



Micro Commercial Components



Micro Commercial Components  
20736 Marilla Street Chatsworth  
CA 91311  
Phone: (818) 701-4933  
Fax: (818) 701-4939

## MMBT2222AT

### NPN General Purpose Amplifier

### Features

- Halogen free available upon request by adding suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Capable of 150mWatts of Power Dissipation
- Operating and Storage Junction Temperatures -55°C to 150°C
- Collector Current: 0.6A
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking: 1P

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

Symbol	Parameter	Min	Max	Units
<b>OFF CHARACTERISTICS</b>				
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage* ( $I_C=10\text{mA}$ , $I_B=0$ )	40		Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_C=10\text{mA}$ , $I_E=0$ )	75		Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ( $I_E=10\text{mA}$ , $I_C=0$ )	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* ( $I_C=0.1\text{mA}$ , $V_{CE}=10\text{Vdc}$ ) ( $I_C=1.0\text{mA}$ , $V_{CE}=10\text{Vdc}$ ) ( $I_C=10\text{mA}$ , $V_{CE}=10\text{Vdc}$ ) ( $I_C=150\text{mA}$ , $V_{CE}=10\text{Vdc}$ ) ( $I_C=150\text{mA}$ , $V_{CE}=10\text{Vdc}$ ) ( $I_C=500\text{mA}$ , $V_{CE}=10\text{Vdc}$ )	35 50 75 100 50 40	300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_C=150\text{mA}$ , $I_B=15\text{mA}$ ) ( $I_C=500\text{mA}$ , $I_B=50\text{mA}$ )		0.3 1.0	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ( $I_C=150\text{mA}$ , $I_B=15\text{mA}$ ) ( $I_C=500\text{mA}$ , $I_B=50\text{mA}$ )		1.2 2.0	Vdc

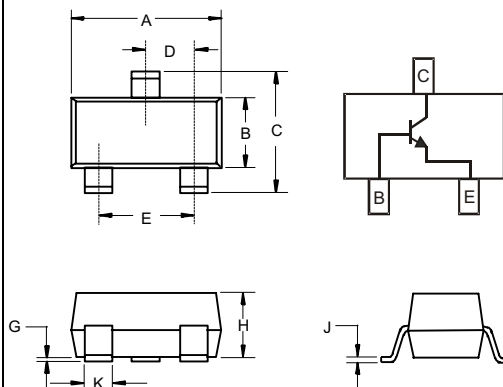
### SMALL-SIGNAL CHARACTERISTICS

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

### SWITCHING CHARACTERISTICS

$t_d$	Delay Time	( $V_{CC}=30\text{Vdc}$ , $V_{BE}=0.5\text{Vdc}$ $I_C=150\text{mA}$ , $I_{B1}=15\text{mA}$ )	10	ns
$t_r$	Rise Time		25	ns
$t_s$	Storage Time	( $V_{CC}=30\text{Vdc}$ , $I_C=150\text{mA}$ $I_{B1}=I_{B2}=15\text{mA}$ )	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	

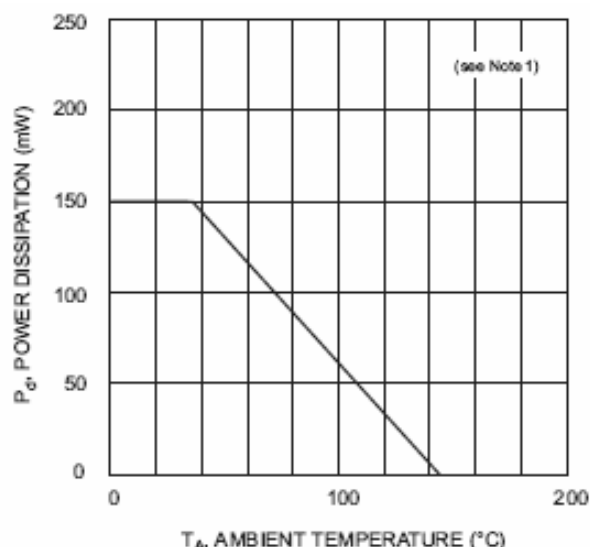


Fig. 1, Power Derating Curve

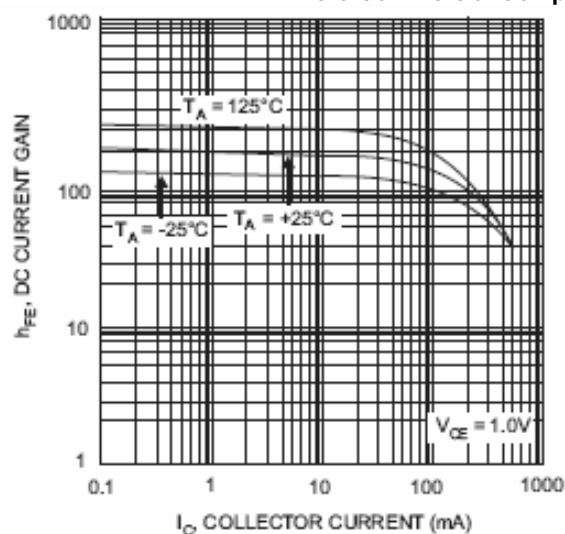


Fig. 2 Typical DC Current Gain vs. Collector Current

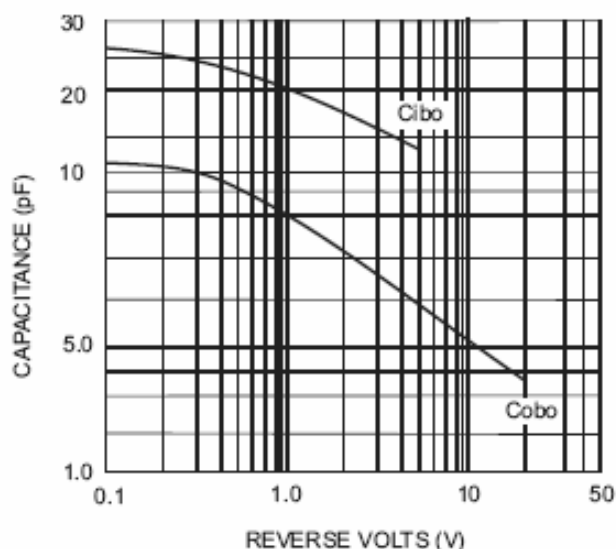


Fig. 3 Typical Capacitance

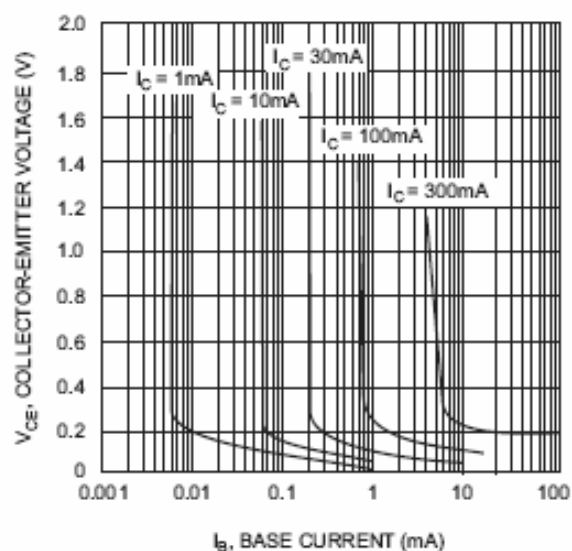


Fig. 4 Typical Collector Saturation Region

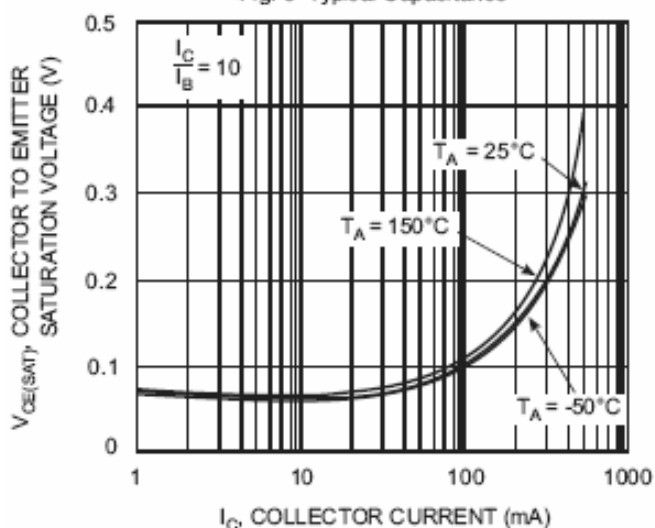


Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current

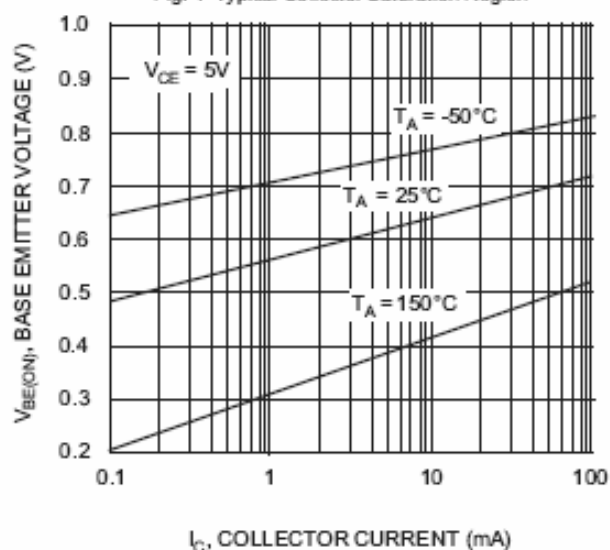


Fig. 6 Base Emitter Voltage vs. Collector Current

## Ordering Information :

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

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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