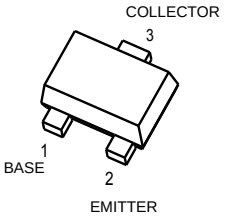
FEATURES

Complementary to MMBT3904M

Small Package



SOT-723

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

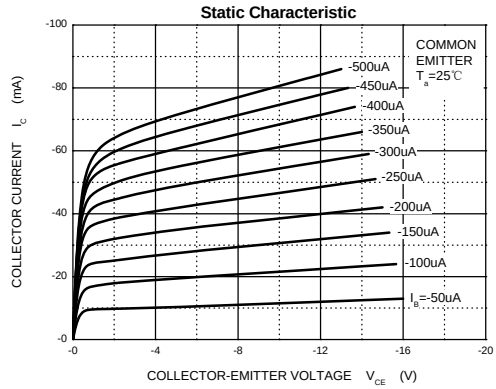
MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

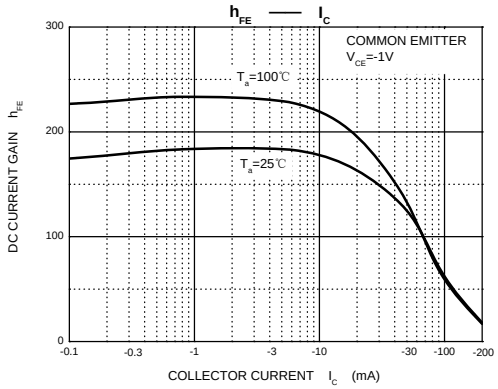
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	-40	V
V_{CEO}	Collector-Emitter Voltage	-40	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current -Continuous	-0.2	A
P_C	Power Dissipation	100	mW
$R_{\Theta JA}$	Thermal Resistance from Junction to Ambient	1250	℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	℃

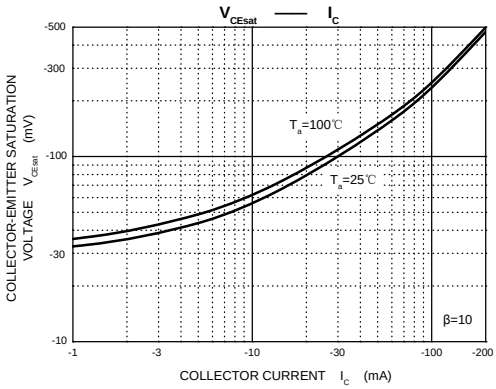
ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)

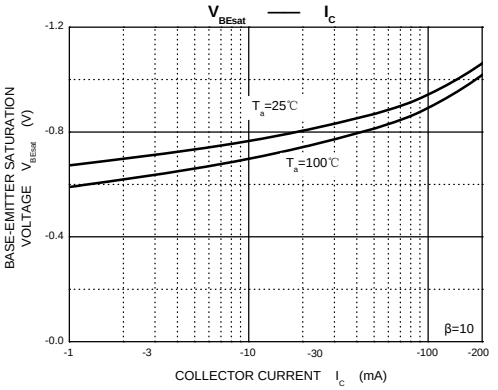
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=-10μA,I_E=0	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=-1mA,I_B=0	-40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=-10μA,I_C=0	-5			V
Collector cut-off current	I_{CBO}	V_{CB}=-40V,I_E=0			-100	nA
Collector cut-off current	I_{CEX}	V_{CE}=-30V,$V_{EB(off)}$=-3V			-50	nA
Emitter cut-off current	I_{EBO}	V_{EB}=-5V,I_C=0			-100	nA
DC current gain	$h_{FE(1)}$	V_{CE}=-1V,I_C=-10mA	100		300	
	$h_{FE(2)}$	V_{CE}=-1V,I_C=-50mA	60			
	$h_{FE(3)}$	V_{CE}=-2V,I_C=-100mA	30			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=-50mA,I_B=-5mA			-0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=-50mA,I_B=-5mA			-0.95	V
Transition frequency	f_T	V_{CE}=-20V,I_C=-10mA,f=100MHz	300			MHz
Delay time	t_d	V_{CC}=-3V,$V_{BE(off)}$=-0.5V, I_C=-10mA, I_{B1}=I_{B2}=-1mA			35	ns
Rise time	t_r				35	ns
Storage time	t_s	V_{CC}=-3V,I_C=-10mA I_{B1}=I_{B2}=-1mA			225	ns
Fall time	t_f				75	ns

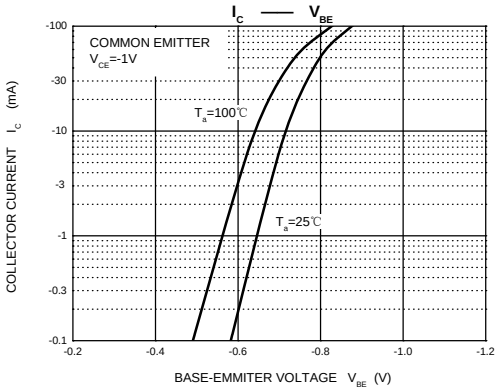
RATING AND CHARACTERISTIC CURVES

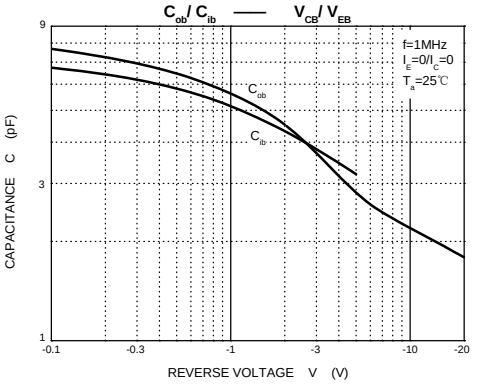


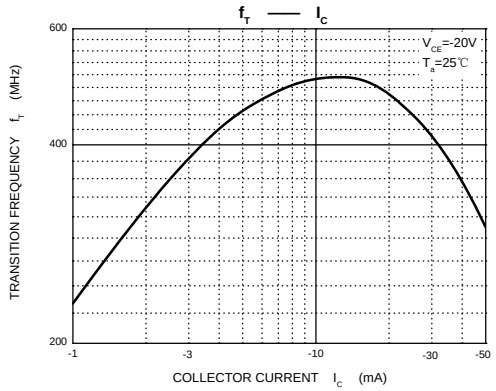


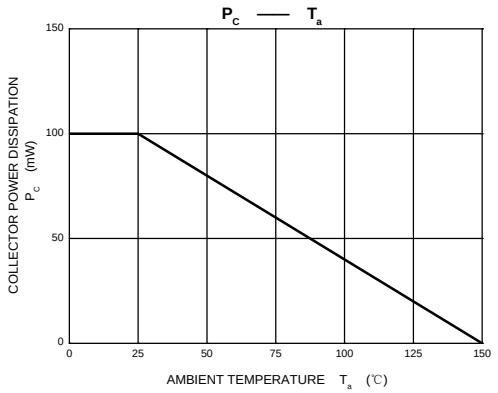








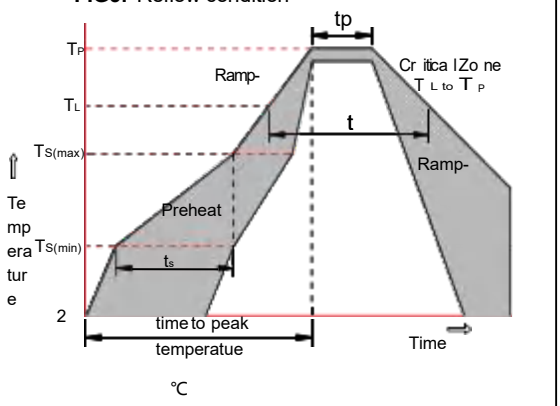




Soldering parameters

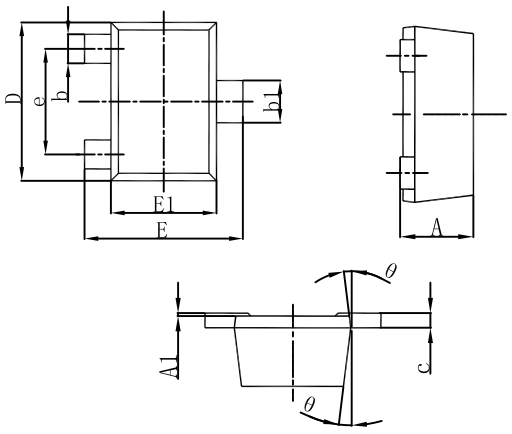
Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid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

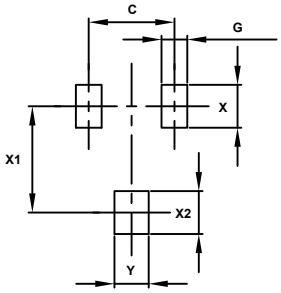


Package Dimensions & Suggested Pad Layout

SOT-723 Package Outline Dimensions



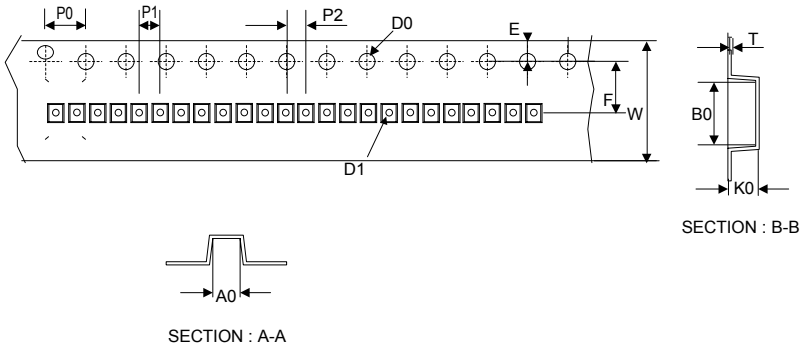
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.430	0.500	0.017	0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	0.080	0.150	0.003	0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800TYP.		0.031TYP.	
θ	7° REF.		7° REF.	



Dimensions	Value (in mm)
C	0.80
G	0.35
X	0.40
X1	1.00
X2	0.40
Y	0.45

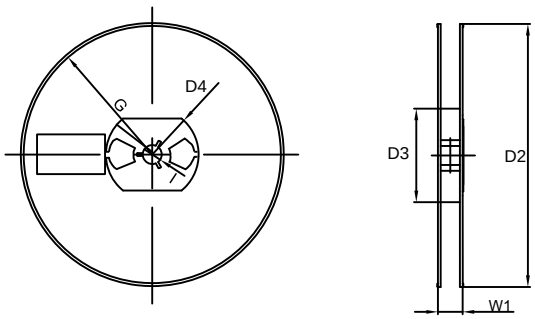
Tape & rell specification

Tape



Symbol	Dimension (mm)
P0	4.00±0.20
P1	2.00±0.20
P2	2.00±0.20
D0	1.55±0.20
D1	0.65±0.20
E	1.55±0.25
F	3.60±0.20
W	8.00±0.20
A0	1.65±0.20
B0	1.75±0.20
K0	0.85±0.20
T	0.20±0.20

7" Reel



D2	177.0±5.0
D3	55Min.
D4	R24.6±2.0
G	R82.0±2.0
I	13.0±2.0
W1	10.20±3.0

Quantity: 8000PCS