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SEMICONDUCTOR



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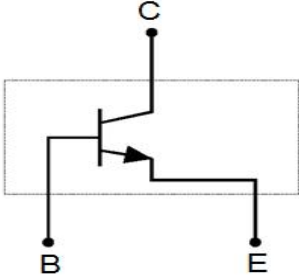

MMBT3904M

Product specification

General Features

- Capable of 200 mWatts of Power Dissipation and 200mA Ic
- Operating and Storage Junction Temperatures: -55°C to 150°C
- Small Outline Surface Mount Package
- RoHS compliant / Green EMC

Reference News

PACKAGE OUTLINE	Foot position analysis	Marking
 <p>SOT-723</p>		

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

Symbol	Parameter	Value	Unit
VCBO	Collector-Base Voltage	60	V
VCEO	Collector-Emitter Voltage	40	V
VEBO	Emitter-Base Voltage	6	V
IC	Collector Current	200	mA
PC	Collector Power Dissipation	100	mW
Rθ JA	Thermal Resistance From Junction To Ambient	1250	°C/W
Tj	Junction Temperature	150	°C
Tstg	Storage Temperature	-55~+150	°C

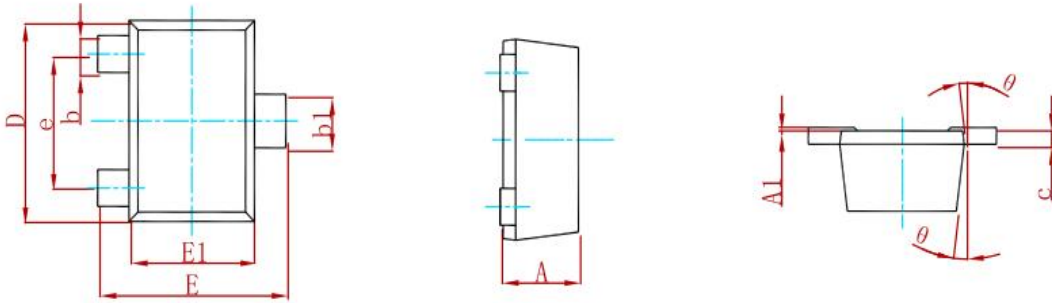
ELECTRICAL CHARACTERISTICS @ 25°C Unless Otherwise Specified

Symbol	Parameter	Test Conditions	Min	Max	Units
VCEO	Collector-Emitter Breakdown Voltage	IC=1.0mA, IB=0	40		V
VCBO	Collector-Base Breakdown Voltage	IC=10μA, IE=0	60		V
VEBO	Emitter-Base Breakdown Voltage	IE=10μA, IC=0	6		V
ICBO	Collector Cutoff Current	VCB=30V, IE=0		100	nA
ICEX	Collector Cutoff Current	VCE=30V, VEB(OFF)=3.0V		50	nA
IEBO	Collector Cutoff Current	VEB=5V, IC=0		100	nA
hFE(1)	DC Current Gain	IC=0.1mA, VCE=1V	40		
hFE(2)	DC Current Gain	IC=1mA, VCE=1V	70		
hFE(3)	DC Current Gain	IC=10mA, VCE=1V	100	300	
hFE(4)	DC Current Gain	IC=50mA, VCE=1V	60		
VCE(sat)1	Collector-Emitter Saturation Voltage	IC=10mA, IB=1 mA		0.2	V
VCE(sat)2	Collector-Emitter Saturation Voltage	IC=50mA, IB=5 mA		0.3	V
VBE(sat)1	Base-Emitter Saturation Voltage	IC=10mA, IB=1 mA	0.65	0.85	V
VBE(sat)2	Base-Emitter Saturation Voltage	IC=50mA, IB=5.0 mA		0.95	V
fT	Current Gain-Bandwidth Product	IC=10mA, VCE=20V, f=100MHz	300		MHz

SWITCHING CHARACTERISTICS

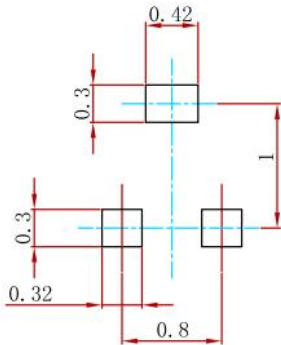
Symbol	Parameter	Test Conditions	Min	Max	Units
td	Delay Time	VCC=3.0V, VBE(off)=-0.5V		35	ns
tr	Rise Time	IC=10mA, IB1=1.0mA		35	ns
ts	Storage Time	VCC=3.0V, IC=10mA		200	ns
tf	Fall Time	IB1=IB2=1.0mA		50	ns

PACKAGE MECHANICAL DATA



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.	

Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ±0.05mm.
3. The pad layout is for reference purposes only.

REEL SPECIFICATION

P/N	PKG	QTY
MMBT3904M	SOT-723	8000

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