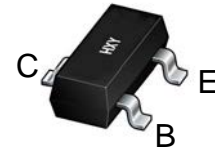




### Features

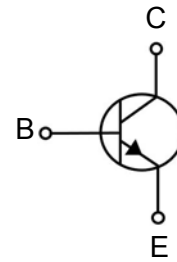
- Collector Current:  $I_C=0.2A$
- Power Dissipation of 150mw



SOT-523

### Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MMBT3904T	SOT-523	1N	3000



### Maxmim Ratings (Ta=25 unless otherwise noted)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	$V_{CBO}$	60	V
Collector-Emitter Voltage	$V_{CEO}$	40	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current	$I_C$	200	mA
Collector Power Dissipation	$P_C$	150	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	833	$^{\circ}CW$
Junction Temperature	$T_j$	150	$^{\circ}C$
Storage Temperature	$T_{stg}$	-55~+150	$^{\circ}C$

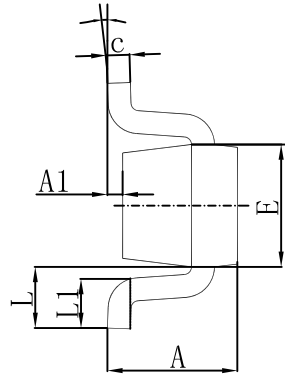
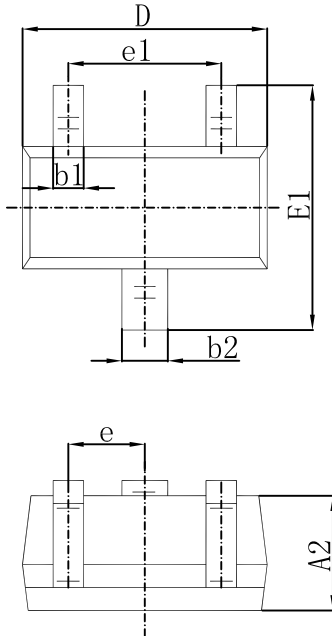


**Electrcal Charcteristics (Ta=25 unless otherwise specified)**

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	$V_{CE(sat)}$	$I_C=10mA, I_B=1mA$			0.2	V
		$I_C=50mA, I_B=5mA$			0.3	V
Collector-emitter saturation voltage	$V_{BE(sat)}$	$I_C=10mA, I_B=1mA$	0.65		0.85	V
		$I_C=50mA, I_B=5mA$			0.95	V
Transition frequency	$f_T$	$V_{CE}=20V, I_C=10mA, f=100MHz$	300			MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=5V, I_E=0, f=1MHz$			4	pF
Base input capacitance	$C_{ib}$	$V_{EB}=0.5V, I_C=0, f=1MHz$			8	pF
Delay time	$t_d$	$V_{CC}=3V, V_{BE(off)}=-0.5V, I_C=10mA, I_{B1}=1mA$			35	ns
Rise time	$t_r$	$V_{CC}=3V, V_{BE(off)}=-0.5V, I_C=10mA, I_{B1}=1mA$			35	ns
Storage time	$t_s$	$V_{CC}=3V, I_C=10mA, I_{B1}=I_{B2}=1mA$			200	ns
Fall time	$t_f$	$V_{CC}=3V, I_C=10mA, I_{B1}=I_{B2}=1mA$			50	ns

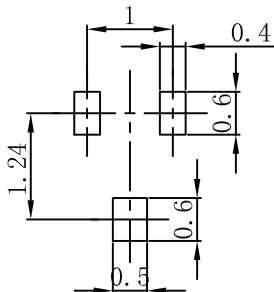


### SOT-523 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

### SOT-523 Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
  2. General tolerance:  $\pm 0.05\text{mm}$ .
  3. The pad layout is for reference purposes only.



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