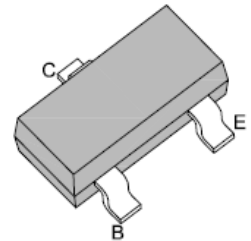


SMD General Purpose Transistor (NPN)

Features

- NPN Silicon Epitaxial Planar Transistor for Switching and Amplifier Applications
- RoHS compliance



Mechanical Data

SOT-23



Case:	SOT-23, Plastic Package
Terminals:	Solderable per MIL-STD-202G, Method 208
Weight:	0.008 gram

Maximum Ratings ($T_{Ambient}=25^{\circ}C$ unless noted otherwise)

Symbol	Description	MMBT2222A	Unit
	Marking Code	1P	
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	0.6	A
P_{tot}	Power Dissipation above 25°C (note 1)	350	mW
		2.8	mW/°C
R_{θJA}	Thermal Resistance, Junction to Ambient	357	°C/W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-55 to +150	°C

Note: (1) Device mounted on FR-4 PCB 1.6" x 1.6" x 0.06"

SMD General Purpose Transistor (NPN)

MMBT2222A

Electrical Characteristics ($T_{Ambient}=25^{\circ}\text{C}$ unless noted otherwise)

Symbol	Description	Min.	Max.	Unit	Conditions
h_{FE}	D.C. Current Gain	35	-		V _{CE} =10V, I _C =0.1mA
		50	-		V _{CE} =10V, I _C =1mA
		75	-		V _{CE} =10V, I _C =10mA
		35	-		V _{CE} =10V, I _C =10mA T _a =-55° C
		100	300		V _{CE} =10V, I _C =150mA*
		40	-		V _{CE} =10V, I _C =500mA*
		50	-		V _{CE} =1.0V, I _C =150mA*
V_{(BR)CBO}	Collector-Base Breakdown Voltage	75	-	V	I _C =10μA, I _E =0
V_{(BR)CEO}	Collector-Emitter Breakdown Voltage*	40	-	V	I _C =10mA, I _B =0
V_{(BR)EBO}	Emitter-Base Breakdown Voltage	6.0	-	V	I _E =10μA, I _C =0
V_{CEsat}	Collector-Emitter Saturation Voltage*	-	0.3	V	I _C =150mA, I _B =15mA
		-	1.0		I _C =500mA, I _B =50mA
V_{BEsat}	Base-Emitter Saturation Voltage*	0.6	1.2	V	I _C =150mA, I _B =15mA
		-	2.0		I _C =500mA, I _B =50mA
I_{CEx}	Collector Cut-off Current	-	10	nA	V _{EB} =3V, V _{CE} =60V
I_{CBO}	Collector Cut-off Current	-	10	nA	V _{CB} =60V, I _E =0
			10	μA	V _{CB} =60V, I _E =0, T _a =125° C
I_{BL}	Base Cut-off Current	-	20	nA	V _{EB} =3V, V _{CE} =60V
I_{EBO}	Emitter Cut-off Current	-	10	nA	V _{EB} =3V, I _C =0
f_T	Current Gain-Bandwidth Product	300	-	MHz	V _{CE} =20V, I _C =20mA, f=100MHz
C_{obo}	Output Capacitance	-	8.0	pF	V _{CB} =10V, f=1.0MHz, I _E =0
C_{ibo}	Input Capacitance	-	25	pF	V _{EB} =0.5V, f=1.0MHz, I _C =0
NF	Noise Figure	-	4.0	dB	V _{CE} =10V, I _C =100μA, R _s =1kΩ, f=1kHz
rb'Cc	Collector Base Time Constant	-	150	ps	V _{CB} =20V, I _C =20mA, f=31.8 MHz
t_d	Delay Time	-	10	ns	I _{B1} =15mA I _C =150mA V _{CC} =30V V _{EB} =0.5V
t_r	Rise Time	-	25		
t_s	Storage Time	-	225		
t_f	Fall Time	-	60		

*Pulse Test Pulse Width ≤ 300μs, Duty Cycle ≤ 2.0%

SMD General Purpose Transistor (NPN)

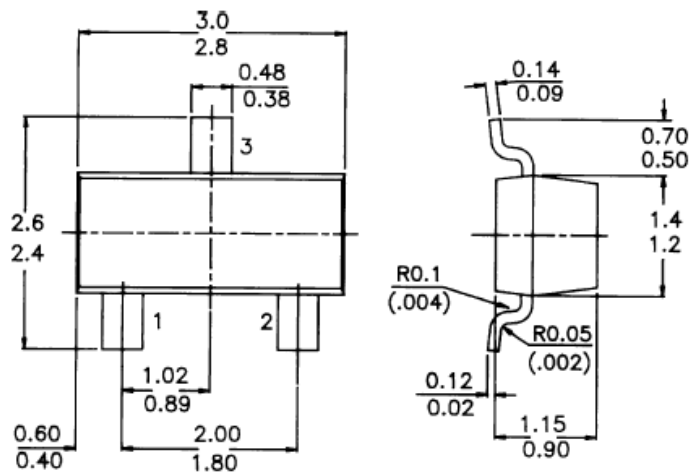
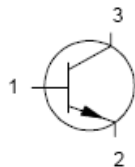
MMBT2222A

Dimensions in mm

SOT-23

Pin configuration

- 1 = BASE
- 2 = EMITTER
- 3 = COLLECTOR



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