



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

NPN General Purpose Amplifier

Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
OFF CHARACTERISTICS				
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage* (I _C =1.0mA _{dc} , I _B =0)	40		Vdc
V _{(BR)CBO}	Collector-Base Breakdown Voltage (I _C =10μA _{dc} , I _E =0)	60		Vdc
V _{(BR)EBO}	Emitter-Base Breakdown Voltage (I _E =10μA _{dc} , I _C =0)	6.0		Vdc
I _{CBO}	Collector Cutoff Current (V _{CB} =30Vdc, V _{BE} =3.0Vdc)		50	nA _{dc}
I _{CEX}	Collector Cutoff Current (V _{CE} =30Vdc, V _{BE} =3.0Vdc)		50	nA _{dc}

ON CHARACTERISTICS

h _{FE}	DC Current Gain* (I _C =0.1mA _{dc} , V _{CE} =1.0Vdc) (I _C =1.0mA _{dc} , V _{CE} =1.0Vdc) (I _C =10mA _{dc} , V _{CE} =1.0Vdc) (I _C =50mA _{dc} , V _{CE} =1.0Vdc) (I _C =100mA _{dc} , V _{CE} =1.0Vdc)	40 70 100 60 30	300	
V _{CE(sat)}	Collector-Emitter Saturation Voltage (I _C =10mA _{dc} , I _B =1.0mA _{dc}) (I _C =50mA _{dc} , I _B =5.0mA _{dc})		0.2 0.3	Vdc
V _{BE(sat)}	Base-Emitter Saturation Voltage (I _C =10mA _{dc} , I _B =1.0mA _{dc}) (I _C =50mA _{dc} , I _B =5.0mA _{dc})	0.65	0.85 0.95	Vdc

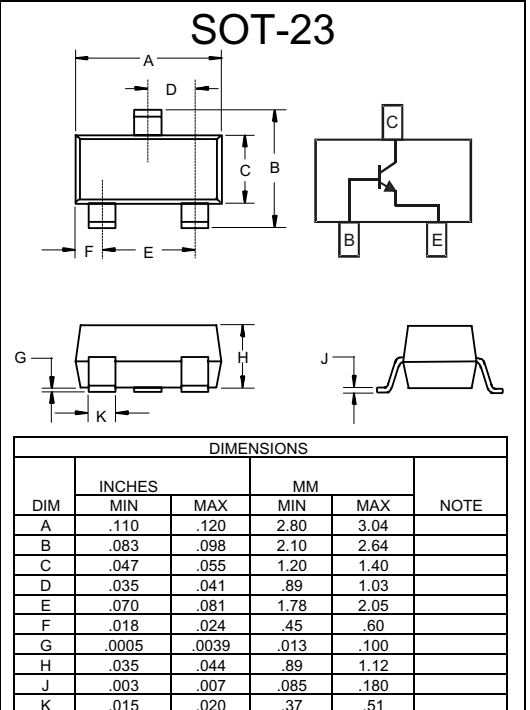
SMALL-SIGNAL CHARACTERISTICS

f _T	Current Gain-Bandwidth Product (I _C =10mA _{dc} , V _{CE} =20Vdc, f=100MHz)	300		MHz
C _{obo}	Output Capacitance (V _{CB} =5.0Vdc, I _E =0, f=1.0MHz)		4.0	pF
C _{ibo}	Input Capacitance (V _{BE} =0.5Vdc, I _C =0, f=1.0MHz)		8.0	pF
NF	Noise Figure (I _C =100μA _{dc} , V _{CE} =5.0Vdc, R _S =1.0kΩ f=10Hz to 15.7kHz)		5.0	dB

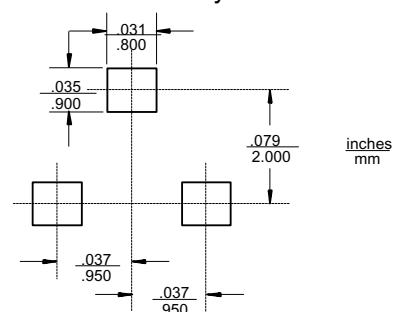
SWITCHING CHARACTERISTICS

t _d	Delay Time	(V _{CC} =3.0Vdc, V _{BE} =0.5Vdc)	35	ns
t _r	Rise Time	(I _C =10mA _{dc} , I _{B1} =1.0mA _{dc})	35	ns
t _s	Storage Time	(V _{CC} =3.0Vdc, I _C =10mA _{dc})	200	ns
t _f	Fall Time	(I _{B1} =I _{B2} =1.0mA _{dc})	50	ns

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



Suggested Solder Pad Layout

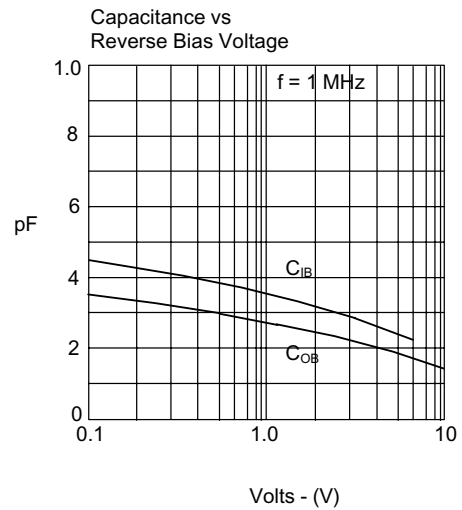
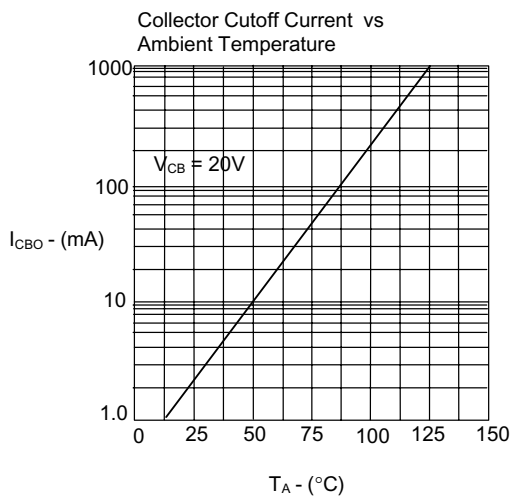
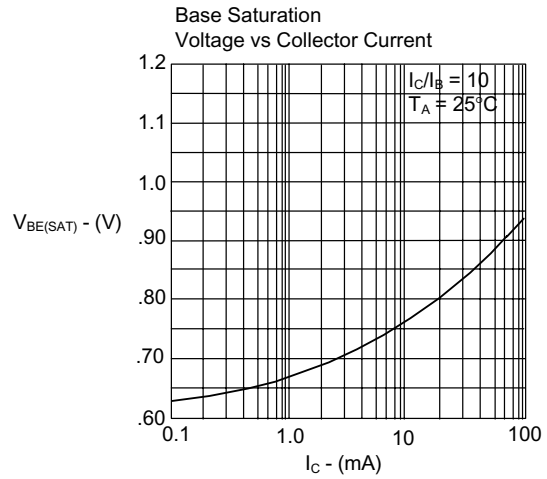
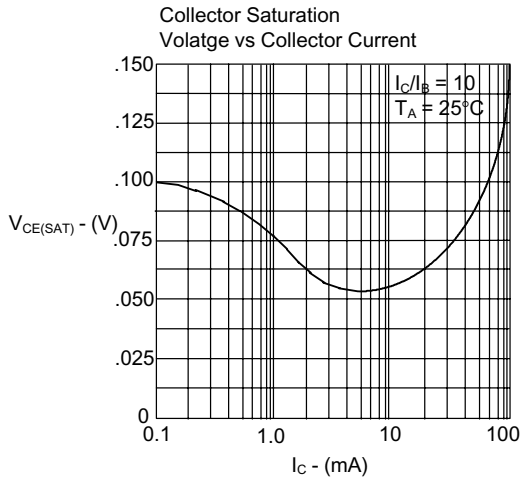
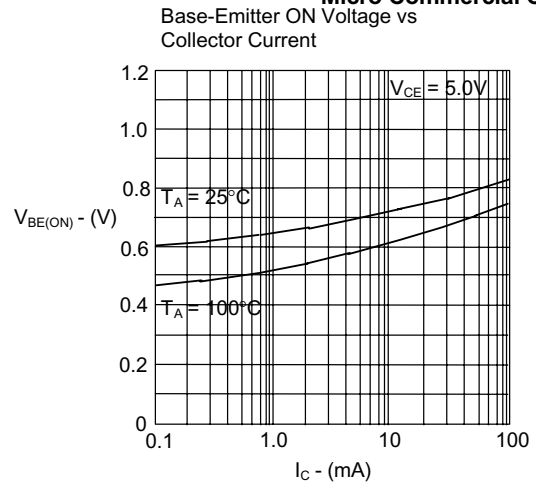
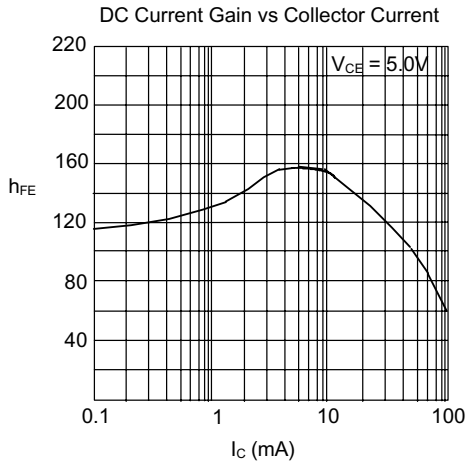


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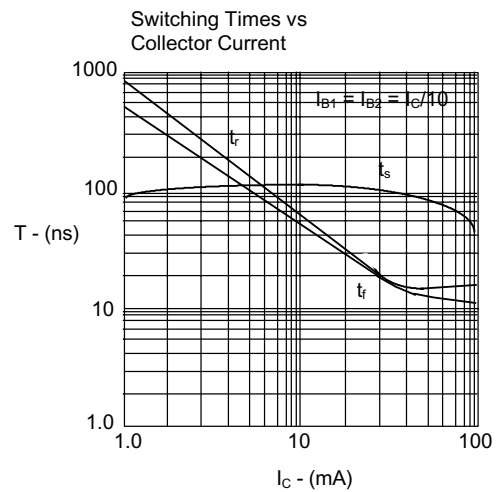
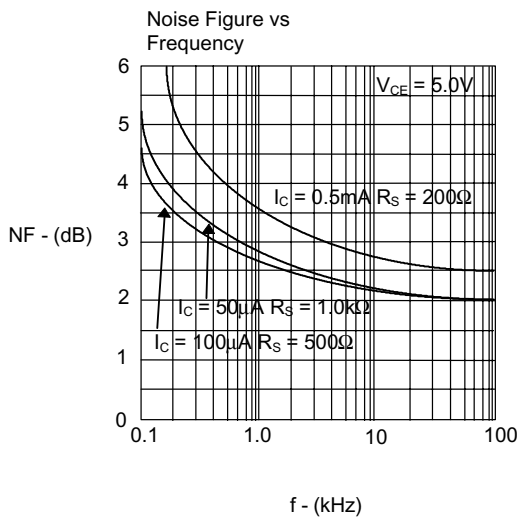
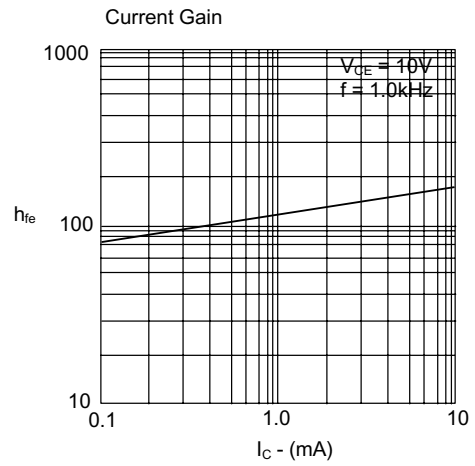
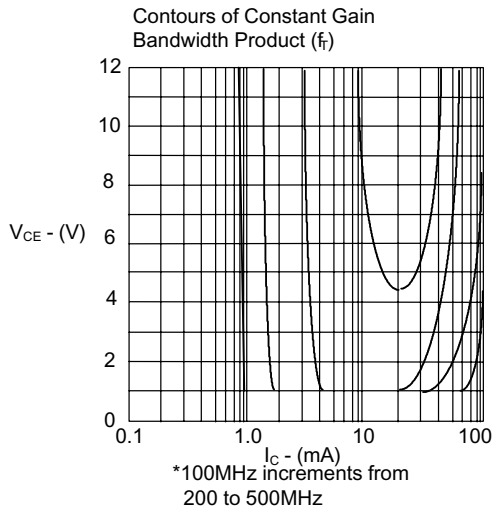
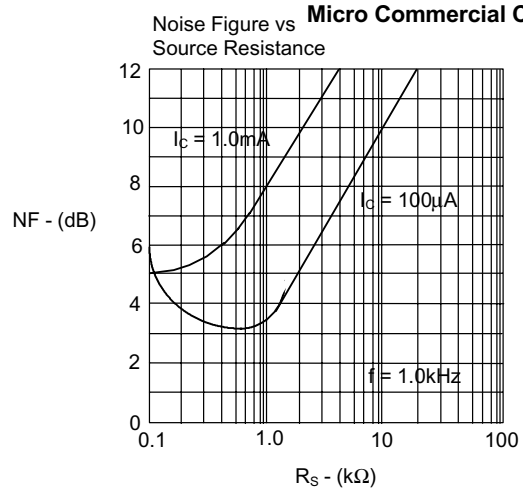
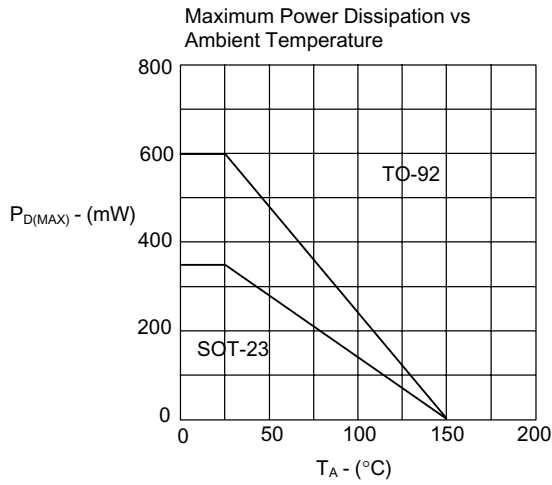


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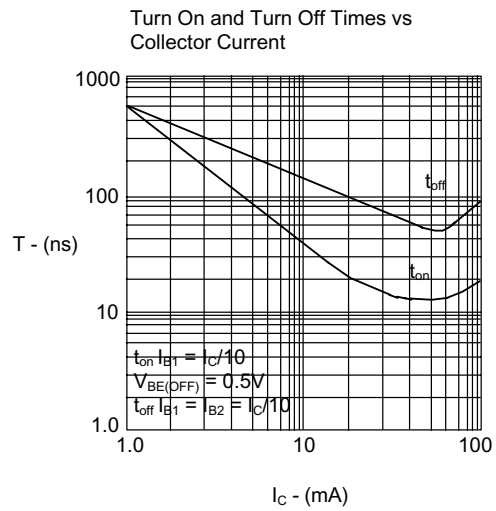
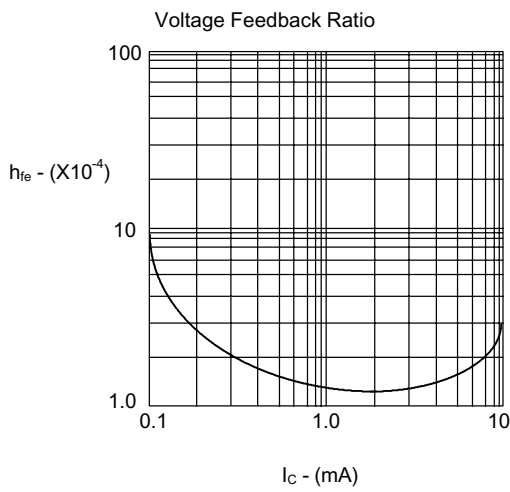
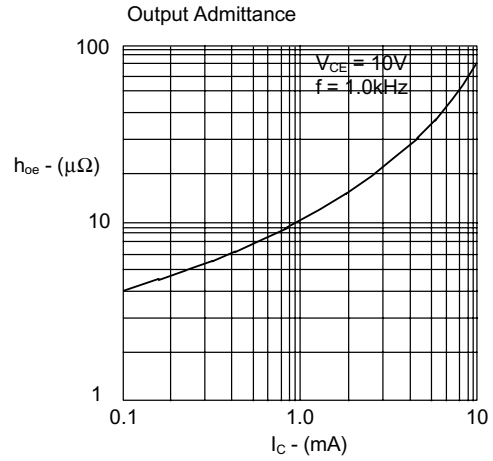
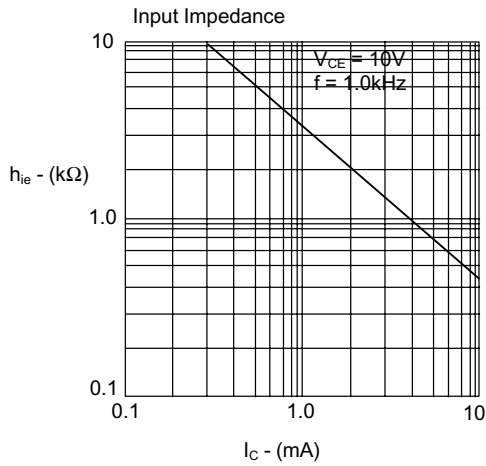


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Ordering Information

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

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