



Micro Commercial Components



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MMBT3906

Features

- Halogen free available upon request by adding suffix "-HF"
- 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:2A

Maximum Ratings

Symbol	Rating	Rating	Unit
V_{CEO}	Collector-Emitter Voltage	-40	V
V_{CBO}	Collector-Base Voltage	-40	V
V_{EBO}	Emitter-Base Voltage	-5.0	V
I_C	Collector Current, Continuous	-0.2	A
P_D	Power Dissipation	0.3	W
T_J	Operating Junction Temperature	-55 to +150	°C
T_{STG}	Storage Temperature	-55 to +150	°C
R_{thJA}	Thermal Resistance, Junction to Ambient	417	°C/W

Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage* ($I_C=-1.0\text{mA}$, $I_B=0$)	-40		Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ($I_C=-10\mu\text{A}$, $I_E=0$)	-40		Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ($I_E=-10\mu\text{A}$, $I_C=0$)	-5.0		Vdc
I_{CBO}	Collector cut-off Current ($V_{CB}=-40\text{Vdc}$, $I_E=0$)		-0.1	uAdc
I_{CEX}	Collector Cut-off Current ($V_{CE}=-30\text{Vdc}$, $V_{BE}=-3.0\text{Vdc}$)		-50	nAdc
I_{EBO}	Emitter cut-off Current ($V_{EB}=-5\text{Vdc}$, $I_C=0$)		-0.1	uAdc
h_{FE}	DC Current Gain* ($I_C=-10\text{mA}$, $V_{CE}=-1.0\text{Vdc}$) ($I_C=-50\text{mA}$, $V_{CE}=-1.0\text{Vdc}$) ($I_C=-100\text{mA}$, $V_{CE}=-1.0\text{Vdc}$)	100 60 30	300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ($I_C=-10\text{mA}$, $I_B=-1.0\text{mA}$) ($I_C=-50\text{mA}$, $I_B=-5.0\text{mA}$)		-0.25 -0.4	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
C_{obo}	Output Capacitance ($V_{CB}=-5.0\text{Vdc}$, $f=1.0\text{MHz}$, $I_E=0$)		4.5	pF
C_{ibo}	Input Capacitance ($V_{EB}=-0.5\text{Vdc}$, $f=1.0\text{MHz}$, $I_C=0$)		10	pF
f_T	Current Gain-Bandwidth Product ($I_C=-10\text{mA}$, $V_{CE}=-20\text{Vdc}$, $f=100\text{MHz}$)	250		MHz
NF	Noise Figure ($V_{CE}=-5.0\text{V}$, $f=1.0\text{kHz}$, $I_C=-100\mu\text{A}$, $R_s=1.0\text{K}$)		4.0	dB

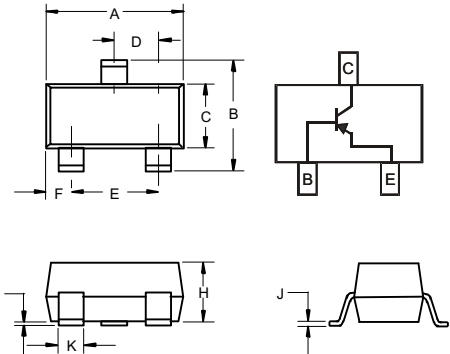
SWITCHING CHARACTERISTICS

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	($V_{CC}=-3.0\text{Vdc}$, $I_C=-10\text{mA}$)	225	ns
t_f	Fall Time	($I_{B1}=I_{B2}=-1.0\text{mA}$)	75	ns

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

PNP General Purpose Amplifier

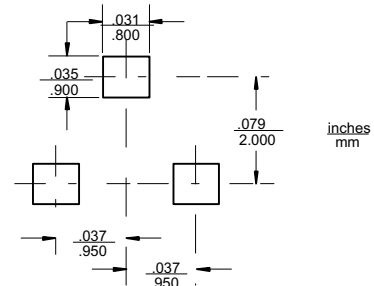
SOT-23



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

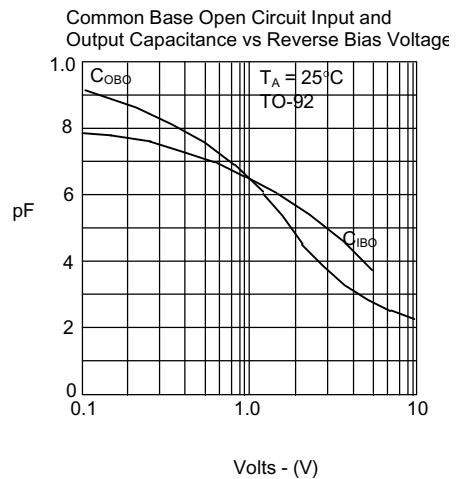
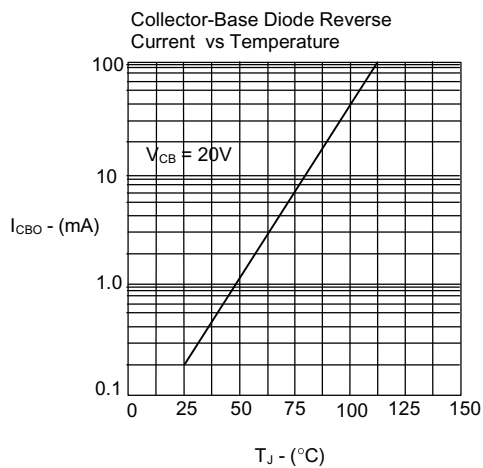
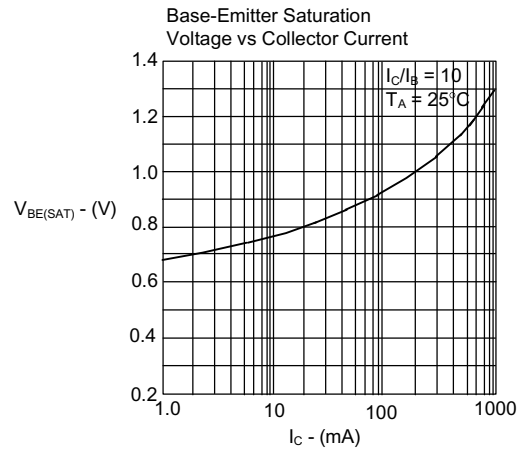
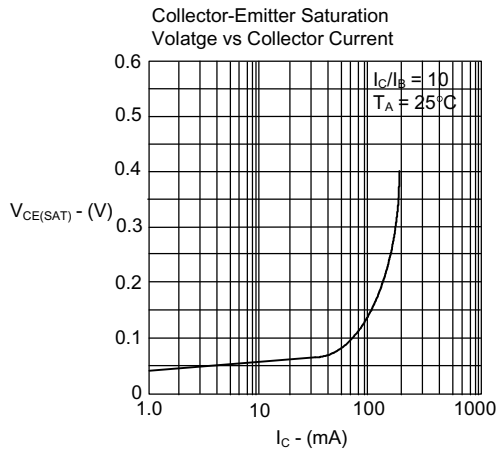
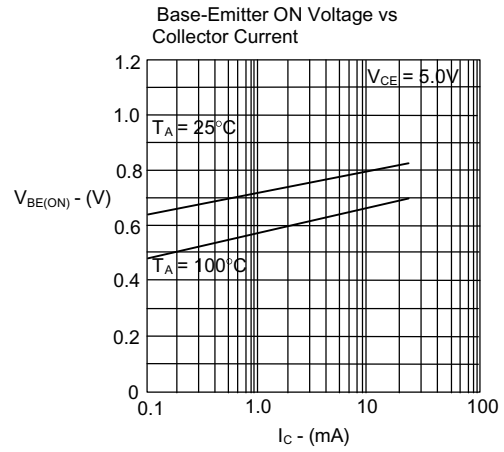
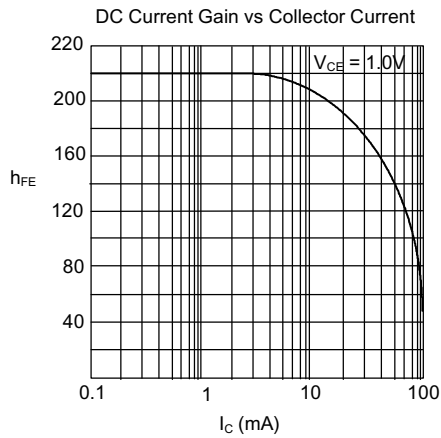


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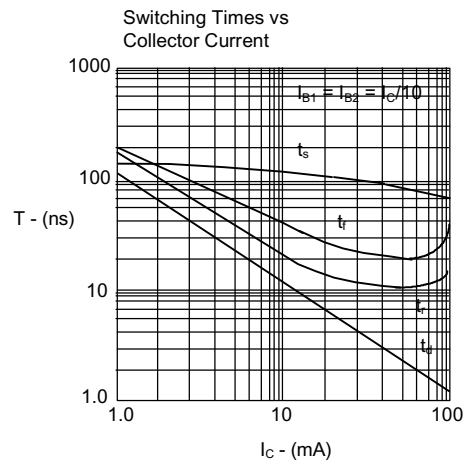
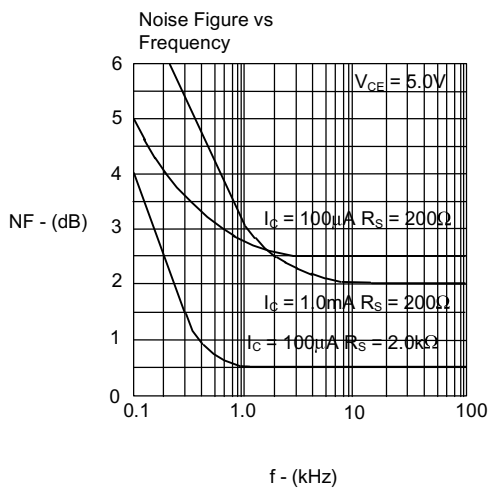
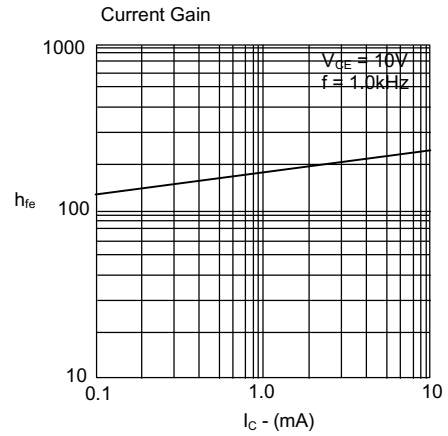
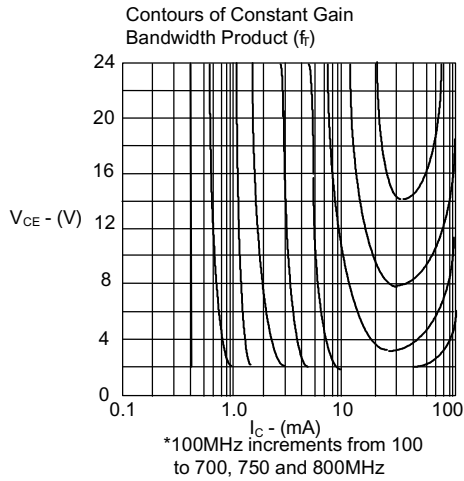
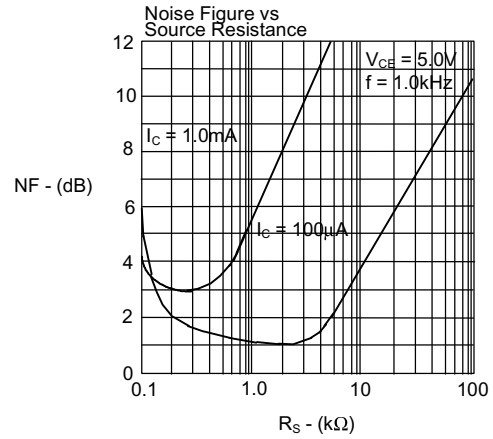
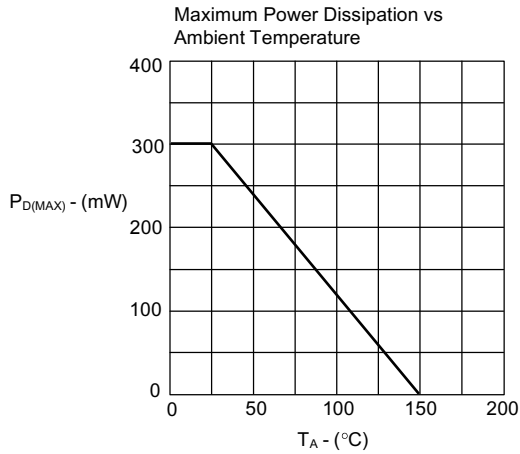


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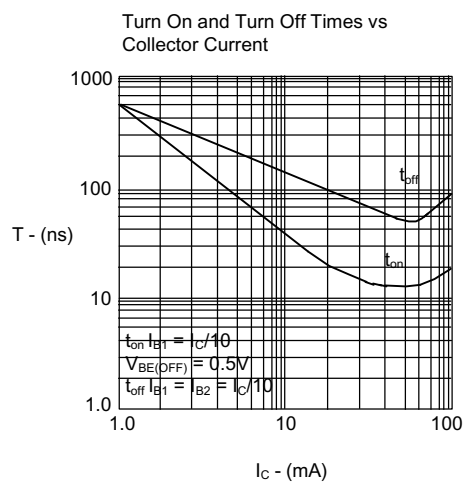
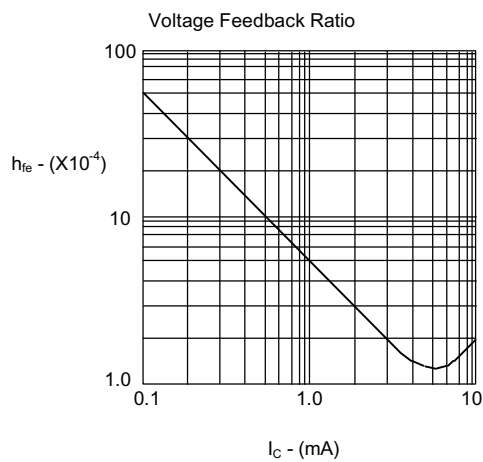
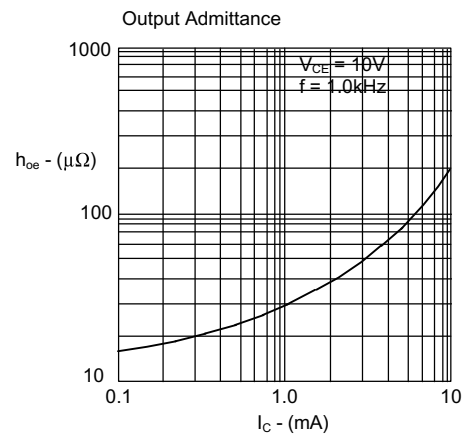
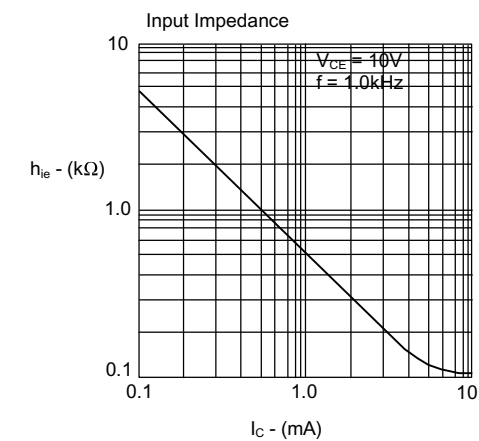


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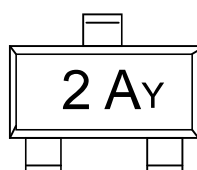


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Marking Information



2A = 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



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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