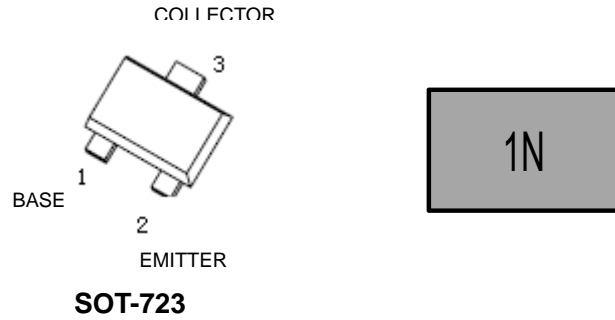




## FEATURES

Complementary to MMBT3906M

Small Package



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

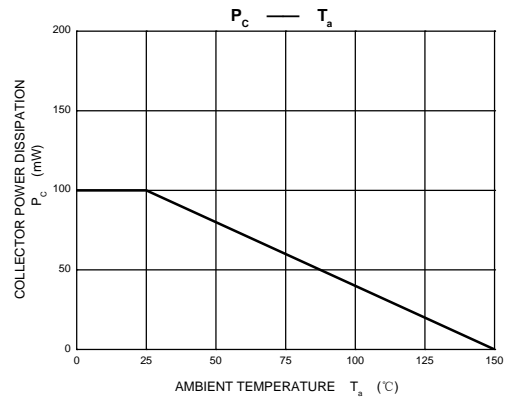
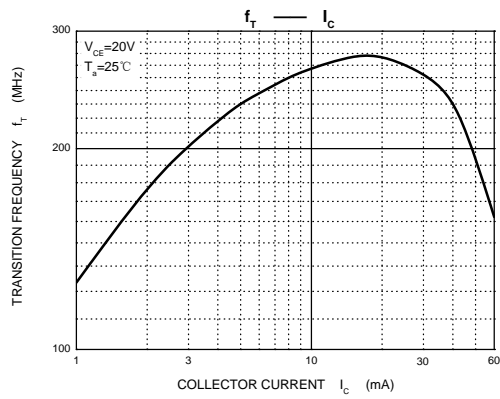
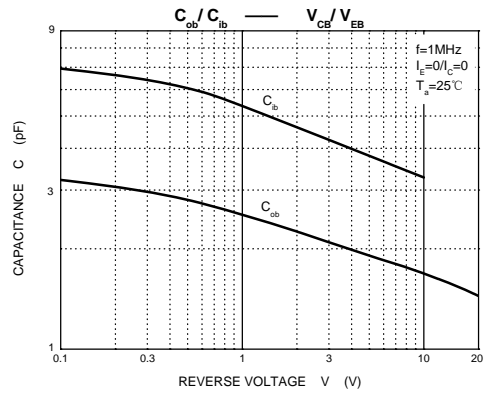
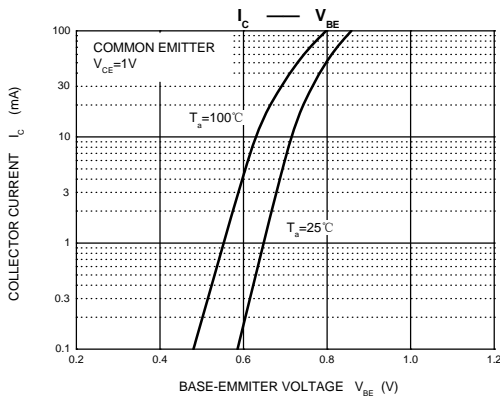
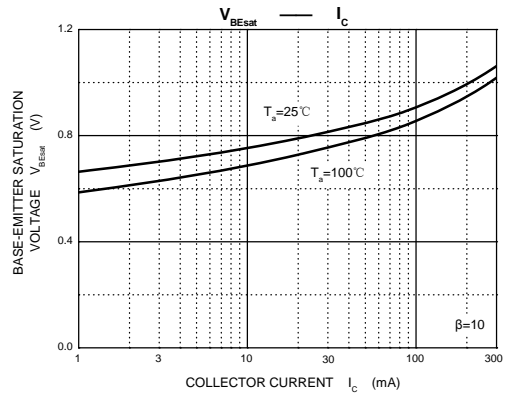
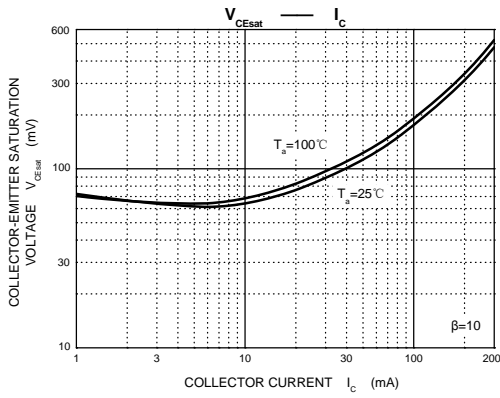
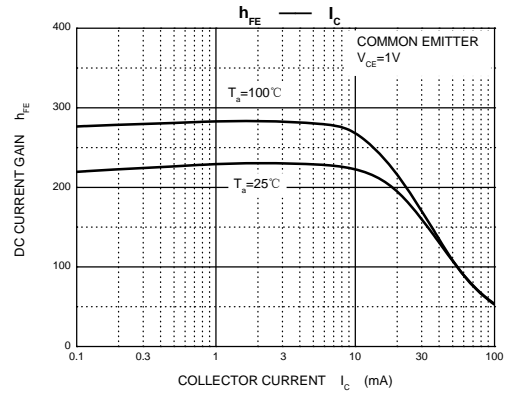
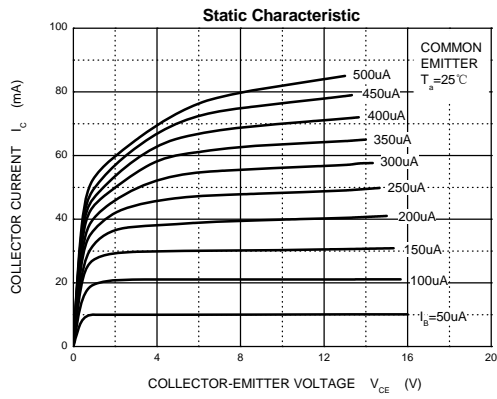
MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	60	V
V <sub>CE0</sub>	Collector-Emitter Voltage	40	V
V <sub>EB0</sub>	Emitter-Base Voltage	6	V
I <sub>c</sub>	Collector Current -Continuous	0.2	A
P <sub>c</sub>	Power Dissipation	0.1	W
R <sub>θJA</sub>	Thermal Resistance from Junction to Ambient	1250	°C/W
T <sub>J</sub> , T <sub>stg</sub>	Operation Junction and Storage Temperature Range	-55~+150	°C

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	6			V
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	$h_{FE(1)}$	$V_{CE}=1V, I_C=0.1mA$	40			
	$h_{FE(2)}$	$V_{CE}=1V, I_C=1mA$	70			
	$h_{FE(3)}$	$V_{CE}=1V, I_C=10mA$	100		300	
	$h_{FE(4)}$	$V_{CE}=1V, I_C=50mA$	60			
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=10mA, I_B=1mA$			0.2	V
	$V_{CE(sat)2}$	$I_C=50mA, I_B=5mA$			0.3	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C=10mA, I_B=1mA$	0.65		0.85	V
	$V_{BE(sat)2}$	$I_C=50mA, I_B=5mA$			0.95	V
Transition frequency	$f_T$	$V_{CE}=20V, I_C=10mA, f=100MHz$	300			MHz
Output capacitance	$C_{ob}$	$V_{CB}=5V, I_E=0, f=1MHz$			4	pF
Input capacitance	$C_{ib}$	$V_{EB}=0.5V, I_C=0, f=1MHz$			8	pF
Noise figure	NF	$V_{CE}=5V, I_C=0.1mA, f=1MHz, R_S=1k\Omega$			5	dB
Delay time	$t_d$	$V_{CC}=3V, V_{BE(off)}=-0.5V, I_C=10mA, I_{B1}=1mA$			35	ns
Rise time	$t_r$				35	ns
Storage time	$t_s$	$V_{CC}=3V, I_C=10mA, I_{B1}=I_{B2}=1mA$			200	ns
Fall time	$t_f$				50	ns

**RATING AND CHARACTERISTIC CURVES**



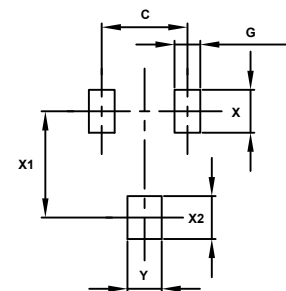
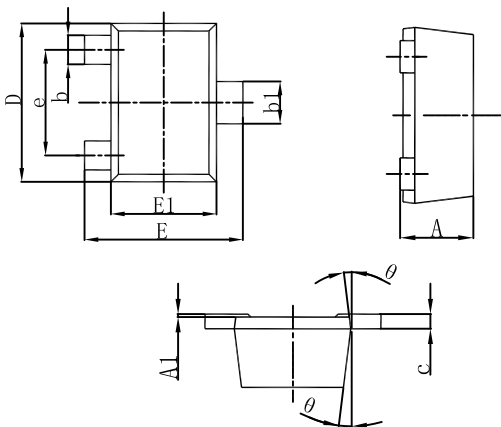
Soldering parameters

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

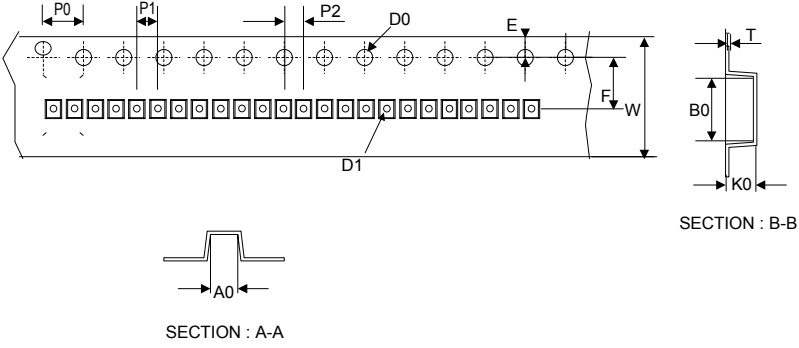
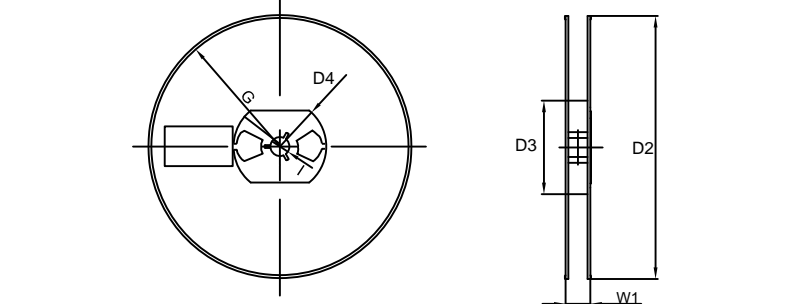
SOT-723 Package Outline Dimensions



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 & reel 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	
	<p><b>7" Reel</b></p> 	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: 3000PCS			