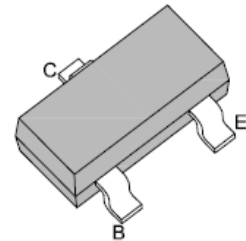


SMD General Purpose Transistor (NPN)

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

Symbol	Description	Min.	Max.	Unit	Conditions
hFE	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	-		$V_{CE}=10V, I_C=10mA$ $T_a=-55^{\circ}C$
		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	$I_C=10\mu A, I_E=0$
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	$I_E=10\mu A, I_C=0$
VCEsat	Collector-Emitter Saturation Voltage*	-	0.3	V	$I_C=150mA, I_B=15mA$
		-	1.0		$I_C=500mA, I_B=50mA$
VBEsat	Base-Emitter Saturation Voltage*	0.6	1.2	V	$I_C=150mA, I_B=15mA$
		-	2.0		$I_C=500mA, I_B=50mA$
ICEX	Collector Cut-off Current	-	10	nA	$V_{EB}=3V, V_{CE}=60V$
ICBO	Collector Cut-off Current	-	10	nA	$V_{CB}=60V, I_E=0$
			10	μA	$V_{CB}=60V, I_E=0,$ $T_a=125^{\circ}C$
IBL	Base Cut-off Current	-	20	nA	$V_{EB}=3V, V_{CE}=60V$
IEBO	Emitter Cut-off Current	-	10	nA	$V_{EB}=3V, I_C=0$
fr	Current Gain-Bandwidth Product	300	-	MHz	$V_{CE}=20V, I_C=20mA,$ $f=100MHz$
Cobo	Output Capacitance	-	8.0	pF	$V_{CB}=10V, f=1.0MHz,$ $I_E=0$
Cibo	Input Capacitance	-	25	pF	$V_{EB}=0.5V, f=1.0MHz,$ $I_C=0$
NF	Noise Figure	-	4.0	dB	$V_{CE}=10V, I_C=100\mu A,$ $R_s=1k\Omega, f=1kHz$
rb'Cc	Collector Base Time Constant	-	150	ps	$V_{CB}=20V, I_C=20mA,$ $f=31.8MHz$
td	Delay Time	-	10	ns	$I_{B1}=15mA$ $I_C=150mA$ $V_{CC}=30V$ $V_{EB}=0.5V$
tr	Rise Time	-	25		
ts	Storage Time	-	225		
tf	Fall Time	-	60		

*Pulse Test Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2.0\%$

SMD General Purpose Transistor (NPN)

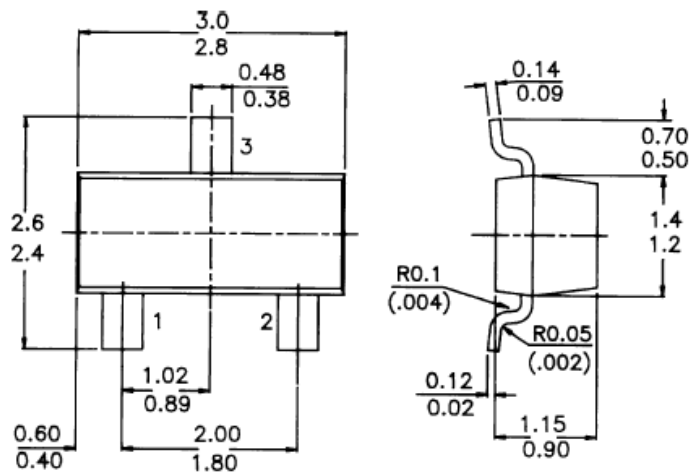
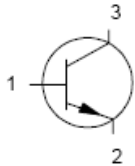
MMBT2222A

Dimensions in mm

SOT-23

Pin configuration

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



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