

# MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

## MMBT2222AM3T5G-MS

Product specification



## General Features

Epitaxial planar die construction

Complementary PNP Type available(MMBT2907AM)

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## Reference News

PACKAGE OUTLINE	Foot position analysis	Marking
 SOT-723	1. BASE 2.EMITTER 3.COLLECTOR	

**MAXIMUM RATINGS(Ta = 25°C)**

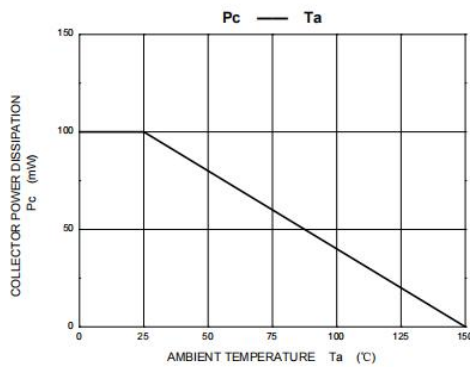
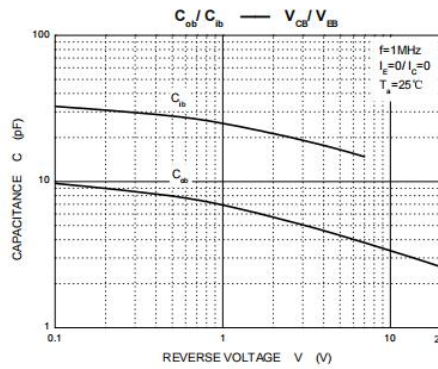
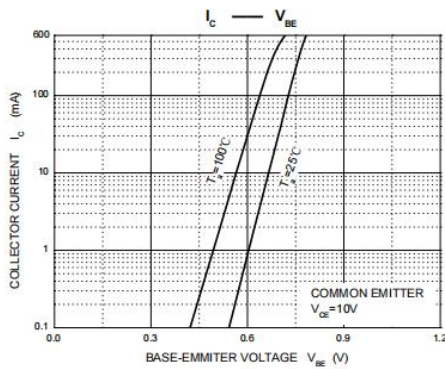
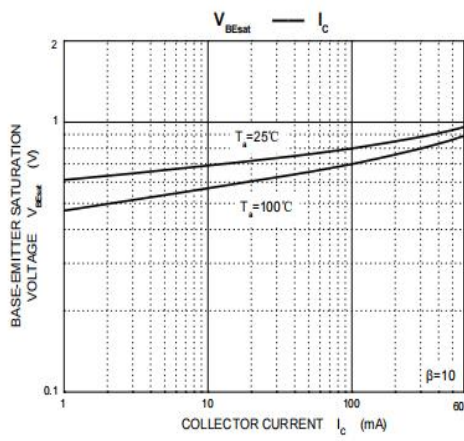
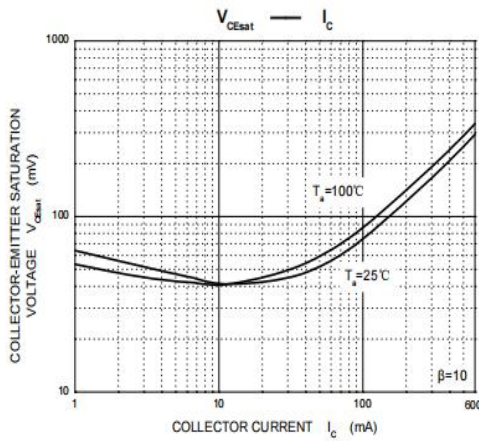
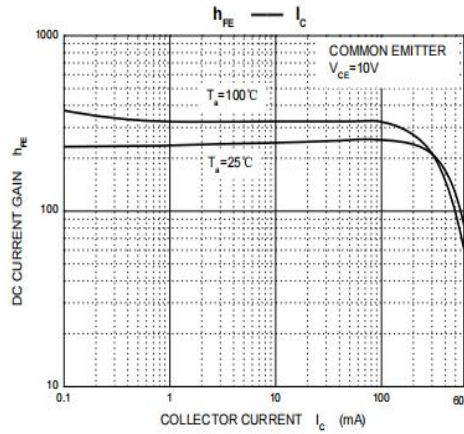
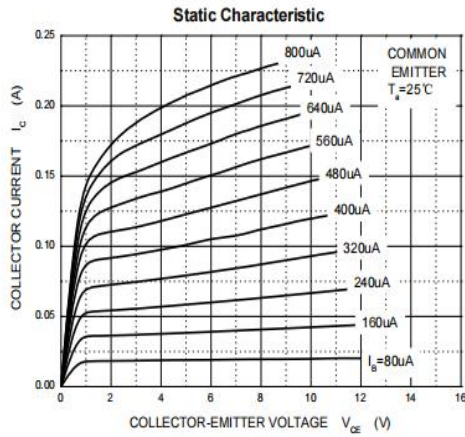
Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	75	V
V <sub>CE0</sub>	Collector-Emitter Voltage	40	V
V <sub>EB0</sub>	Emitter-Base Voltage	6	V
I <sub>c</sub>	Collector Current -Continuous	0.5	A
P <sub>c</sub>	Power Dissipation	100	mW
R <sub>θJA</sub>	Thermal Resistance from Junction to Ambient	1250	°C/W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	storage Temperature	-55~+150	°C

**ELECTRICAL CHARACTERISTICS (Ta=25 °C unless otherwise)**

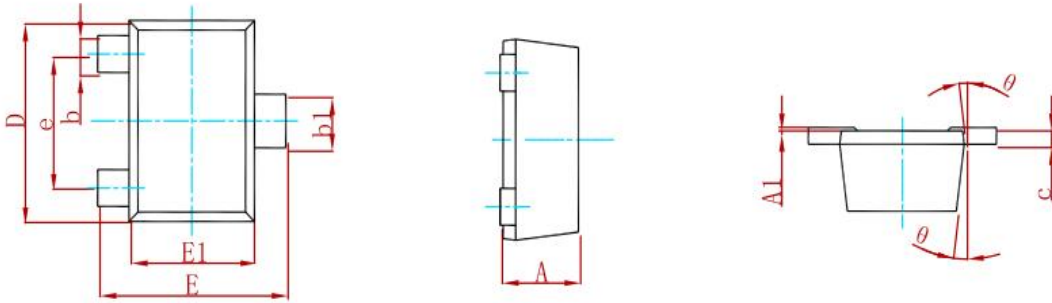
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>c</sub> =10pA, I <sub>E</sub> =0	75			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub> *	I <sub>c</sub> =10mA, I <sub>B</sub> =0	40			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =10pA, I <sub>C</sub> =0	6			V
Collector cut-off current	I <sub>CB0</sub>	V <sub>CB</sub> =60V, I <sub>E</sub> =0			0.01	p <sub>A</sub>
Collector cut-off current	I <sub>CEX</sub>	V <sub>CE</sub> =30V, V <sub>BE(off)</sub> =3V			0.01	p <sub>A</sub>
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =3V, I <sub>C</sub> =0			0.01	p <sub>A</sub>
DC current gain	h <sub>FE</sub> *	V <sub>CE</sub> =10V, I <sub>C</sub> = 150mA	100		300	
		V <sub>CE</sub> =10V, I <sub>C</sub> = 0.1mA	40			
		V <sub>CE</sub> =10V, I <sub>C</sub> = 500mA	42			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub> *	I <sub>C</sub> =500 mA, I <sub>B</sub> = 50mA			1	V
		I <sub>C</sub> =150 mA, I <sub>B</sub> =15mA			0.3	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub> *	I <sub>C</sub> =500 mA, I <sub>B</sub> = 50mA			2.0	V
		I <sub>C</sub> =150 mA, I <sub>B</sub> =15mA			1.2	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =20V, I <sub>C</sub> = 20mA, f= 100MHz	300			MHz
Delay time	t <sub>d</sub>	V <sub>CC</sub> =30V, V <sub>BE(off)</sub> =-0.5V I <sub>C</sub> =150mA, I <sub>B1</sub> = 15mA			10	ns
Rise time	t <sub>r</sub>				25	ns
Storage time	t <sub>s</sub>	V <sub>CC</sub> =30V, I <sub>C</sub> =150mA I <sub>B1</sub> =-I <sub>B2</sub> =15mA			225	ns
Fall time	t <sub>f</sub>				60	ns

\*pulse test: Pulse Width ≤300ps, Duty Cycle≤ 2.0%.

**ELECTRICAL CHARACTERISTICS CURVES**

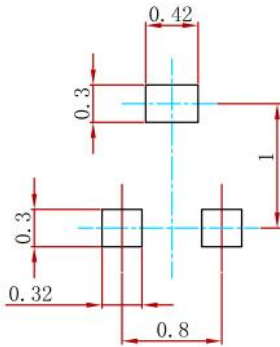


**PACKAGE MECHANICAL DATA**



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
MMBT2222AM3T5G-MS	SOT-723	8000

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