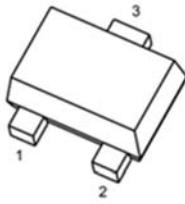
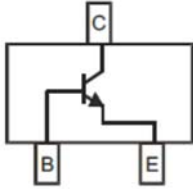


NPN Transistor



1. Base
2. Emitter
3. Collector

SOT-723

Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for automatic insertion

Application

- Signal amplification
- Switching circuit

Mechanical data

- **Package:** SOT-723
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102

■ Maximum Ratings ($T_a=25^\circ\text{C}$ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				1P
Collector-base voltage	V_{CB0}	V	$I_C=10\mu\text{A}, I_E=0$	75
Collector-emitter voltage	V_{CE0}	V	$I_C=10\text{mA}, I_B=0$	40
Emitter-base voltage	V_{EB0}	V	$I_E=10\mu\text{A}, I_C=0$	6
Collector current	I_C	mA		600
Power dissipation	P_D	mW		100
Junction temperature	T_J	$^\circ\text{C}$		-55 to +150
Storage temperature	T_{STG}	$^\circ\text{C}$		-55 to +150



MMBT222AM

RoHS
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■ Electrical Characteristics (T_a=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	V _{(BR)CBO}	V	I _C =10μA, I _E =0	75		
Collector-emitter breakdown voltage	V _{(BR)CEO}	V	I _C =10mA, I _B =0	40		
Emitter-base breakdown voltage	V _{(BR)EBO}	V	I _E =10μA, I _C =0	6		
Collector-base cut-off current	I _{CBO}	nA	V _{CB} =60V			100
Emitter-base cut-off current	I _{EBO}	nA	V _{EB} =3V			100
Collector-emitter cut-off current	I _{CEX}	nA	V _{CE} =60V, V _{EB} =3V			10
DC current gain	h _{FE1}		V _{CE} =10V, I _C =0.1mA	35		
	h _{FE2}		V _{CE} =10V, I _C =1mA	50		
	h _{FE3}		V _{CE} =10V, I _C =10mA	80		
	h _{FE4}		V _{CE} =10V, I _C =150mA	100		300
	h _{FE5}		V _{CE} =1V, I _C =150mA	50		
	h _{FE6}		V _{CE} =10V, I _C =500mA	40		
Collector-emitter saturation voltage	V _{CE(sat)}	V	I _C =150mA, I _B =15mA			0.3
Base-emitter saturation voltage	V _{BE(sat)}	V	I _C =150mA, I _B =15mA	0.6		1.2

■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	R _{θJ-A} ⁽¹⁾	°C/W	1250
Thermal resistance, junction-to-case	R _{θJ-C} ⁽¹⁾	°C/W	1000

Note:

(1) Thermal resistance from junction to ambient and from junction to case mounted on P.C.B. with 25.4mm*25.4mm copper pad areas



■ Characteristics

Fig 1: Static Characteristics

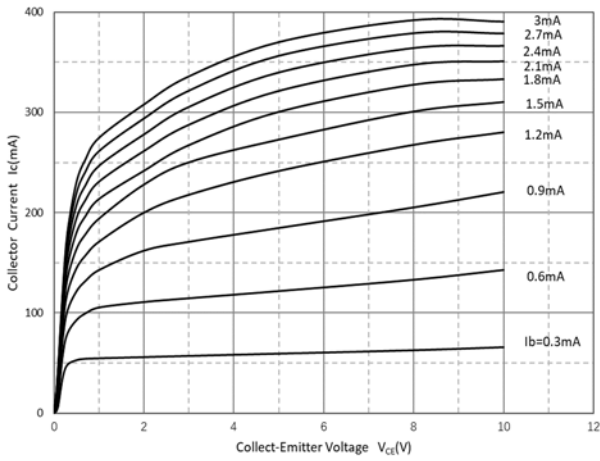


Fig 2: DC Current Gain Characteristics

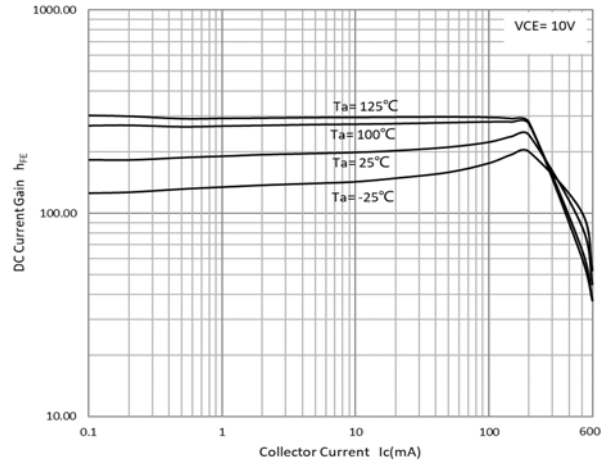


Fig 3: Collector-Emittor Saturation Voltage

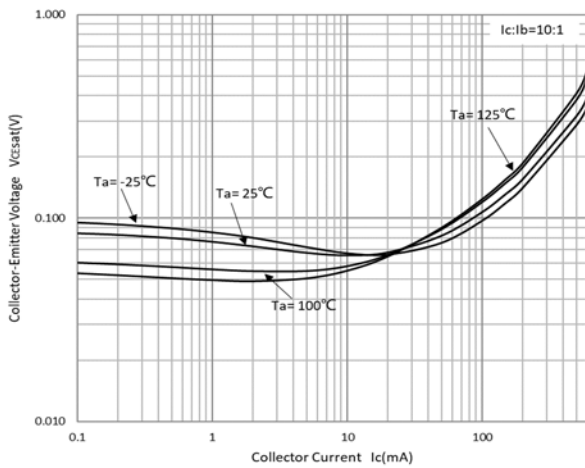


Fig 4: Base-Emittor Saturation Voltage

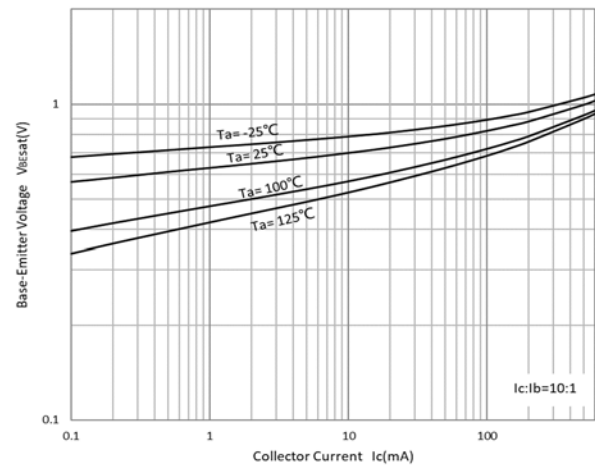


Fig 5: Base-Emittor on Voltage

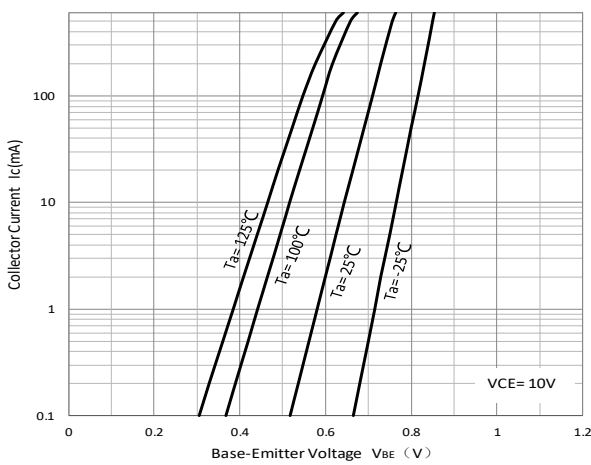


Fig 6: Cob/Cib-V_{CB}/V_{EB}

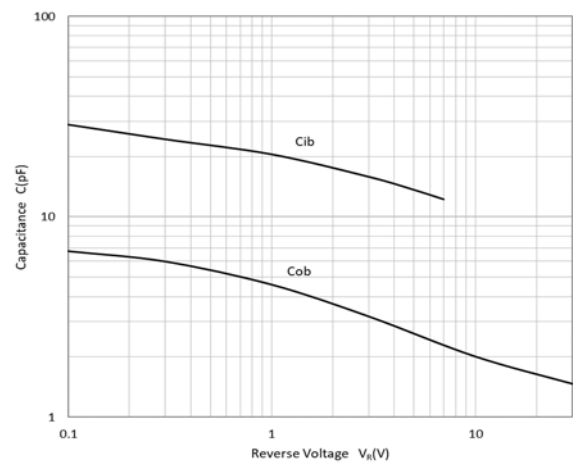
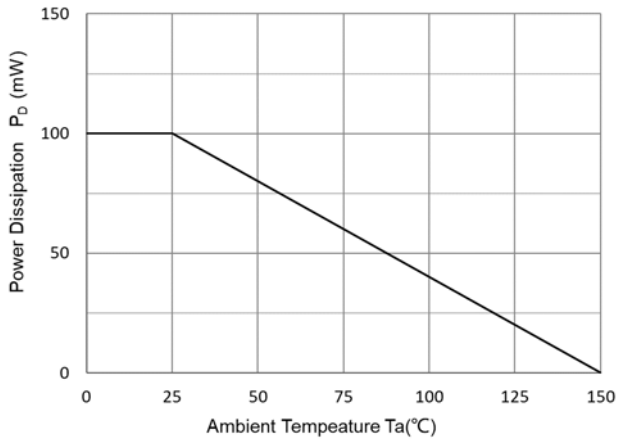




Fig 7: P_D-T_a Curve





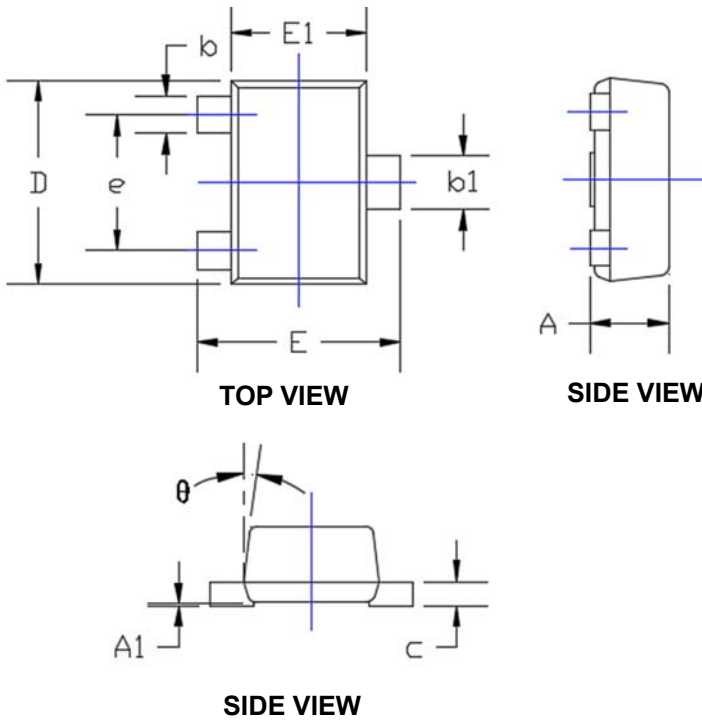
MMBT2222AM

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Ordering Information

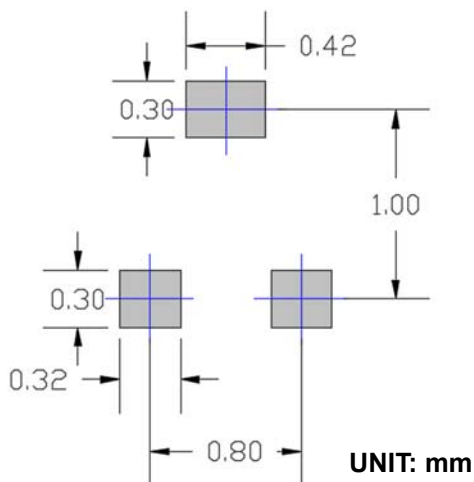
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
MMBT2222AM	F2	Approximate 0.0013	8000	80000	320000	7" reel

Outline Dimensions



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.017	0.022	0.430	0.550
A1	0.000	0.002	0.000	0.050
b	0.007	0.011	0.170	0.270
b1	0.011	0.015	0.270	0.370
c	0.003	0.008	0.080	0.200
D	0.045	0.049	1.150	1.250
E	0.045	0.049	1.150	1.250
E1	0.030	0.033	0.750	0.850
e	0.031TYP.		0.800TYP.	
θ	7°REF.		7°REF.	

Suggested Pad Layout





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