Micro Commercial Components

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MMBT3904T

150mW NPN General Purpose Amplifier

Features

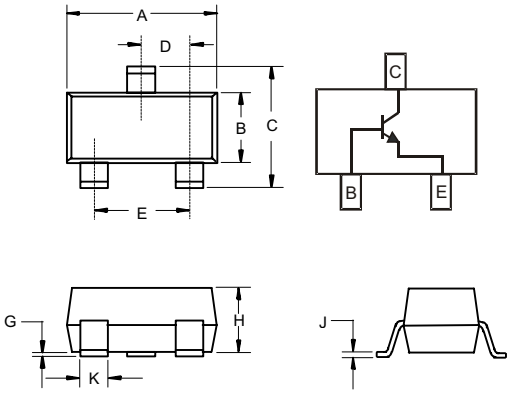
- Halogen free available upon request by adding suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Operating and Storage Junction Temperatures: -55℃ to 150℃
- Epoxy meets UL 94 V-0 flammability rating
- Moisure Sensitivity Level 1
- Collector Current: 0.2A
- Marking: 1N

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=10μAdc, I_E=0)	60		Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage (I_E=10μAdc, I_C=0)	6.0		Vdc
I_{CBO}	Collector Cut-off Current (V_{CB}=30Vdc, I_E=0)		50	nAdc
I_{EBO}	Emitter Cut-off Current (V_{EB}=5Vdc, I_C=0)		50	nAdc
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=50mAdc, V_{CE}=1.0Vdc) (I_C=100mAdc, V_{CE}=1.0Vdc)	40 70 100 60 30	300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage (I_C=10mAdc, I_B=1.0mAdc) (I_C=50mAdc, I_B=5.0mAdc)		0.2 0.3	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage (I_C=10mAdc, I_B=1.0mAdc) (I_C=50mAdc, I_B=5.0mAdc)	0.65	0.85 0.95	Vdc
SMALL-SIGNAL CHARACTERISTICS				
f_T	Current Gain-Bandwidth Product (I_C=10mAdc, V_{CE}=20Vdc, f=100MHz)	300		MHz
C_{obo}	Output Capacitance (V_{CB}=5.0Vdec, I_E=0, f=1.0MHz)		4.0	pF
NF	Noise Figure (I_C=100μAdc, V_{CE}=5.0Vdc, R_S=1.0kΩ f=1MHz)		5.0	dB

SWITCHING CHARACTERISTICS				
t_d	Delay Time	(V_{CC}=3.0Vdc, V_{BE}=0.5Vdc	35	ns
t_r	Rise Time	I_C=10mAdc, I_{B1}=1.0mAdc)	35	ns
t_s	Storage Time	(V_{CC}=3.0Vdc, I_C=10mAdc	200	ns
t_f	Fall Time	I_{B1}=I_{B2}=1.0mAdc)	50	ns

SOT-523



DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
A	.059	.067	1.50	1.70	
B	.030	.033	0.75	0.85	
C	.057	.069	1.45	1.75	
D	.020 Nominal		0.50Nominal		
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	

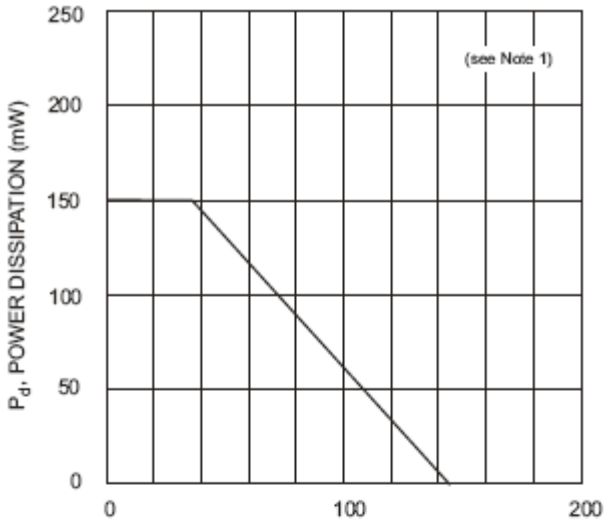


Fig. 1, Power Derating Curve

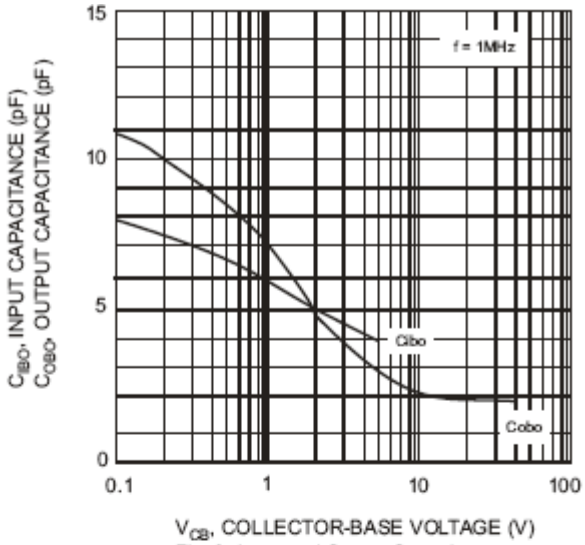


Fig. 2, Input and Output Capacitance vs. Collector-Base Voltage

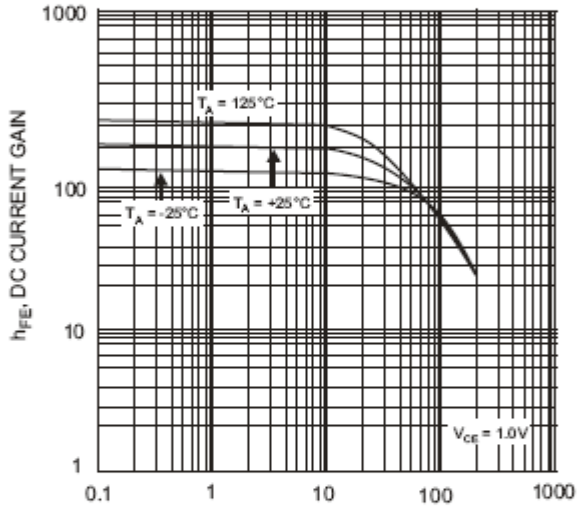


Fig. 3, Typical DC Current Gain vs Collector Current

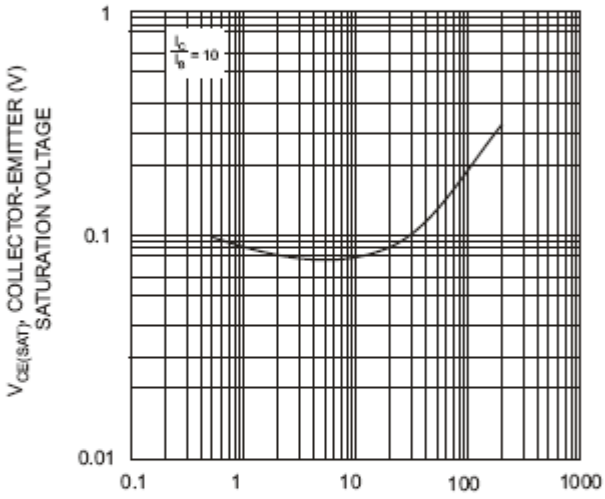


Fig. 4, Typical Collector-Emitter Saturation Voltage vs. Collector Current

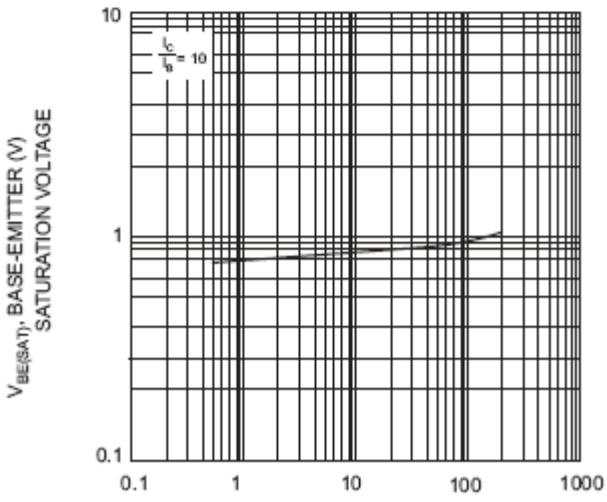


Fig. 5, Typical Base-Emitter Saturation Voltage vs. Collector Current

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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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