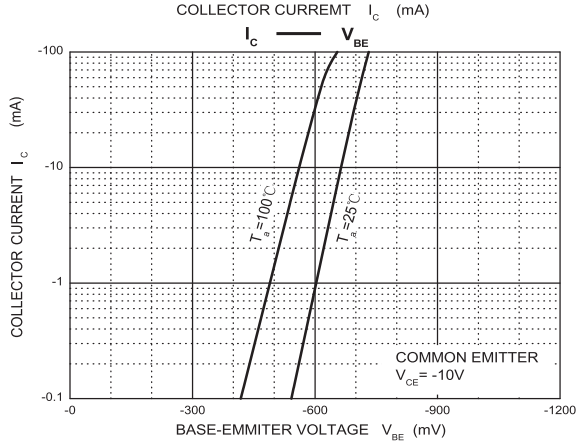
RATING AND CHARACTERISTIC CURVES

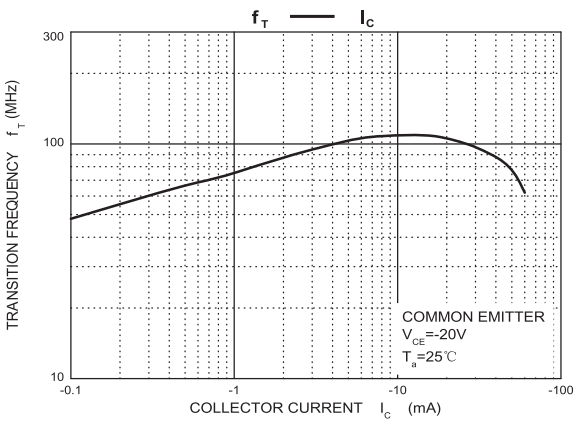


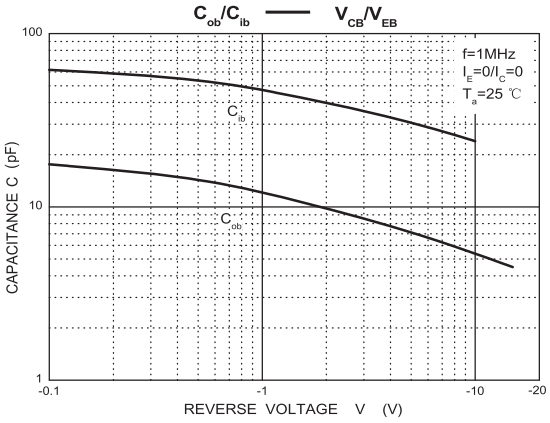


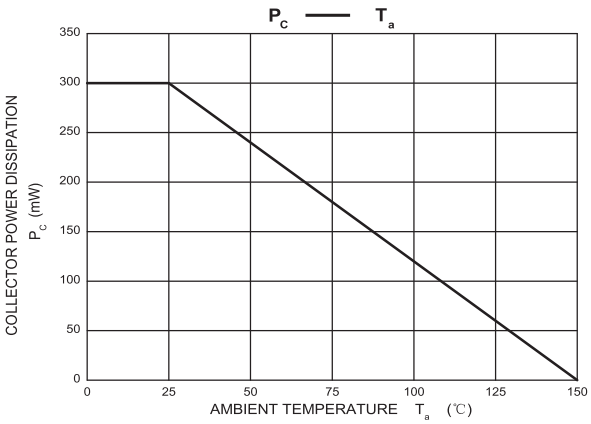








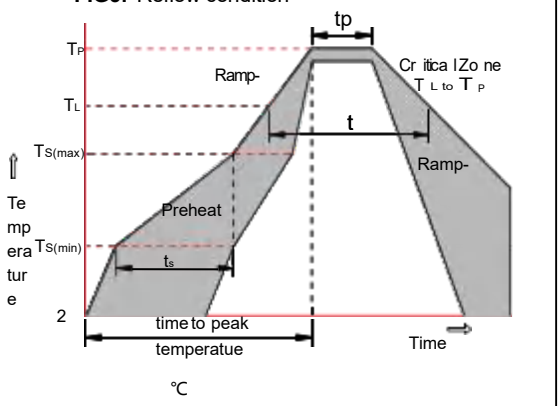




Soldering parameters

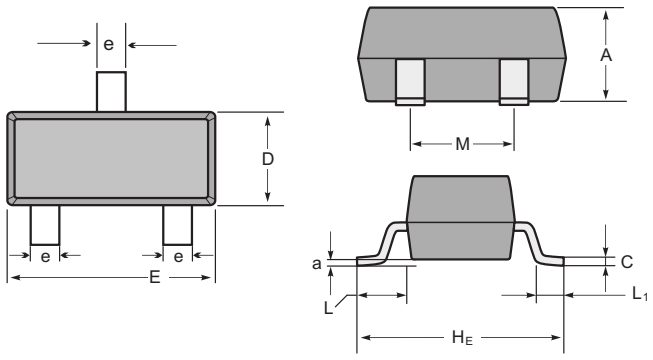
Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid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

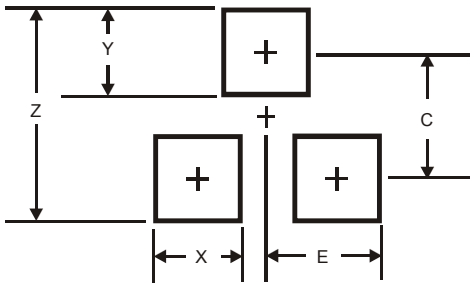
FIG5: Reflow condition



Package Dimensions & Suggested Pad Layout

SOT23





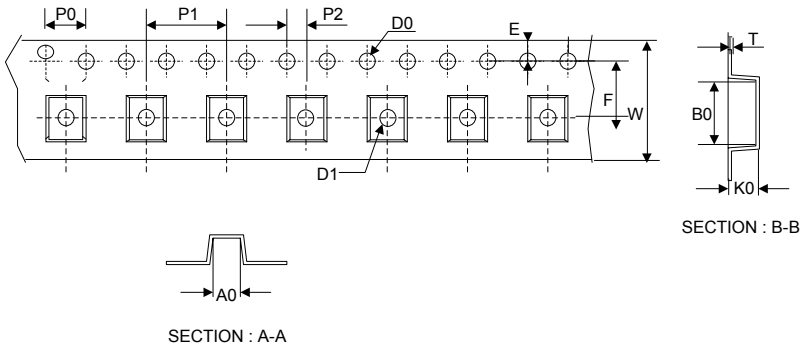
SOT-23 mechanical data

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

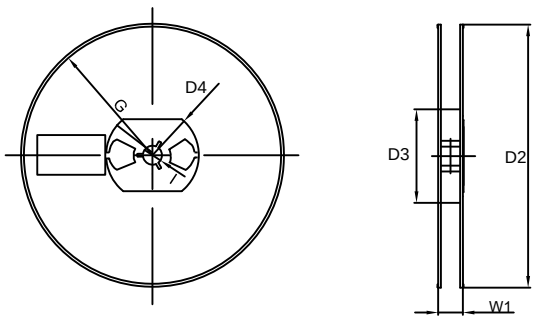
Tape & rell specification

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