

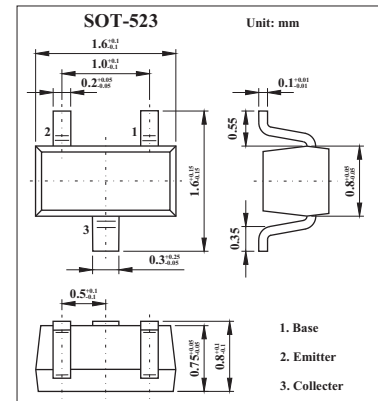
## NPN General Purpose Amplifier

### MMBT2222AT

#### Features

Ultra-Small Surface Mount Package

Complementary PNP type available(MMBT2907AT)



#### Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-base voltage	$V_{CB0}$	75	V
Collector-emitter voltage	$V_{CE0}$	40	V
Emitter-base voltage	$V_{EB0}$	6	V
Collector current	$I_C$	600	mA
Power dissipation	$P_D$	150	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	833	$^\circ\text{C}/\text{W}$
Operating and Storage and Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

## MMBT2222AT

Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10 \mu A, I_E = 0$	75			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10 mA, I_B = 0$	40			V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_C = 10 \mu A, I_C = 0$	6			V
Collector cutoff current	$I_{CBO}$	$V_{CB}=60V, I_E=0$			10	nA
Collector cut-off current	$I_{CEX}$	$V_{CE}=30V, V_{BE(off)}=3V$			10	nA
Emitter cutoff current	$I_{EBO}$	$V_{EB}= 3V, I_C=0$			100	nA
DC current gain	$h_{FE}$	$V_{CE}=10V, I_C= 0.1mA$	40			
		$V_{CE}=10V, I_C= 150mA$	100		300	
		$V_{CE}=10V, I_C= 500mA$	42			
collector-emitter saturation voltage *	$V_{CE(sat)}$	$I_C = 150 mA; I_B = 15 mA$			0.3	V
		$I_C = 500 mA; I_B = 50 mA$			1	V
base-emitter saturation voltage *	$V_{BE(sat)}$	$I_C = 150 mA; I_B = 15 mA$	0.6		1.2	V
		$I_C = 500 mA; I_B = 50 mA$			2	V
Transition frequency	$f_T$	$I_C = 20 mA; V_{CE} = 20 V; f = 100 MHz$	300			MHz
Delay time	$t_d$	$V_{CC}=30V, V_{BE(off)}=-0.5V,$			10	ns
Rise time	$t_r$	$I_C=150mA, I_{B1}= 15mA$			25	ns
Storage time	$t_s$	$V_{CC}=30V, I_C=150mA, I_{B1}=-I_{B2}=15mA$			225	ns
Fall time	$t_f$				60	ns

\* pulse test: Pulse Width 300 $\mu$ s, Duty Cycle 2.0%.

## Marking

Marking	1P
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