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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.

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# MMBT3906

## PNP General Purpose Amplifier

### 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
- Capable of 300mWatts of Power Dissipation
- 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

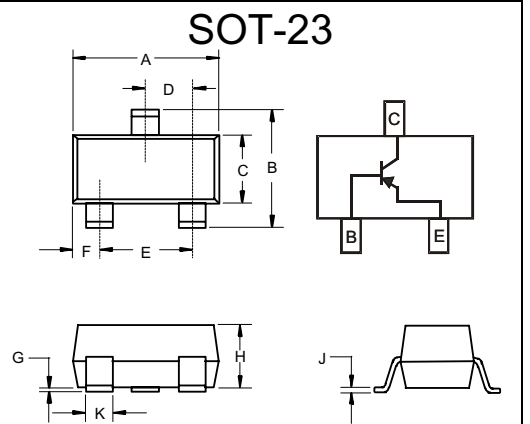
### Electrical Characteristics @ 25°C Unless Otherwise Specified

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

### SWITCHING CHARACTERISTICS

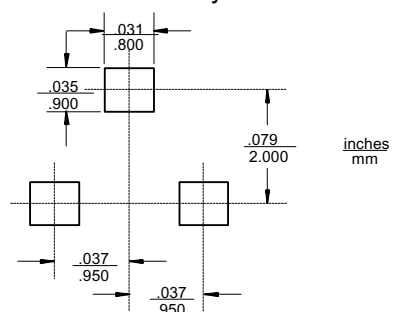
$t_d$	Delay Time	( $V_{CC}=-3.0Vdc$ , $V_{BE}=-0.5Vdc$ )	35	ns
$t_r$	Rise Time	( $I_C=-10mA$ , $I_{B1}=-1.0mA$ )	35	ns
$t_s$	Storage Time	( $V_{CC}=-3.0Vdc$ , $I_C=-10mA$ )	225	ns
$t_f$	Fall Time	( $I_{B1}=I_{B2}=-1.0mA$ )	75	ns

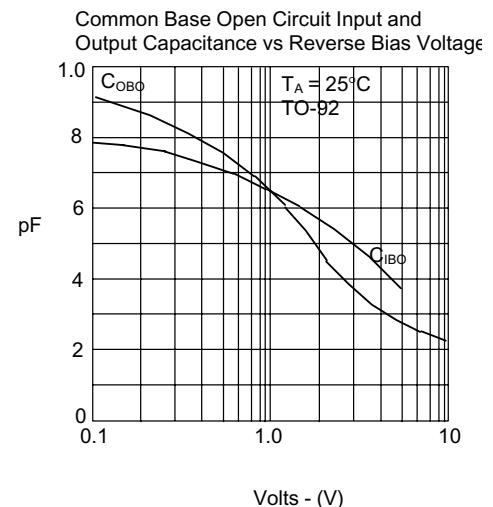
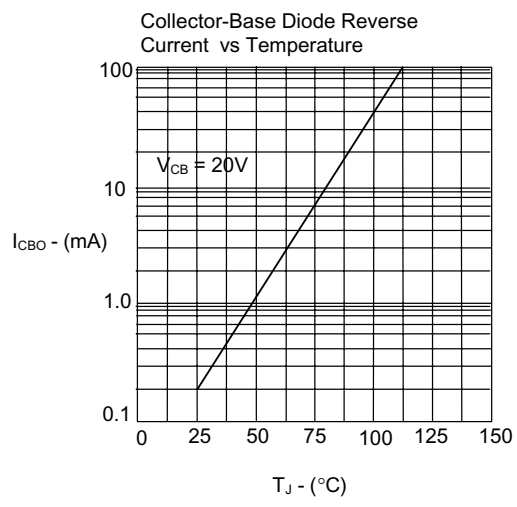
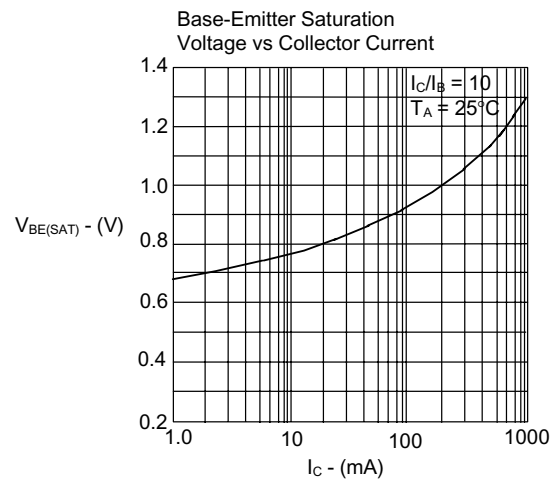
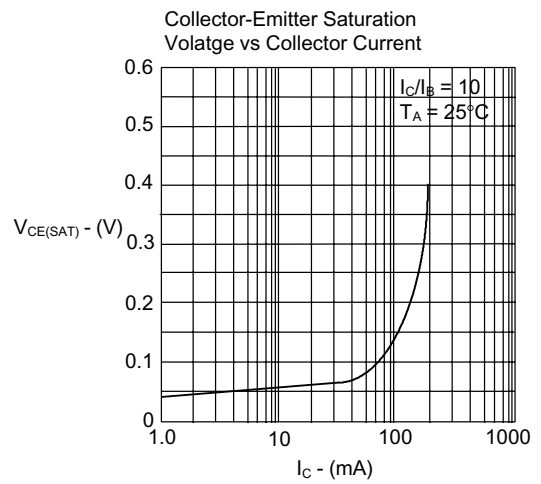
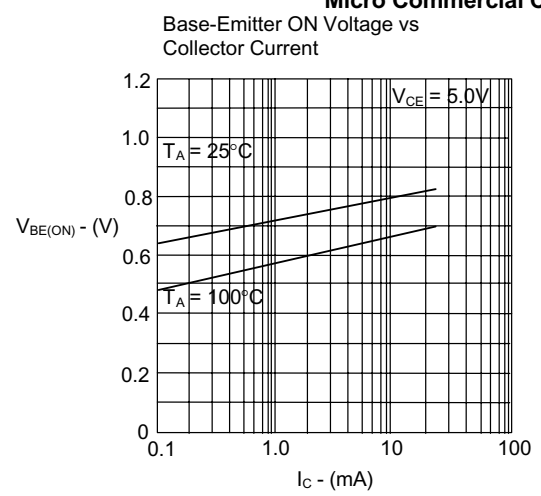
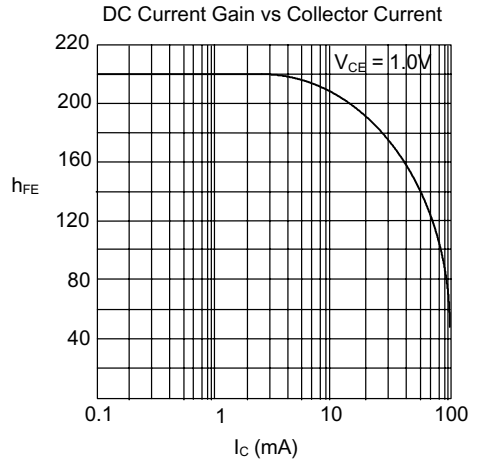
\*Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2.0\%$



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





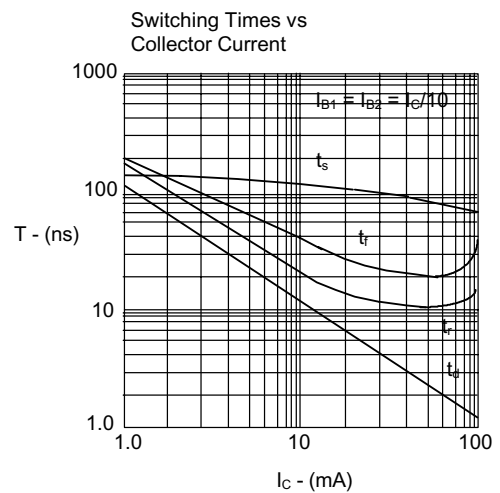
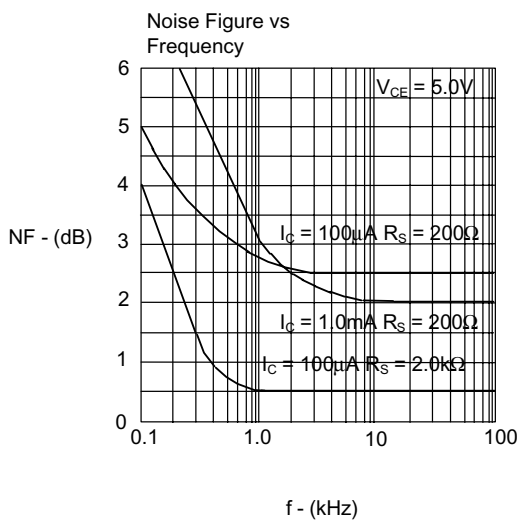
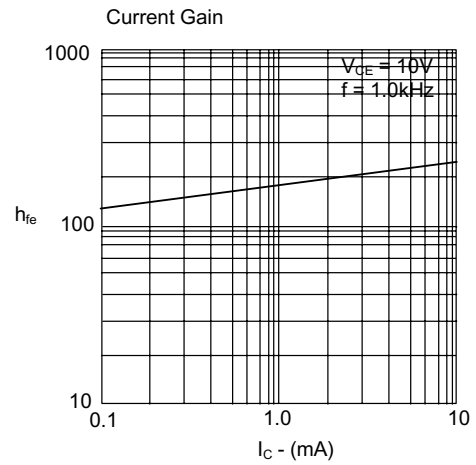
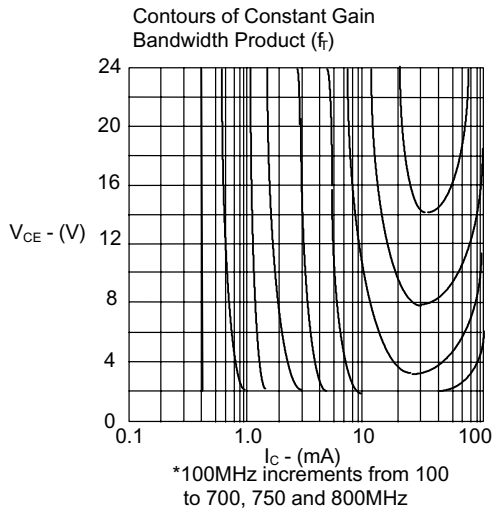
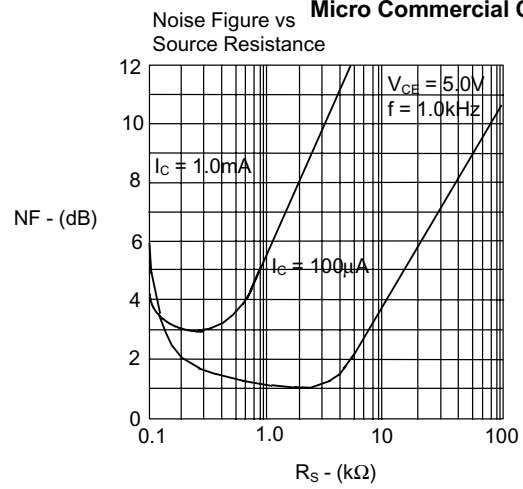
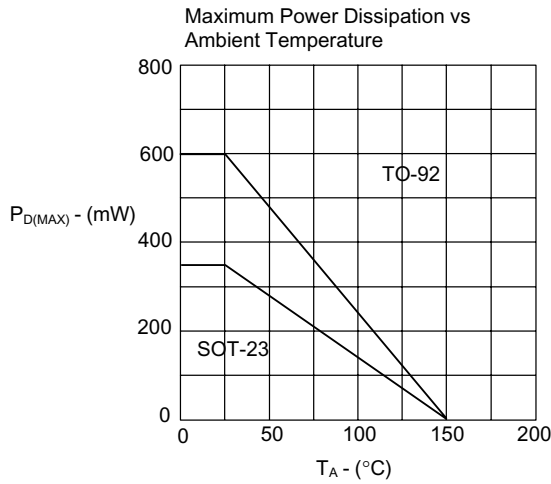


# MMBT3906



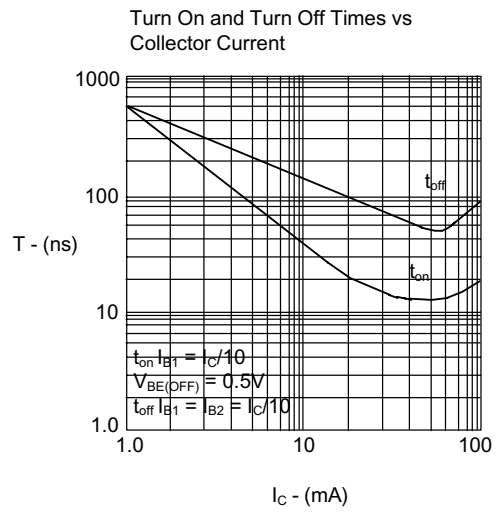
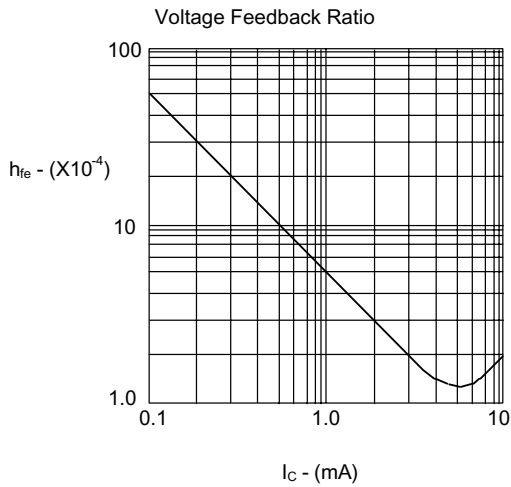
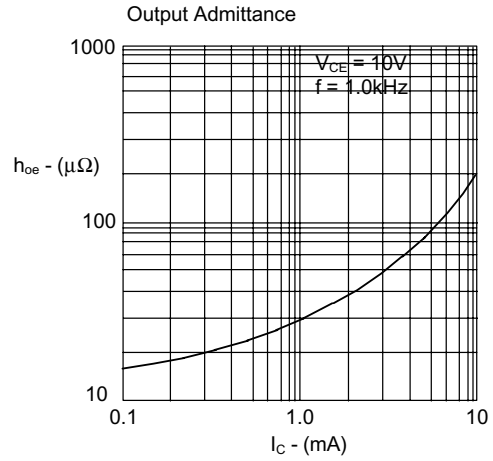
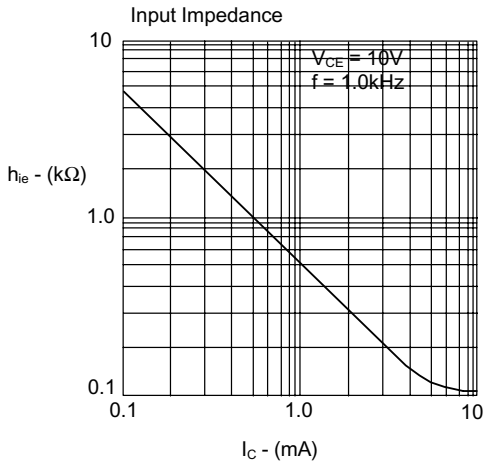
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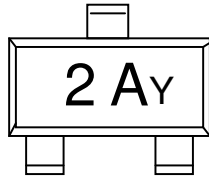
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## Marking Information



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



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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

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