Micro Commercial Components

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MMBT4401

NPN General Purpose Amplifier

Features

- Halogen free available upon request by adding suffix "-HF"
- Surface Mount SOT-23 Package
- Capable of 350mWatts of Power Dissipation
- Operating and Storage Junction Temperatures: -55℃ to 150℃
- Ic=600mA
- Marking:2X/M4A
- 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

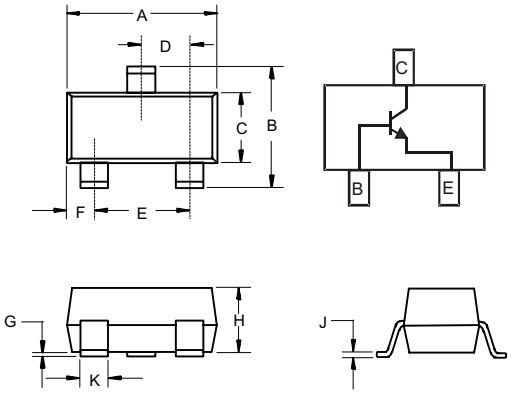
Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
OFF CHARACTERISTICS				
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage* (I_C=1.0mAdc, I_B=0)	40		Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage (I_C=10mAdc, I_E=0)	60		Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage (I_E=0.1mAdc, I_C=0)	6.0		Vdc
I_{BL}	Base Cutoff Current (V_{CE}=35Vdc, V_{BE}=0.4Vdc)		0.1	µAdc
I_{CEX}	Collector Cutoff Current (V_{CE}=35Vdc, V_{BE}=0.4Vdc)		0.1	µAdc
ON CHARACTERISTICS				
h_{FE}	DC Current Gain* (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}=1.0Vdc) (I_C=500mAdc, V_{CE}=1.0Vdc)	20 40 80 100 40	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 1.2	Vdc
SMALL-SIGNAL CHARACTERISTICS				
f_T	Current Gain-Bandwidth Product (I_C=20mAdc, V_{CE}=10Vdc, f=100MHz)	250		MHz
C_{cb}	Collector-Base Capacitance (V_{CB}=5.0Vdc, I_E=0, f=1.0MHz)		6.5	pF
C_{eb}	Emitter-Base Capacitance (V_{BE}=0.5Vdc, I_C=0, f=1.0MHz)		30.0	pF

SWITCHING CHARACTERISTICS				
t_d	Delay Time	(V_{CC}=30Vdc, V_{BE}=0.2Vdc	15	ns
t_r	Rise Time	I_C=150mAdc, I_{B1}=15mAdc)	20	ns
t_s	Storage Time	(V_{CC}=30Vdc, I_C=150mAdc	225	ns
t_f	Fall Time	I_{B1}=I_{B2}=15mAdc)	30	ns

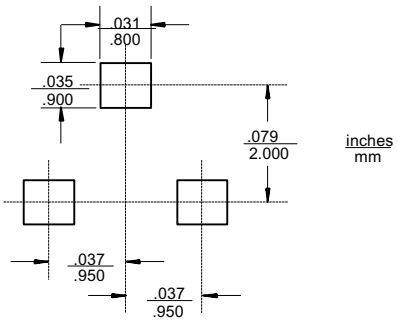
*Pulse Width ≤ 300µs, Duty Cycle ≤ 2.0%

SOT-23

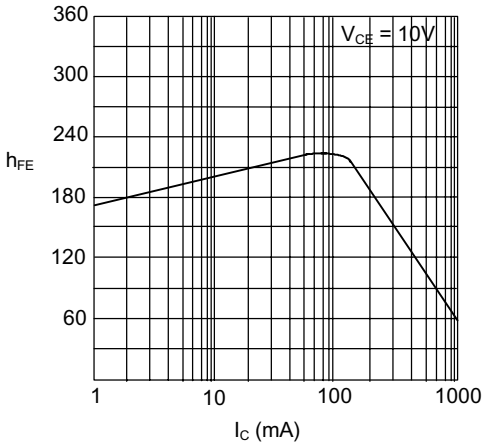


DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
A	.110	.120	2.80	3.04	
B	.083	.104	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

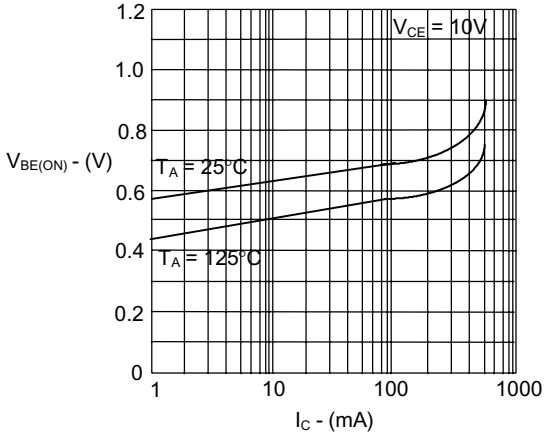
Suggested Solder Pad Layout



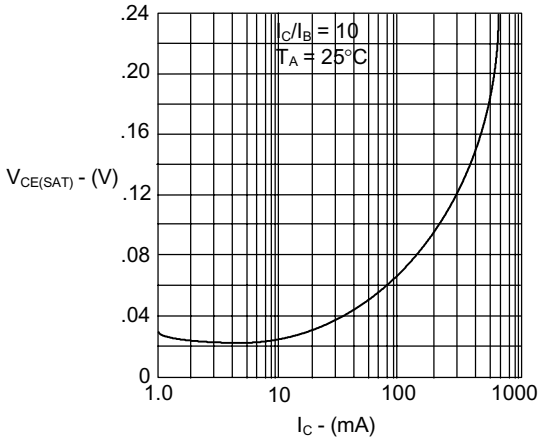
DC Current Gain vs Collector Current



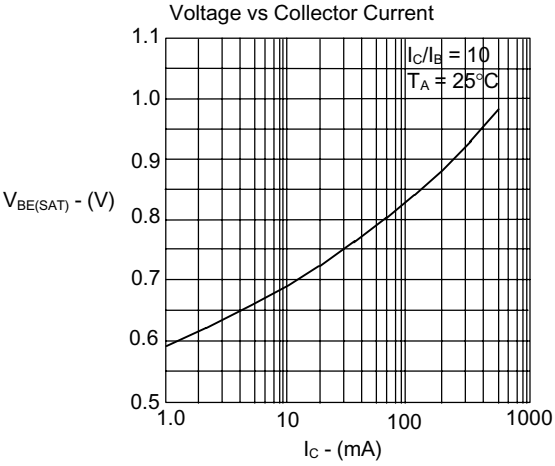
Base-Emitter ON Voltage vs Collector Current



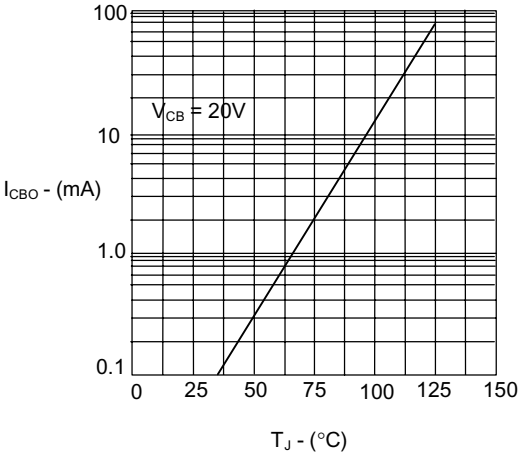
Collector-Emitter Saturation Volatge vs Collector Current



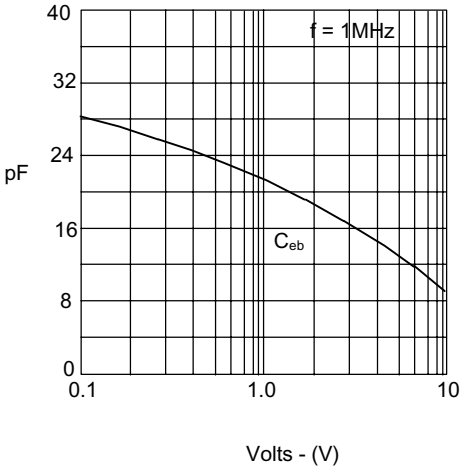
Base-Emitter Saturation Voltage vs Collector Current



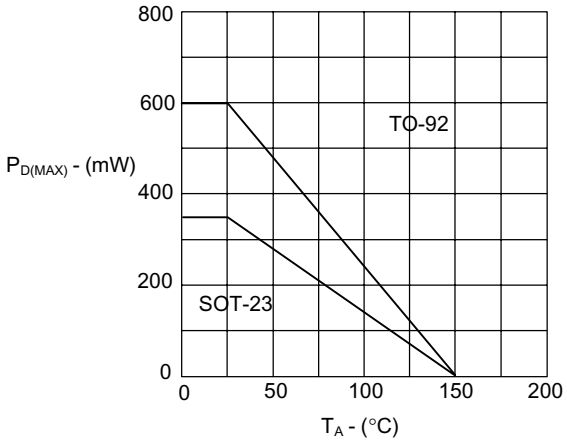
Collector-Base Diode Reverse Current vs Temperature



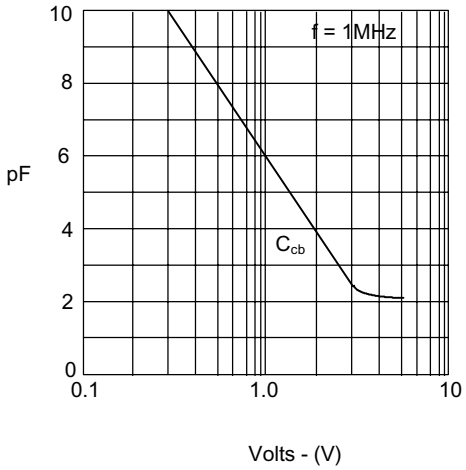
Input Capacitance vs Reverse Bias Voltage



Maximum Power Dissipation vs
Ambient Temperature



Output Capacitance vs
Reverse Bias Voltage



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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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