

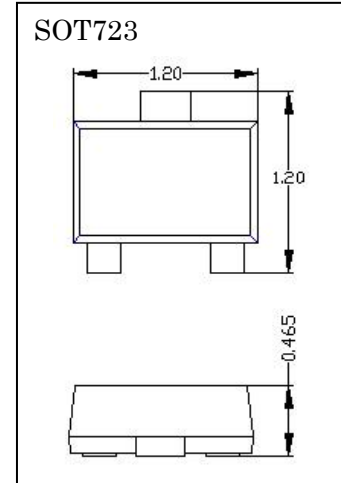
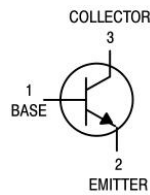
DATA SHEET

MMBT2222AM

- ◇ Epitaxial planar die construction
- ◇ Operating and Storage Junction Temperatures: -55°C to 150°C
- ◇ Small Outline Surface Mount Package
- ◇ RoHS compliant / Green EMC

Device Marking Code	
MMBT2222AM	1P

Circuit Diagram



Maximum Ratings (Ta = 25 °C)

Symbol	Parameter	Value	Unit
V _{CB0}	Collector-Base Voltage	75	V
V _{CEO}	Collector-Emitter Voltage	40	V
V _{EBO}	Emitter-Base Voltage	6.0	V
I _C	Collector Current-Continuous	600	mA
P _D	Total Device Dissipation	265	mW
R _{θJA}	Thermal Resistance From Junction To Ambient	470	°C/W
T _J , T _{stg}	Junction and Storage Temperature	-55 to +150	°C

Off Electrical Characteristics Ta=25°C

Symbol	Parameter	Test Conditions	Min	Max	Units
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage	I _C =10.0mA, I _B =0	40	-	V
V _{(BR)CBO}	Collector-Base Breakdown Voltage	I _C =10μA, I _E =0	75	-	V
V _{(BR)EBO}	Emitter-Base Breakdown Voltage	I _E =10μA, I _C =0	6.0	-	V
I _{CBO}	Collector Cutoff Current	V _{CB} =60V, I _E =0		10	nA
I _{CEX}	Collector Cutoff Current	V _{CE} =60V, V _{EB(off)} =3.0V		0.01	uA
I _{EBO}	Emitter cut-off current	V _{EB} =3V, I _C =0		0.1	uA
I _{BL}	Base Cutoff Current	V _{CE} =60V, V _{EB(off)} =3.0V		20	nA

On Electrical Characteristics Ta=25°C

Symbol	Parameter	Test Conditions	Min	Max	Units
h _{FE}	DC Current Gain	I _C =0.1mA, V _{CE} =10V	35	-	-
		I _C =1.0mA, V _{CE} =10V	50	-	
		I _C =10mA, V _{CE} =10V	75	-	
		I _C =150mA, V _{CE} =10V (Note 1)	100	300	
		I _C =150mA, V _{CE} =1.0V (Note 1)	50	-	
		I _C =500mA, V _{CE} =10V (Note 1)	40	-	
V _{CE} (Sat)	Collector-Emitter Saturation Voltage (Note 1)	(I _C =150mA, I _B =15mA)	-	0.3	V
		(I _C =500mA, I _B =50mA)	-	1.0	
V _{BE} (Sat)	Base-Emitter Saturation Voltage (Note 1)	I _C =150mA, I _B =15mA	0.6	1.2	V
		I _C =500mA, I _B =50mA	-	2.0	

Small-Signal Characteristics

Symbol	Parameter	Test Conditions	Min	Max	Units
f _T	Current-Gain – Bandwidth Product(Note 2)	I _C =20mA, V _{CE} =20V, f=100MHz	300	-	MHz
C _{ob}	Output Capacitance	V _{CB} =10V, I _E =0, f=1.0MHz	-	8.0	pF
C _{ib}	Input Capacitance	V _{EB} =0.5V, I _C =0, f=1.0MHz	-	25	pF

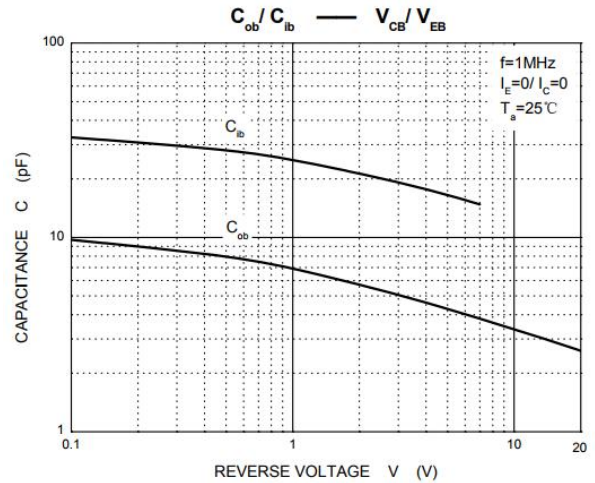
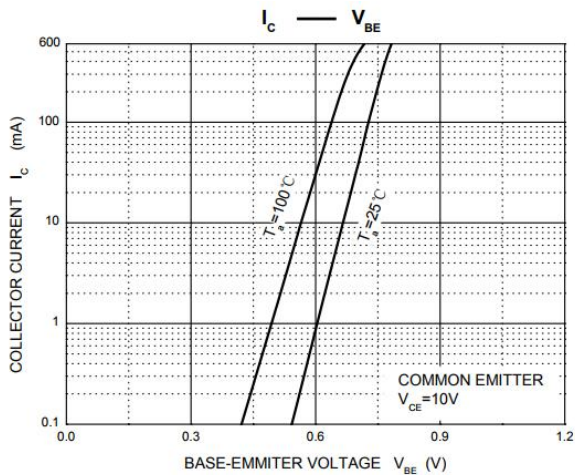
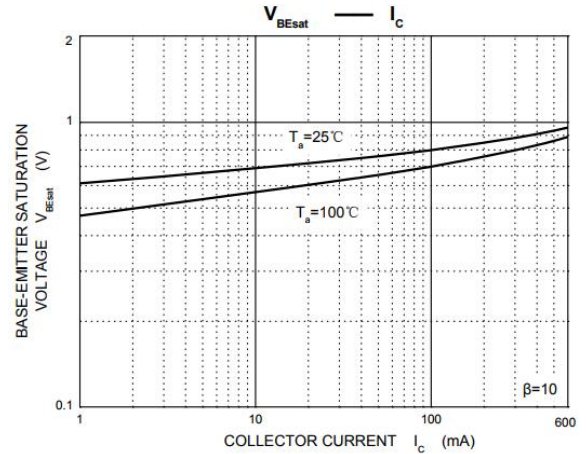
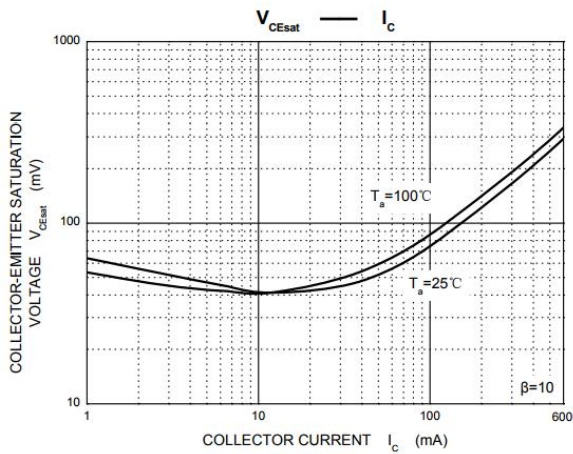
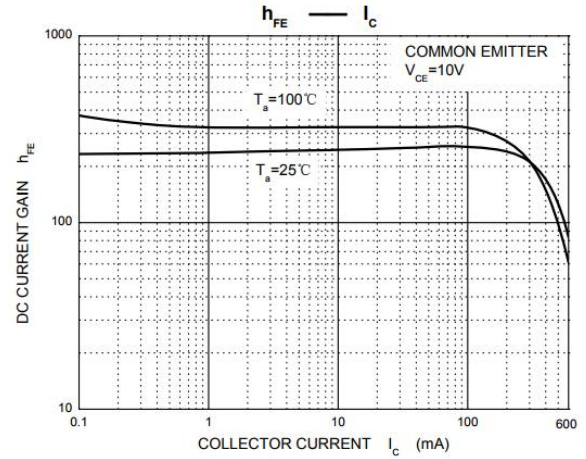
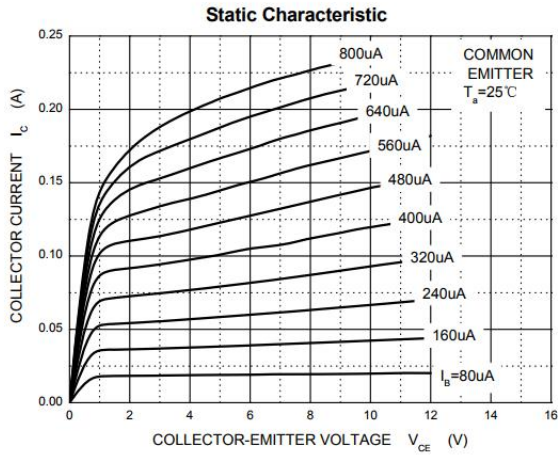
Note 1. Pulse Test: Pulse Width ≤ 300 us, Duty Cycle ≤ 2.0%.

Note 2. f_T is defined as the frequency at which |h_{fe}| extrapolates to unity.

Switching Characteristics

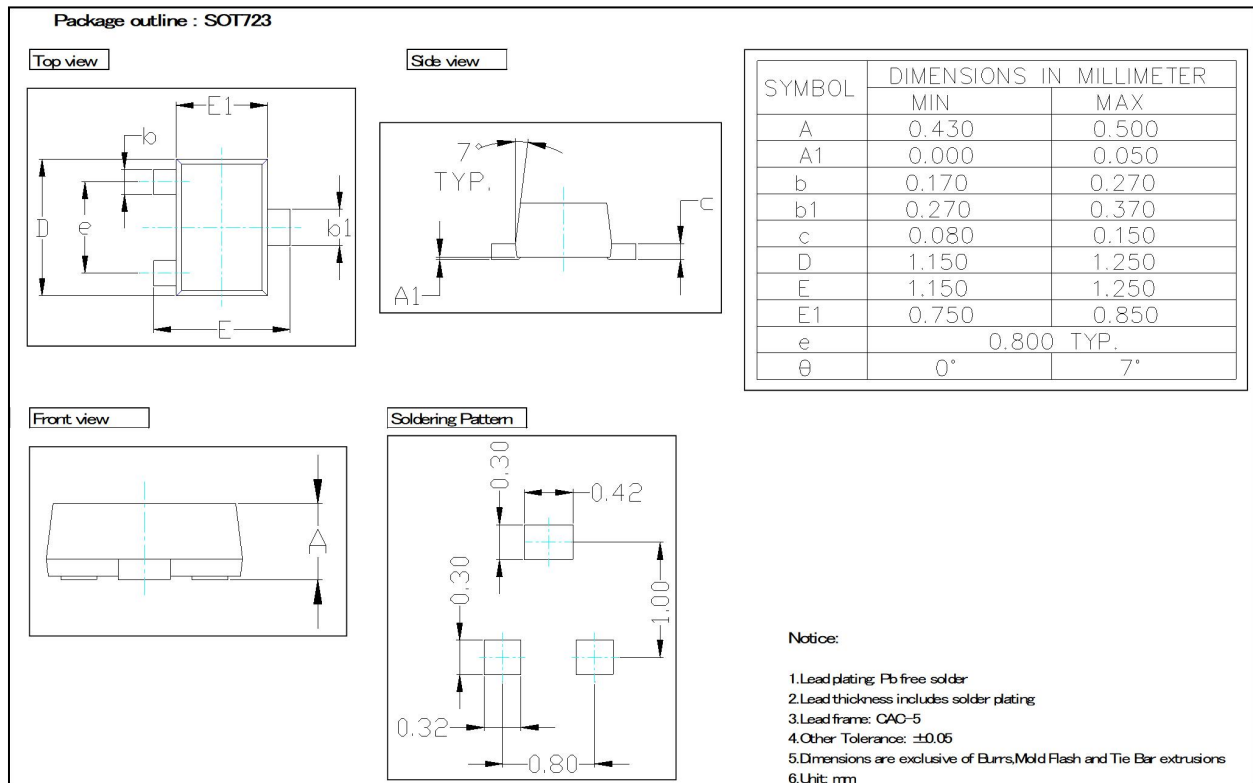
Symbol	Parameter	Test Conditions	Min	Max	Units
t _d	Delay Time	V _{CC} =30V, I _C =150mA, V _{BE} (off)=-0.5V, I _{B1} =15mA	-	10	ns
t _r	Rise Time		-	25	
t _s	Storage Time	(V _{CC} =30V, I _C =150mA, I _{B1} =I _{B2} =15mA)	-	225	
t _f	Fall Time		-	60	

Typical Characteristics



Device	Package	Shipping	Tape wide	Emboss pitch	Tape specification	Notes
MMBT2222AM	SOT723	Tape & Reel 8000pcs /7" Reel	8mm	4mm	Conductive	

PACKAGE DIMENSIONS



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