



Micro Commercial Components



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
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking Code: 1AM
- Thermal Resistance Junction to Ambient: 385 °C/W
- Thermal Resistance Junction to Case: 185 °C/W

Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
OFF CHARACTERISTICS				
V _{(BR)CEO}	Collector-Emmitter 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-Emmitter 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-Emmitter 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

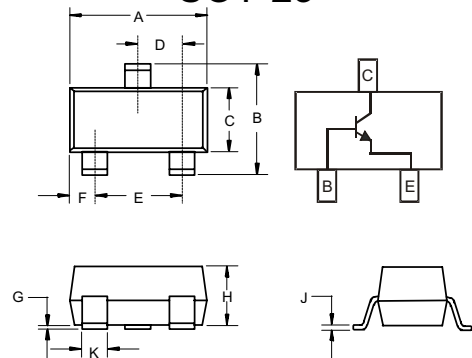
SWITCHING CHARACTERISTICS

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%

NPN General Purpose Amplifier

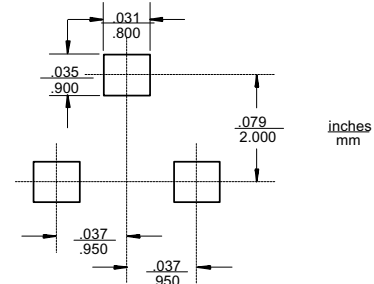
SOT-23



DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
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

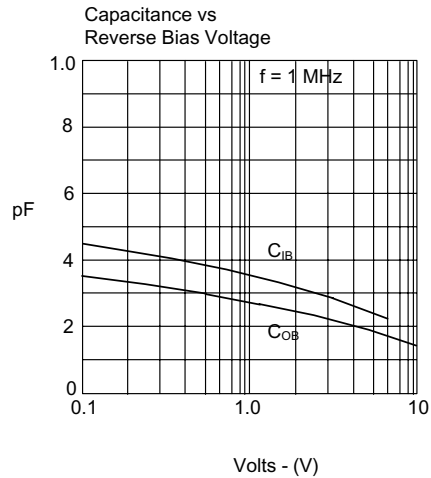
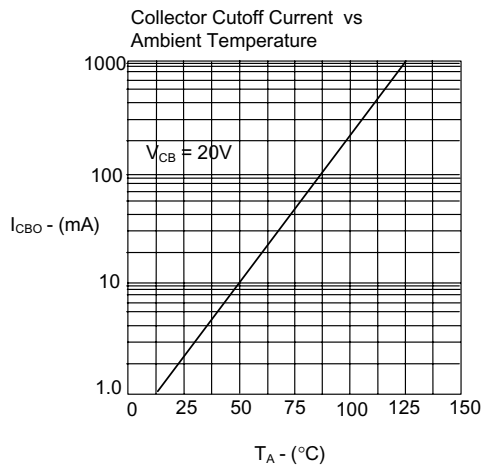
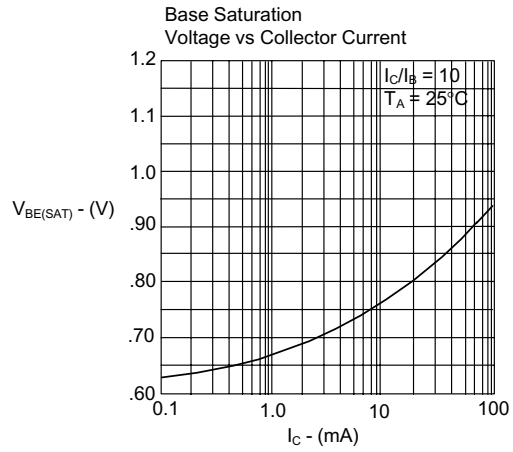
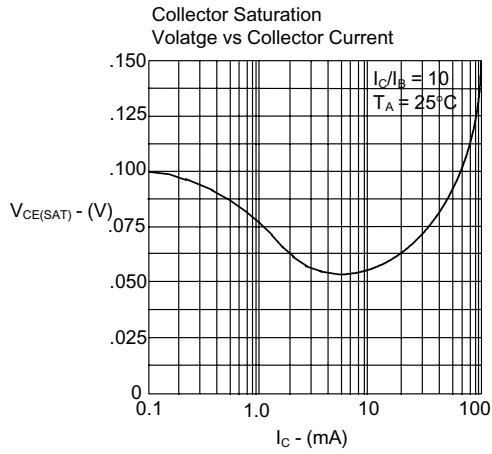
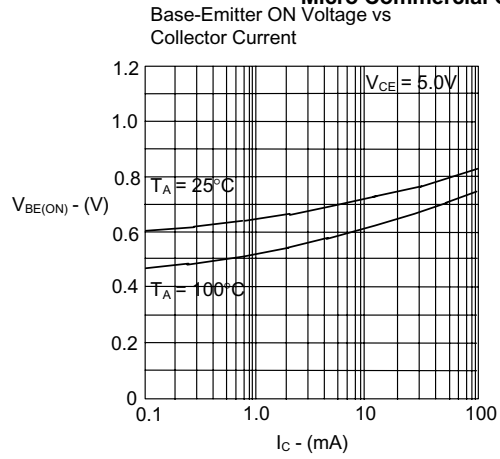
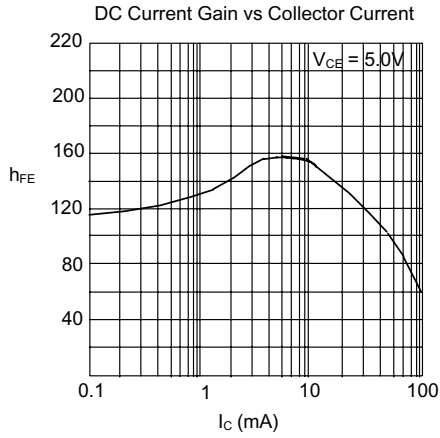


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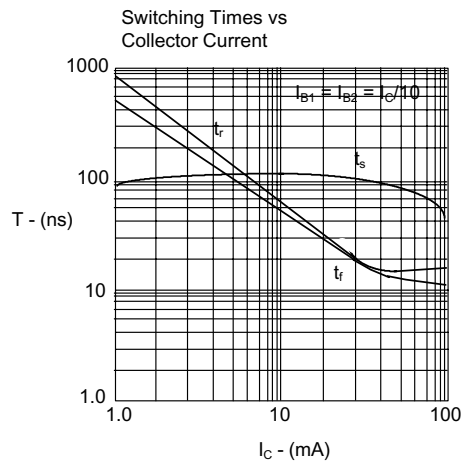
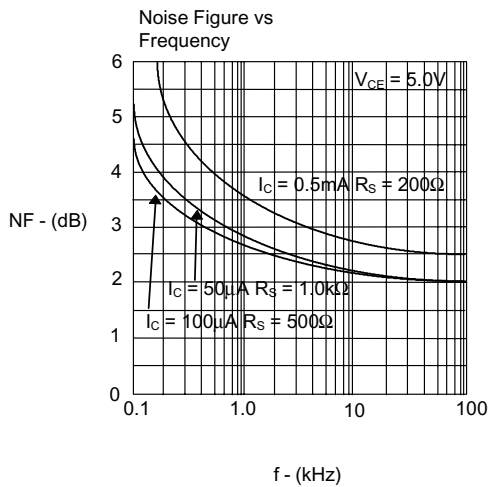
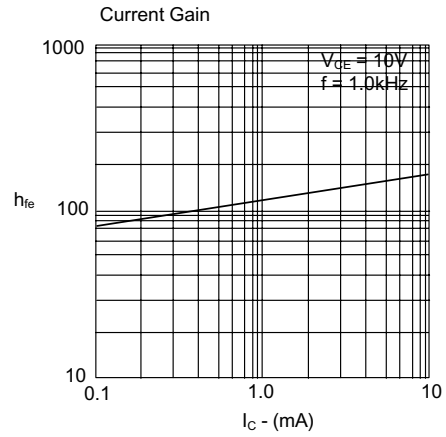
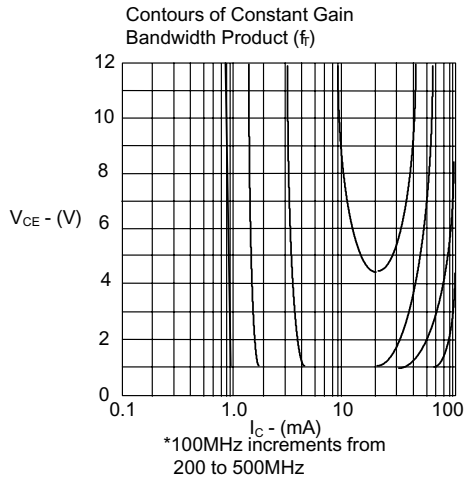
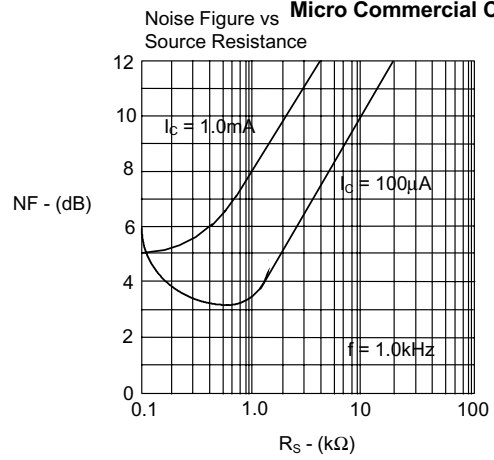
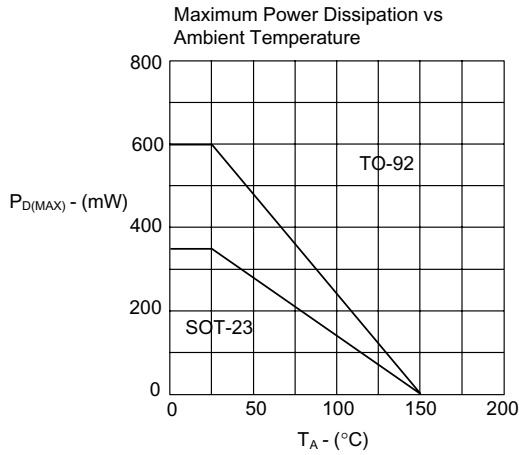


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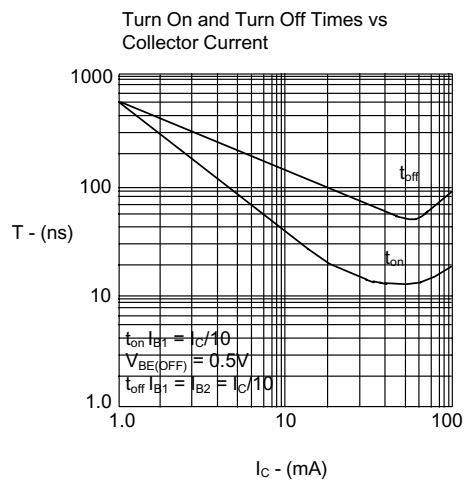
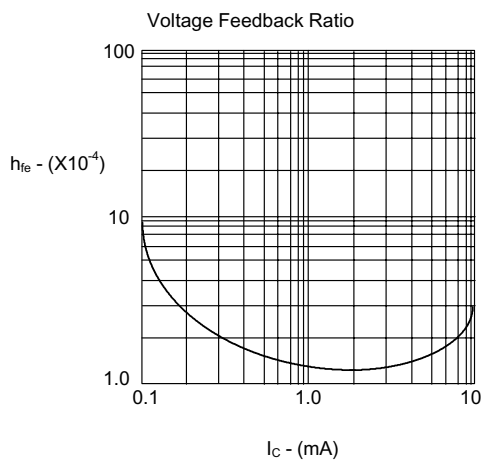
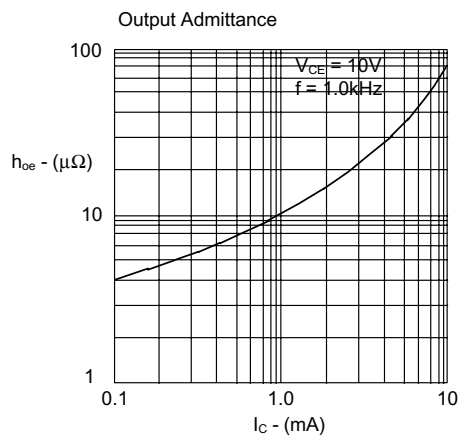
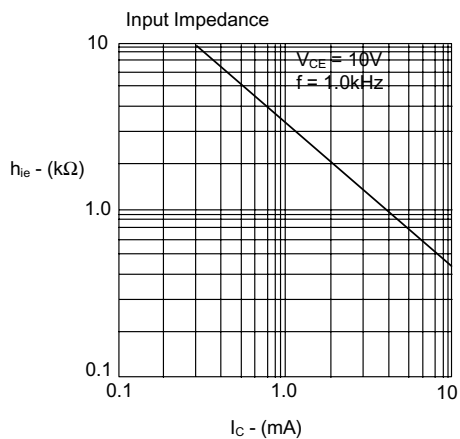


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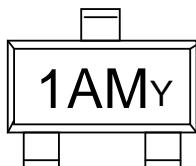
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Marking Information



1AM = Product Type Marking Code
Y = Date Code Marking

Date code Key (2 years a cycle)

Year	2011											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	J	O	L	C	K	B	P	D	M	E	G	F

Year	2012											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	W	N	Y	T	R	H	A	I	U	X	Z	S



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Ordering Information :

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

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