



Micro Commercial Components

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MMBT3904

Features

- Capable of 350mWatts of Power Dissipation and 200mA I_C .
- Operating and Storage Junction Temperatures: -55°C to 150°C
- Surface Mount SOT-23 Package
- Case Material:Molded Plastic. UL Flammability Classification Rating 94-0 and MSL Rating 1
- Marking:1AM

Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
OFF CHARACTERISTICS				
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage* ($I_C=1.0\text{mA}$, $I_B=0$)	40		Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ($I_C=10\mu\text{A}$, $I_E=0$)	60		Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ($I_E=10\mu\text{A}$, $I_C=0$)	6.0		Vdc
I_{CBO}	Collector Cutoff Current ($V_{CB}=30\text{Vdc}$, $V_{BE}=3.0\text{Vdc}$)		50	nAdc
I_{CEX}	Collector Cutoff Current ($V_{CE}=30\text{Vdc}$, $V_{BE}=3.0\text{Vdc}$)		50	nAdc

ON CHARACTERISTICS

h_{FE}	DC Current Gain* ($I_C=0.1\text{mA}$, $V_{CE}=1.0\text{Vdc}$) ($I_C=1.0\text{mA}$, $V_{CE}=1.0\text{Vdc}$) ($I_C=10\text{mA}$, $V_{CE}=1.0\text{Vdc}$) ($I_C=50\text{mA}$, $V_{CE}=1.0\text{Vdc}$) ($I_C=100\text{mA}$, $V_{CE}=1.0\text{Vdc}$)	40 70 100 60 30	300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ($I_C=10\text{mA}$, $I_B=1.0\text{mA}$) ($I_C=50\text{mA}$, $I_B=5.0\text{mA}$)		0.2 0.3	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ($I_C=10\text{mA}$, $I_B=1.0\text{mA}$) ($I_C=50\text{mA}$, $I_B=5.0\text{mA}$)	0.65	0.85 0.95	Vdc

SMALL-SIGNAL CHARACTERISTICS

f_T	Current Gain-Bandwidth Product ($I_C=10\text{mA}$, $V_{CE}=20\text{Vdc}$, $f=100\text{MHz}$)	300		MHz
C_{obo}	Output Capacitance ($V_{CB}=5.0\text{Vdc}$, $I_E=0$, $f=1.0\text{MHz}$)		4.0	pF
C_{ibo}	Input Capacitance ($V_{BE}=0.5\text{Vdc}$, $I_C=0$, $f=1.0\text{MHz}$)		8.0	pF
NF	Noise Figure ($I_C=100\mu\text{A}$, $V_{CE}=5.0\text{Vdc}$, $R_S=1.0\text{k}\Omega$, $f=10\text{Hz}$ to 15.7kHz)		5.0	dB

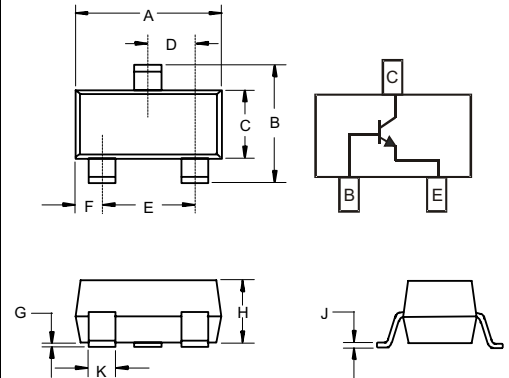
SWITCHING CHARACTERISTICS

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

*Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$

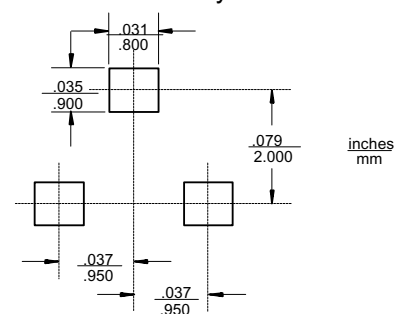
NPN General Purpose Amplifier

SOT-23



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.110	.120	2.80	3.04	
B	.083	.098	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

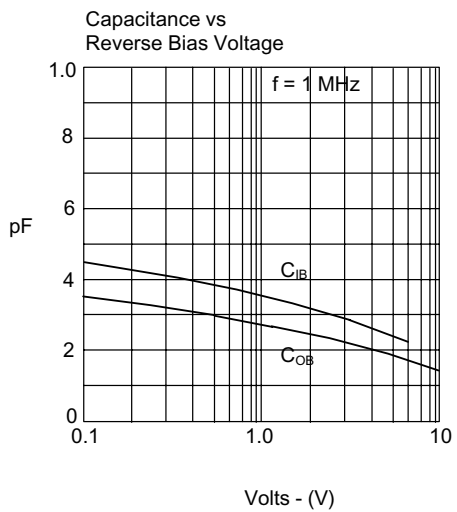
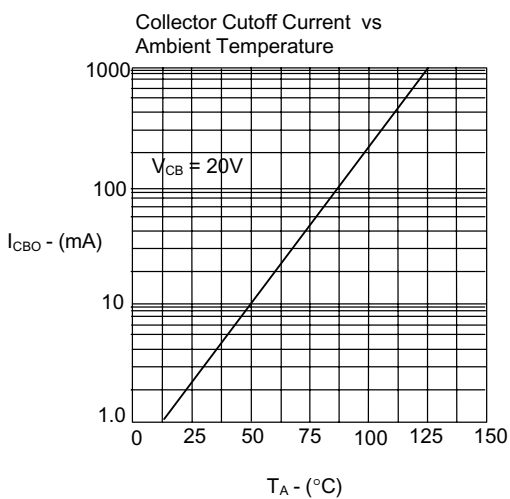
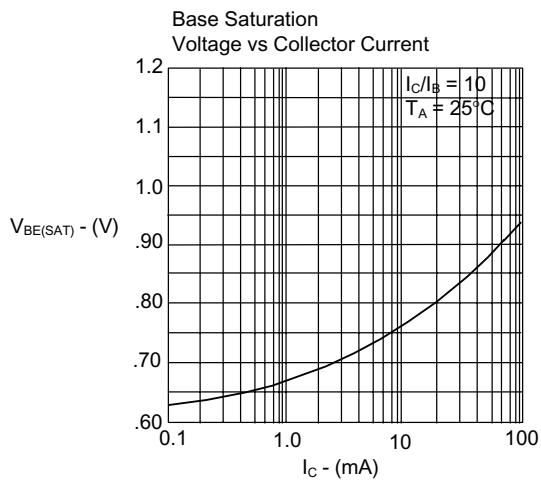
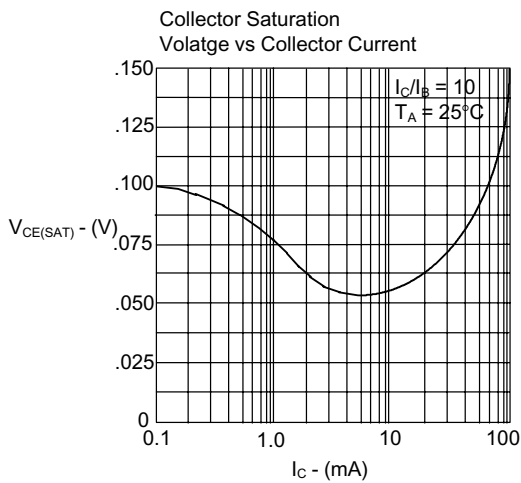
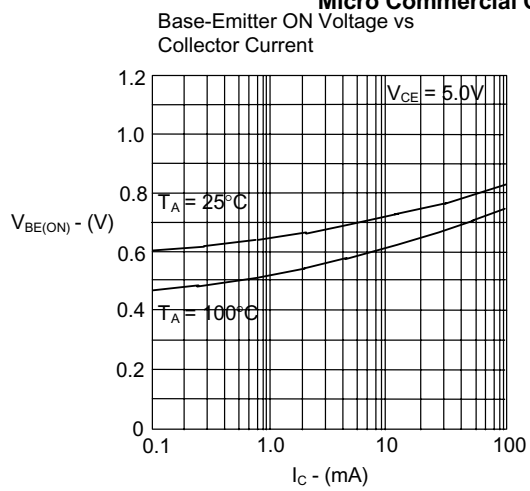
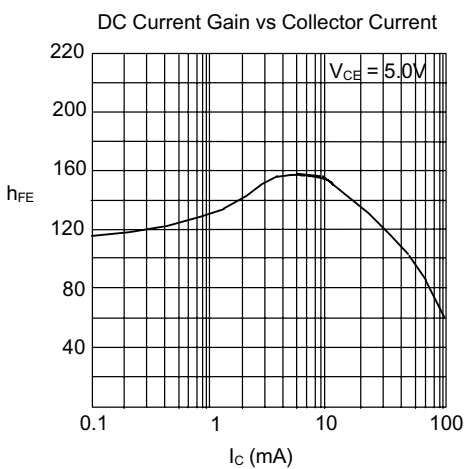


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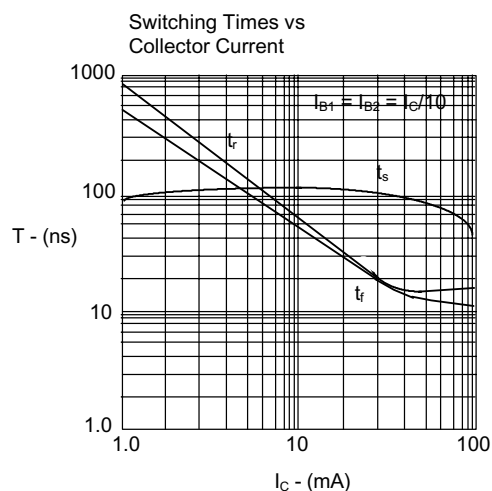
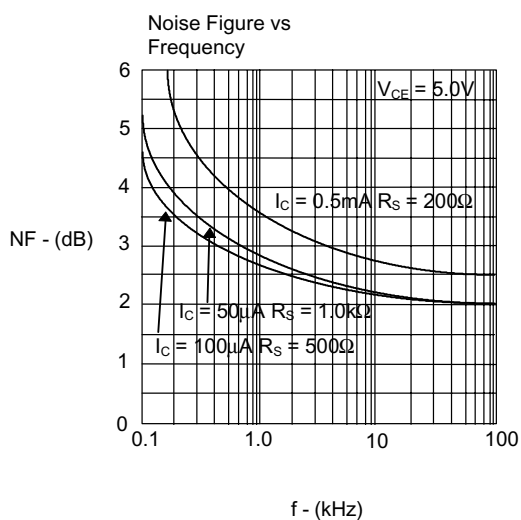
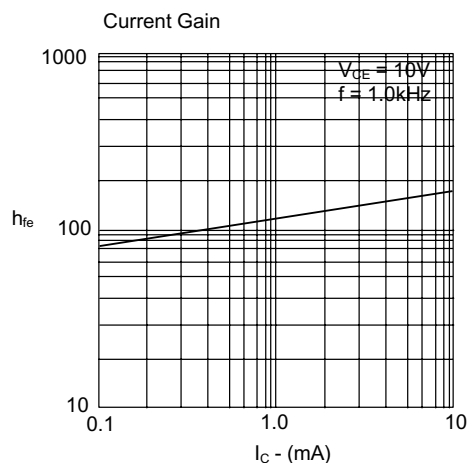
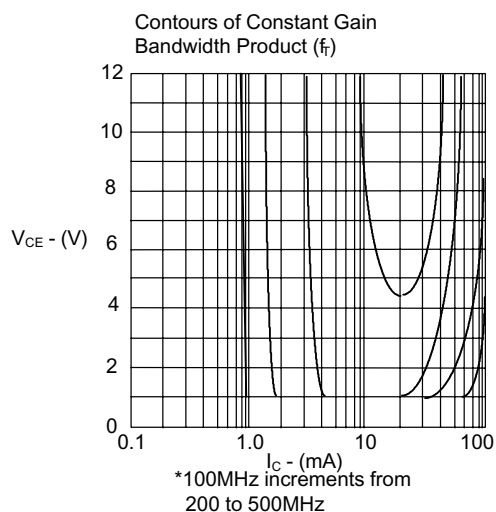
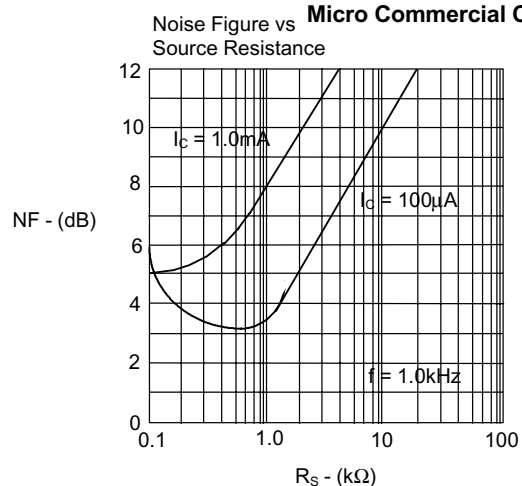
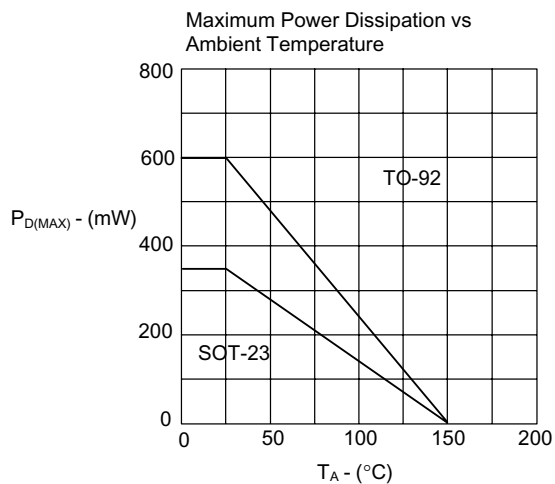
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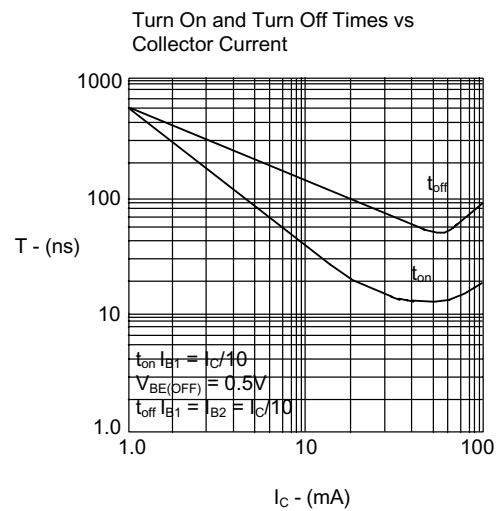
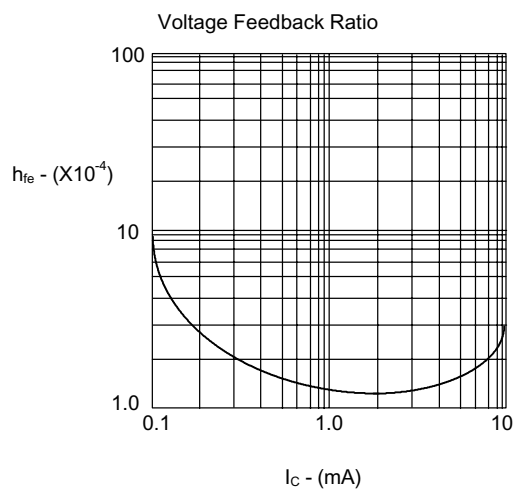
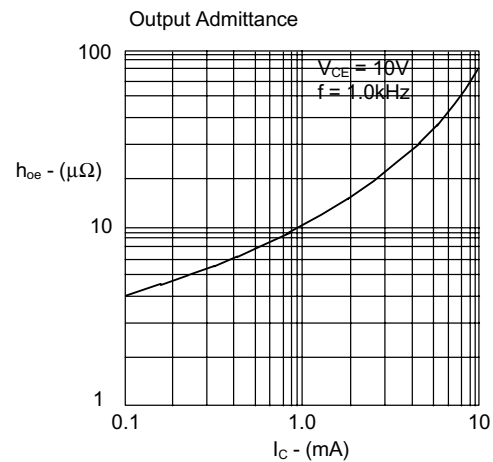
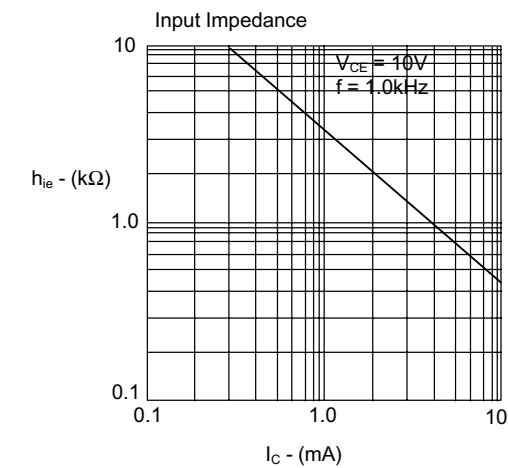
MCC

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Ordering Information

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

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