THE DATASHEET OF

MMBT4403-TP

Micro Commercial Components

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

MMBT4403

PNP General Purpose Amplifier

Features

- Operating and Storage Junction Temperatures: -55℃ to 150℃
- Capable of 350mWatts of Power Dissipation
- Surface Mount SOT-23 Package
- Ic=-600mA
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisure Sensitivity Level 1
- Marking:2T/M3A
- Halogen free available upon request by adding suffix "-HF"

Electrical Characteristics @ 25°C Unless Otherwise Specified

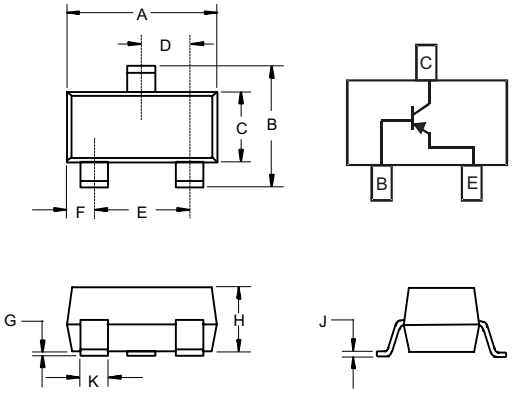
Symbol	Parameter	Min	Max	Units
OFF CHARACTERISTICS				
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage(NOTE 1) (I_C=1.0mAdc, I_B=0)	40		Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage (I_C=100μAdc, I_E=0)	40		Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage (I_E=100μAdc, I_C=0)	5.0		Vdc
I_{BL}	Base Cutoff Current (V_{CE}=30Vdc, V_{BE}=3.0Vdc)		0.1	μAdc
I_{CEX}	Collector Cutoff Current (V_{CE}=30Vdc, V_{BE}=3.0Vdc)		0.1	μAdc
ON CHARACTERISTICS				
h_{FE}	DC Current Gain(NOTE 1) (I_C=0.1mAdc, V_{CE}=1.0Vdc) (I_C=1.0mAdc, V_{CE}=1.0Vdc) (I_C=10mAdc, V_{CE}=1.0Vdc) (I_C=150mAdc, V_{CE}=2.0Vdc) (I_C=500mAdc, V_{CE}=2.0Vdc)	 30 60 100 100 20	 300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage (I_C=150mAdc, I_B=15mAdc) (I_C=500mAdc, I_B=50mAdc)		 0.4 0.75	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage (I_C=150mAdc, I_B=15mAdc) (I_C=500mAdc, I_B=50mAdc)	 0.75	 0.95 1.30	Vdc
SMALL-SIGNAL CHARACTERISTICS				
f_T	Current Gain-Bandwidth Product (I_C=20mAdc, V_{CE}=10Vdc, f=100MHz)	200		MHz
C_{cb}	Output Capacitance (V_{CB}=10Vdc, I_E=0, f=1.0MHz)		8.5	pF
C_{eb}	Input Capacitance (V_{EB}=0.5Vdc, I_C=0, f=1.0MHz)		30.0	pF

SWITCHING CHARACTERISTICS				
t_d	Delay Time	(V_{CC}=3.0Vdc, V_{BE}=2.0Vdc	15	ns
t_r	Rise Time	I_C=150mAdc, I_{B1}=15mAdc)	20	ns
t_s	Storage Time	(V_{CC}=3.0Vdc, I_C=150mAdc	225	ns
t_f	Fall Time	I_{B1}=I_{B2}=15mAdc)	30	ns

THERMAL CHARACTERISTICS			
R_{thJA}	Thermal Resistance, Junction to Ambient (NOTE 2)	357	°C/W

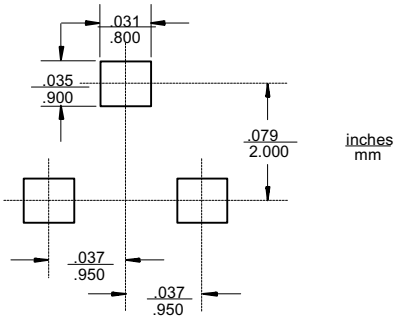
NOTE: 1. Pulse Width ≤ 300μs, Duty Cycle≤ 2.0%
2. For the device mounted on 15mm x 15mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

SOT-23

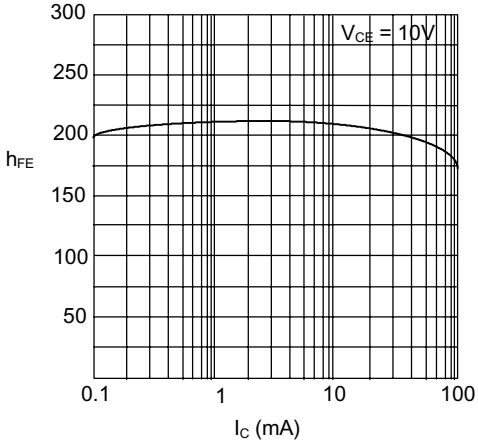


DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
A	.110	.120	2.80	3.04	
B	.083	.104	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

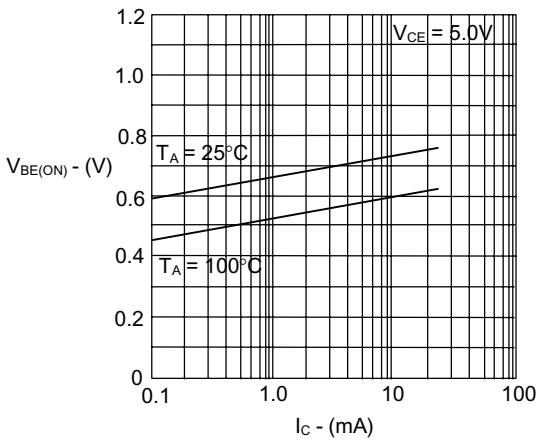
Suggested Solder Pad Layout



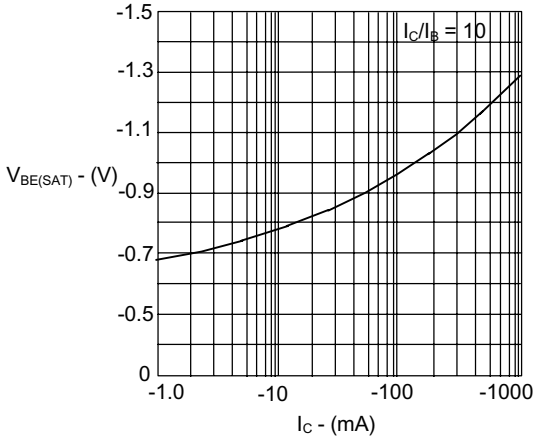
DC Current Gain vs Collector Current



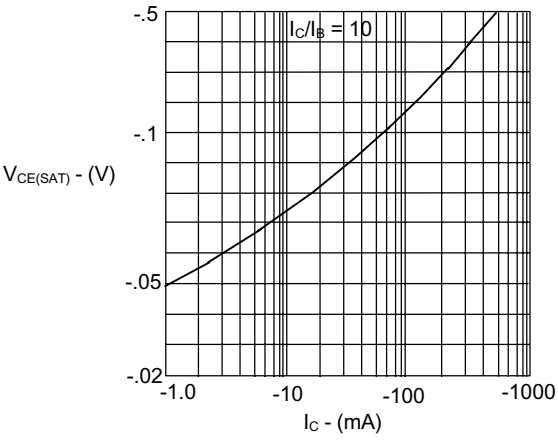
Base-Emitter ON Voltage vs Collector Current



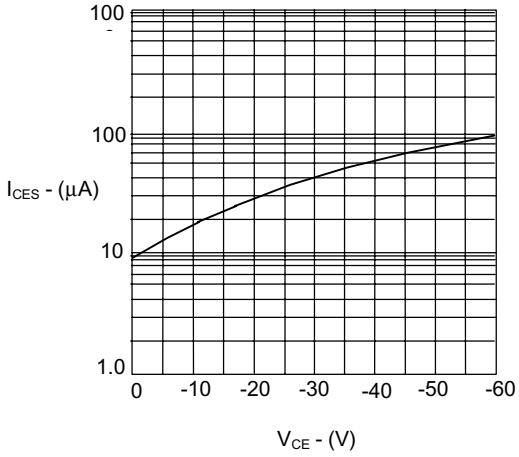
Pulsed Base Saturation Volatge vs Collector Current



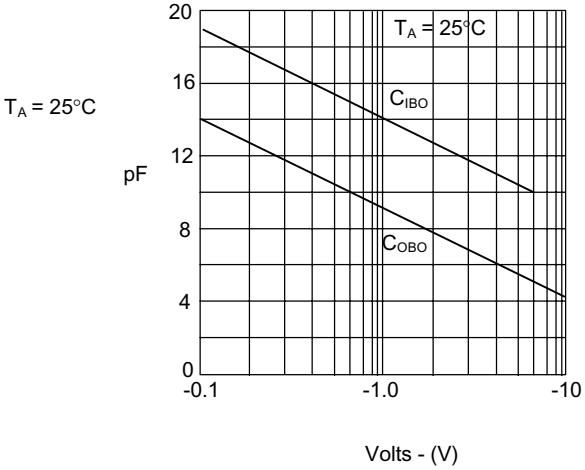
Pulsed Collector Saturation Voltage vs Collector Current



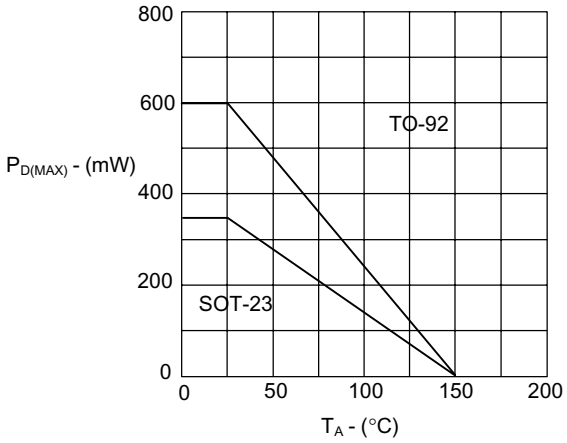
Collector Reverse Current vs Reverse Bias Voltage



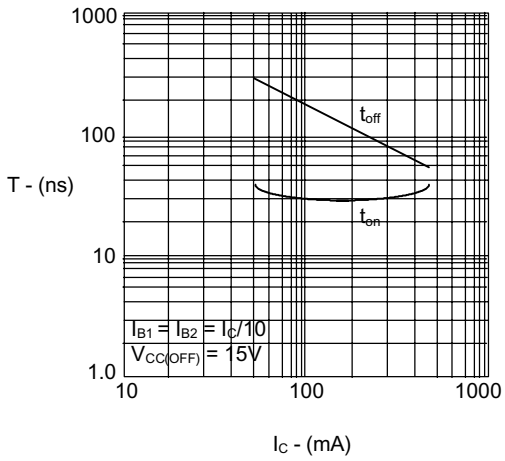
Input and Output Capacitances vs Reverse Bias Voltage



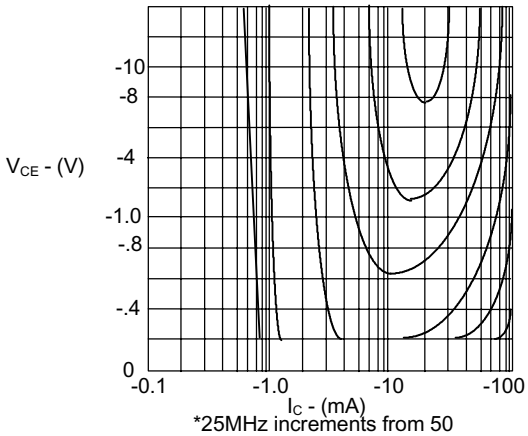
Maximum Power Dissipation vs Ambient Temperature



Turn On and Turn Off Times vs Collector Current

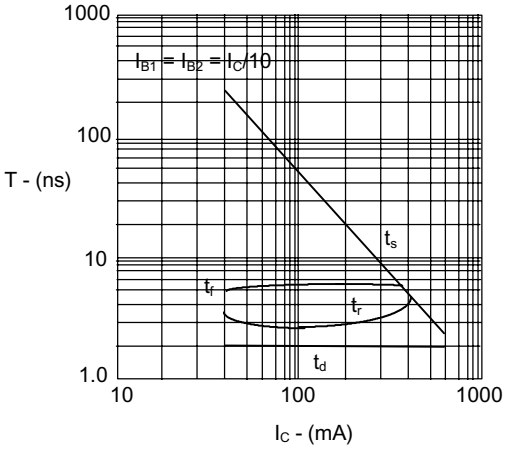


Contours of Constant Gain Bandwidth Product (f_T)



*25MHz increments from 50 to 200MHz

Switching Times vs Collector Current



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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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