



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Micro Commercial Components



Micro Commercial Components
20736 Marilla Street Chatsworth
CA 91311

Phone: (818) 701-4933

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MMBT3904

Features

- Halogen free available upon request by adding suffix "-HF"
- 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-Emitter Breakdown Voltage* (I _c =1.0mA, I _b =0)	40		Vdc
V _{(BR)CBO}	Collector-Base Breakdown Voltage (I _c =10μA, I _E =0)	60		Vdc
V _{(BR)EBO}	Emitter-Base Breakdown Voltage (I _E =10μA, I _C =0)	6.0		Vdc
I _{CBO}	Collector Cutoff Current (V _{CB} =30Vdc, V _{BE} =3.0Vdc)		50	nAdc
I _{CEX}	Collector Cutoff Current (V _{CE} =30Vdc, V _{BE} =3.0Vdc)		50	nAdc

ON CHARACTERISTICS

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

SMALL-SIGNAL CHARACTERISTICS

f _T	Current Gain-Bandwidth Product (I _c =10mA, 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, V _{CE} =5.0Vdc, R _S =1.0kΩ f=10Hz to 15.7kHz)		5.0	dB

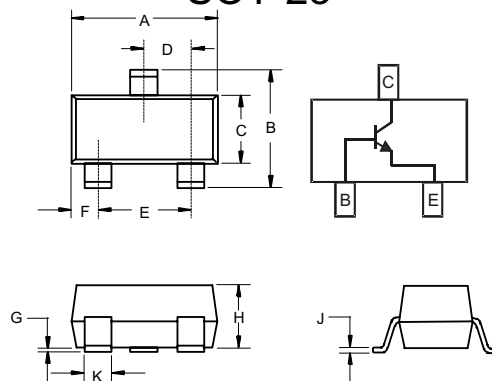
SWITCHING CHARACTERISTICS

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

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

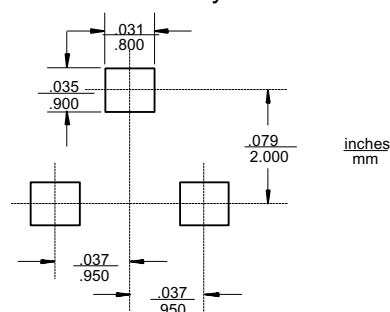
NPN General Purpose Amplifier

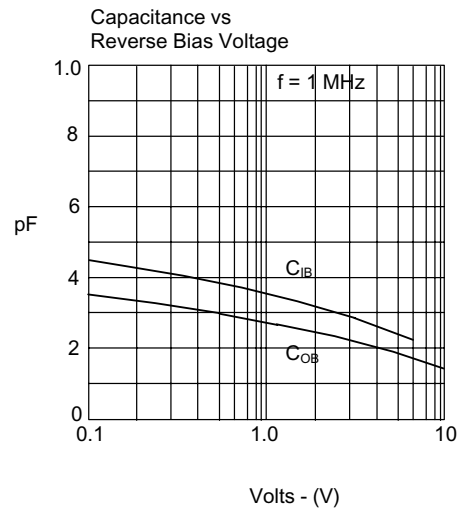
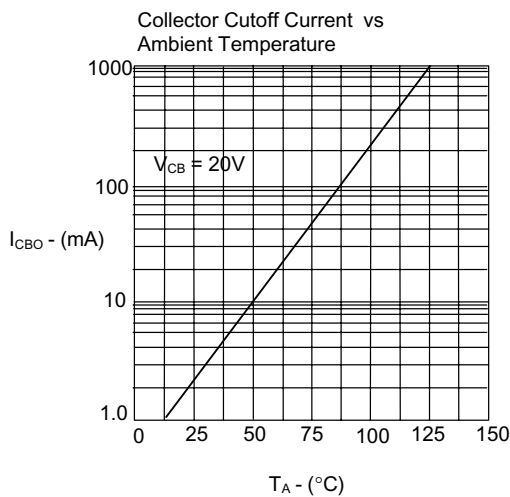
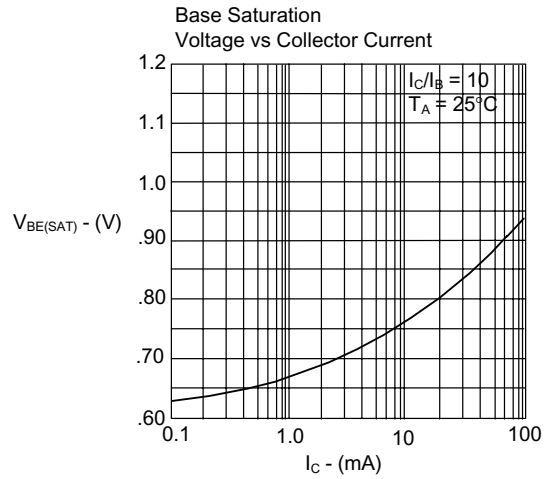
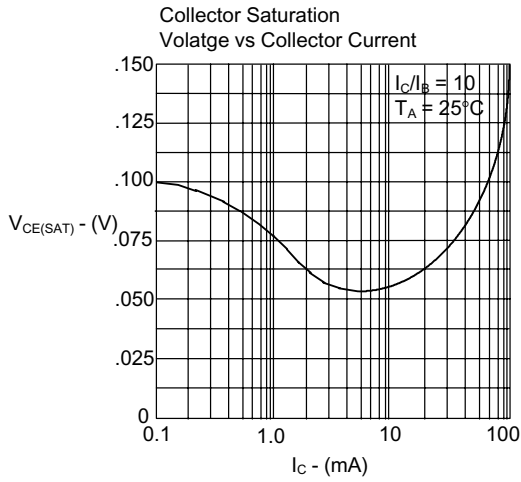
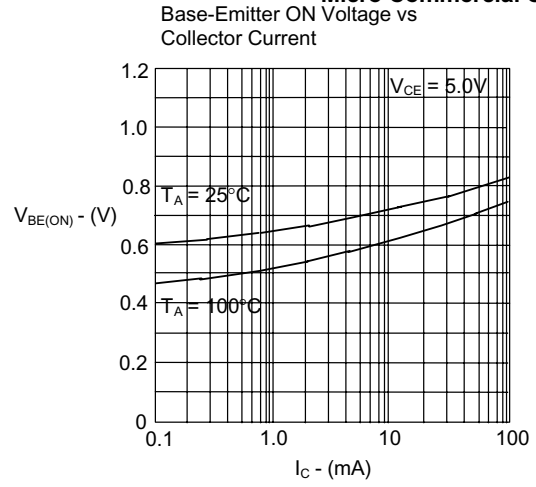
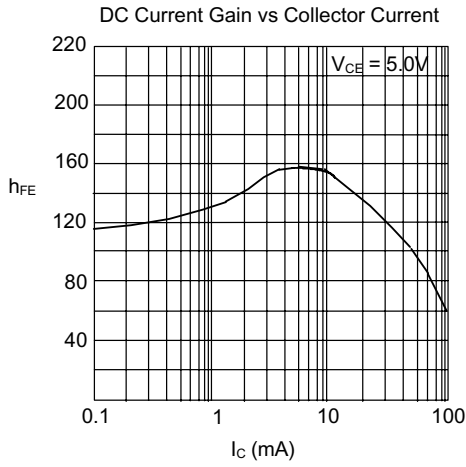
SOT-23



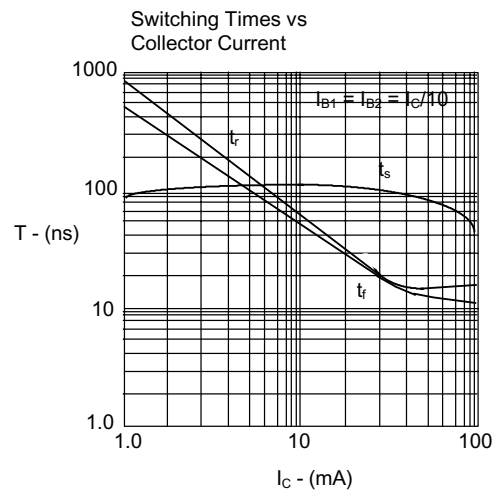
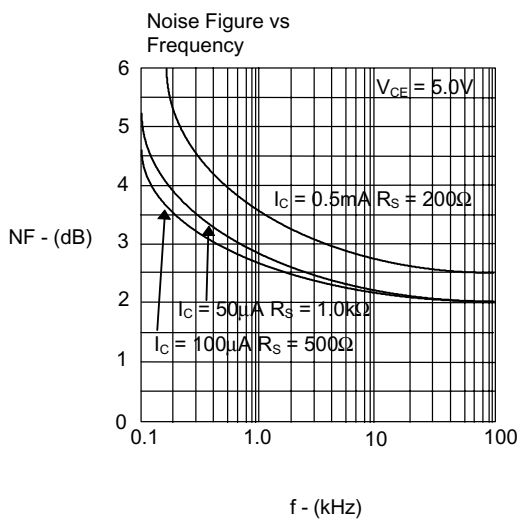
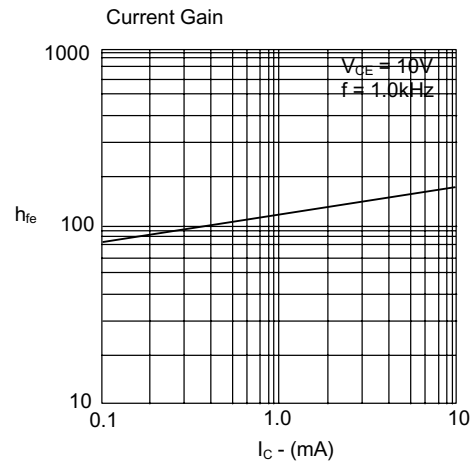
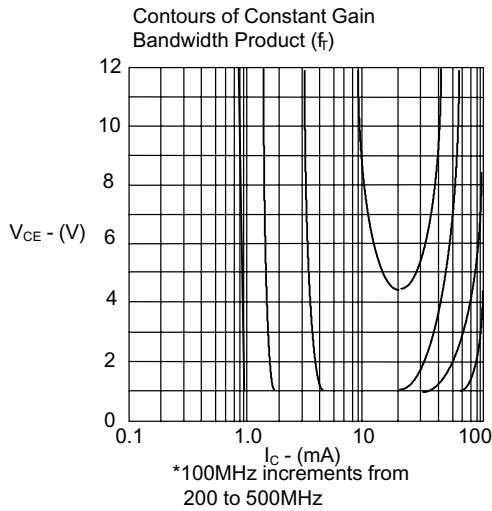
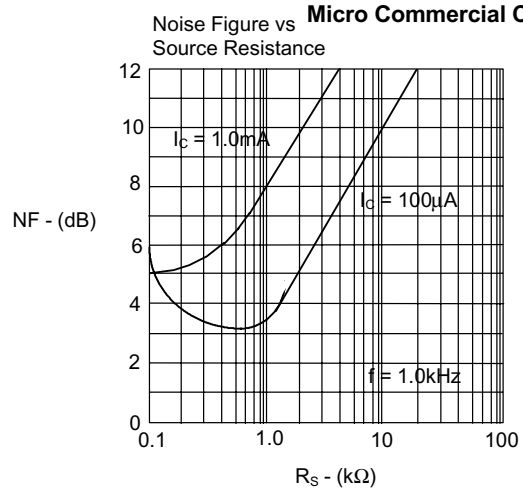
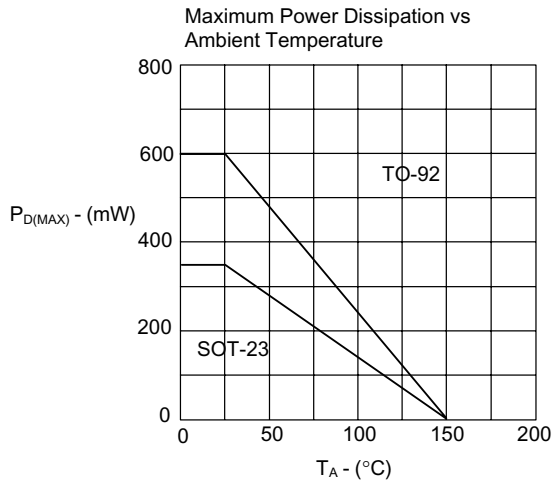
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.110	.120	2.80	3.04	
B	.083	.104	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

Suggested Solder Pad Layout

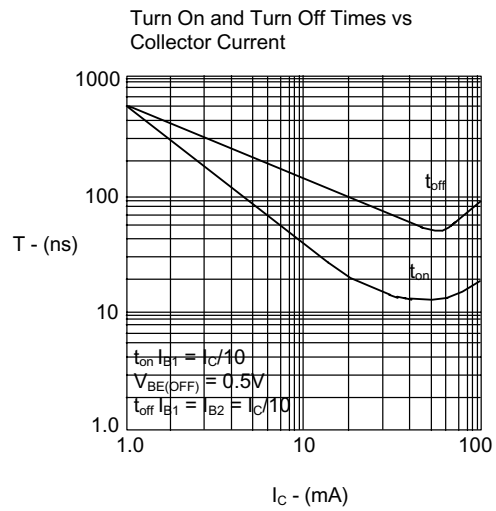
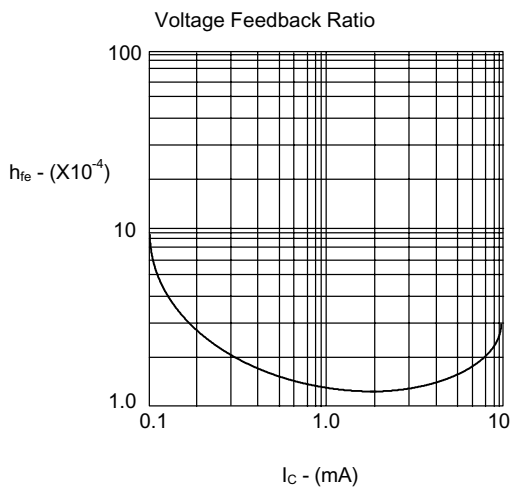
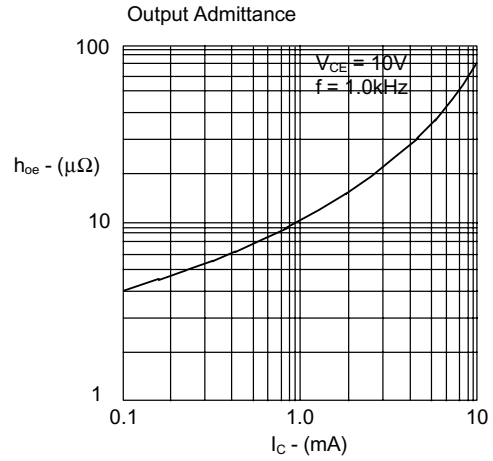
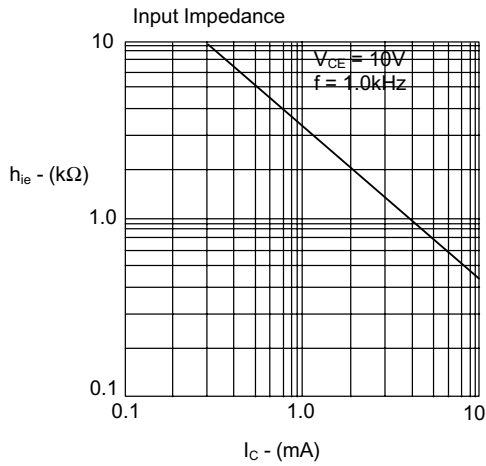




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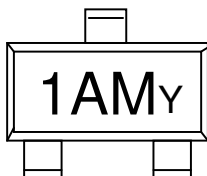
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Marking Information



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; 3 Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

IMPORTANT NOTICE

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