



Micro Commercial Components

Micro Commercial Components  
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# MMBT2222AT

## NPN General Purpose Amplifier

### Features

- Capable of 150mWatts of Power Dissipation
- Operating and Storage Junction Temperatures -55°C to 150°C
- Collector Current: 0.6A
- Case Material: Molded Plastic. UL Flammability Classification Rating 94-0 and MSL Rating 1
- Marking: 1P

### Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
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#### OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage* ( $I_C=10\text{mAdc}$ , $I_B=0$ )	40		Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_C=10\mu\text{Adc}$ , $I_E=0$ )	75		Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ( $I_E=10\mu\text{Adc}$ , $I_C=0$ )	6.0		Vdc
$I_{CBO}$	Collector Cut-off Current ( $V_{CB}=70\text{Vdc}$ , $I_E=0$ )		100	nAdc
$I_{CEO}$	Collector Cutoff Current ( $V_{CE}=35\text{Vdc}$ , $I_B=0$ )		100	nAdc
$I_{EBO}$	Emitter Cut-off Current ( $V_{EB}=3\text{Vdc}$ , $I_C=0$ )		100	nAdc

#### ON CHARACTERISTICS

$h_{FE}$	DC Current Gain* ( $I_C=0.1\text{mAdc}$ , $V_{CE}=10\text{Vdc}$ ) ( $I_C=1.0\text{mAdc}$ , $V_{CE}=10\text{Vdc}$ ) ( $I_C=10\text{mAdc}$ , $V_{CE}=10\text{Vdc}$ ) ( $I_C=150\text{mAdc}$ , $V_{CE}=10\text{Vdc}$ ) ( $I_C=150\text{mAdc}$ , $V_{CE}=10\text{Vdc}$ ) ( $I_C=500\text{mAdc}$ , $V_{CE}=10\text{Vdc}$ )	35 50 75 100 50 40	300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_C=150\text{mAdc}$ , $I_B=15\text{mAdc}$ ) ( $I_C=500\text{mAdc}$ , $I_B=50\text{mAdc}$ )		0.3 1.0	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ( $I_C=150\text{mAdc}$ , $I_B=15\text{mAdc}$ ) ( $I_C=500\text{mAdc}$ , $I_B=50\text{mAdc}$ )		1.2 2.0	Vdc

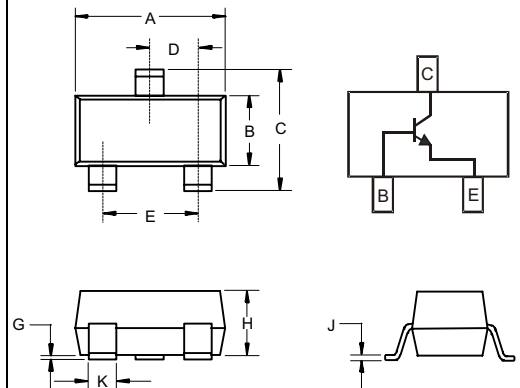
#### SMALL-SIGNAL CHARACTERISTICS

$f_T$	Current Gain-Bandwidth Product ( $I_C=20\text{mAdc}$ , $V_{CE}=20\text{Vdc}$ , $f=100\text{MHz}$ )	300		MHz
$C_{obo}$	Output Capacitance ( $V_{CB}=10\text{Vdec}$ , $I_E=0$ , $f=100\text{kHz}$ )		8.0	pF

#### SWITCHING CHARACTERISTICS

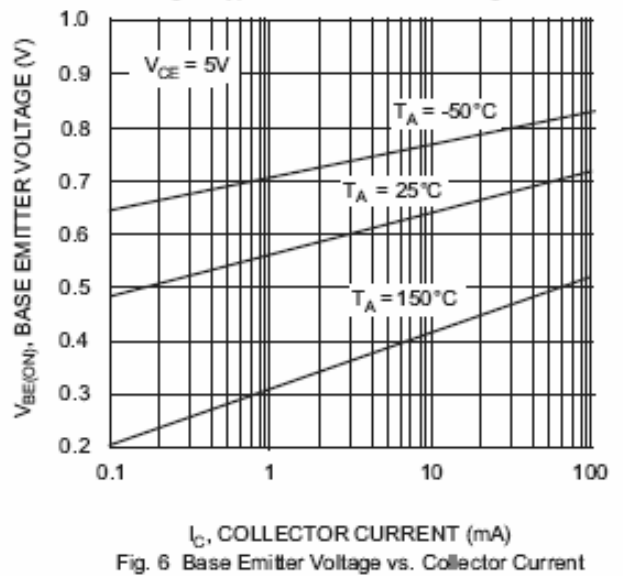
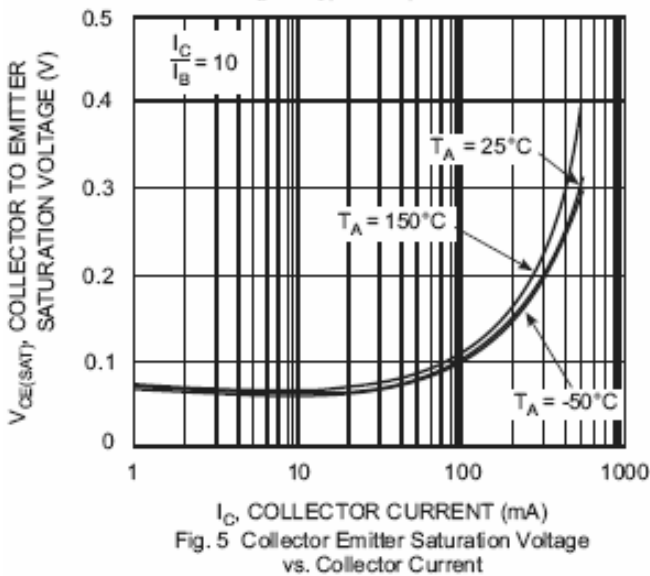
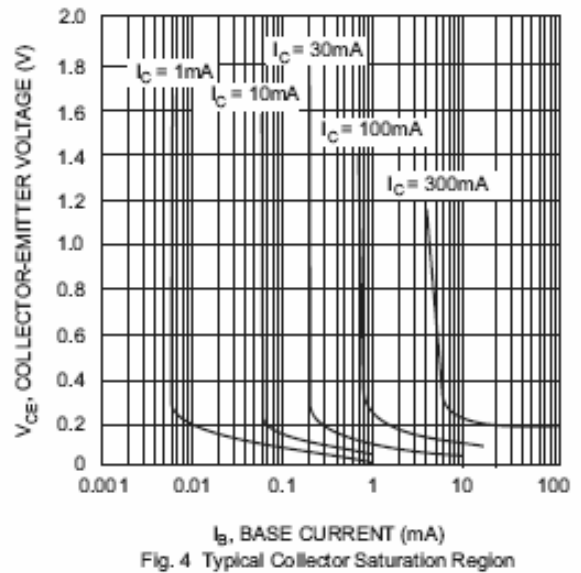
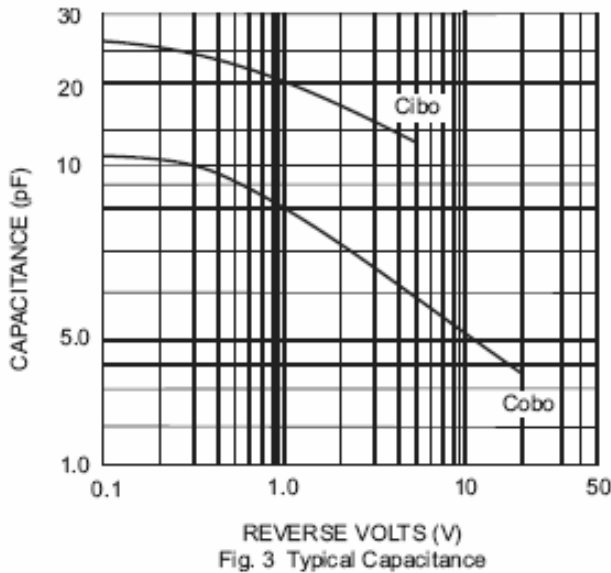
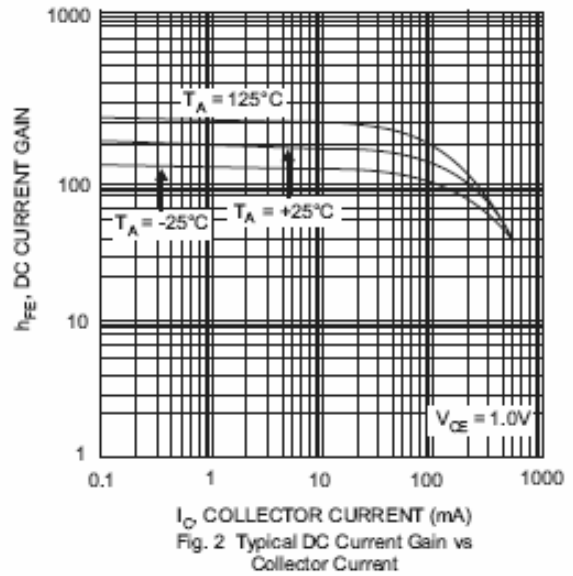
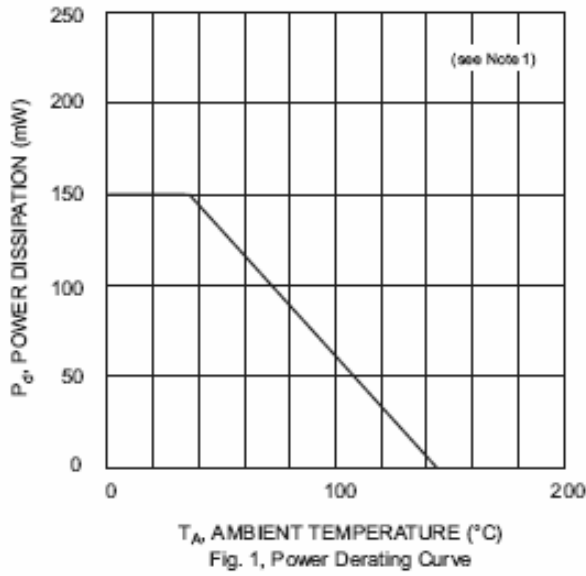
$t_d$	Delay Time	(V <sub>CC</sub> =30Vdc, V <sub>BE</sub> =0.5Vdc I <sub>C</sub> =150mAdc, I <sub>B1</sub> =15mAdc)	10	ns
$t_r$	Rise Time		25	ns
$t_s$	Storage Time	(V <sub>CC</sub> =30Vdc, I <sub>C</sub> =150mAdc I <sub>B1</sub> =I <sub>B2</sub> =15mAdc)	225	ns
$t_f$	Fall Time		60	ns

### SOT-523



#### DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.059	.067	1.50	1.70	
B	.030	.033	0.75	0.85	
C	.057	.069	1.45	1.75	
D	.020 Nominal		0.50 Nominal		
E	.035	.043	0.90	1.10	
G	.000	.004	.000	.100	
H	.028	.031	.70	0.80	
J	.004	.008	.100	.200	
K	.010	.014	.25	.35	





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## Ordering Information

Device	Packing
(Part Number)-TP	Tape&Reel;3Kpcs/Reel

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