



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
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MMBT3906T

PNP General Purpose Transistor

Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Surface Mount SOT-523 Package
- Epitaxial Planar Die Construction
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking:3N
- Halogen free available upon request by adding suffix "-HF"

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	-200	mA
$R_{\theta JA}$	Typical Thermal Resistance Junction to Ambient	833	$^{\circ}\text{C}/\text{W}$
P_D	Power Dissipation	150	mW
T_J	Junction Temperature	-55 to +150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics @ 25 $^{\circ}\text{C}$ Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
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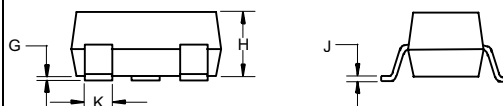
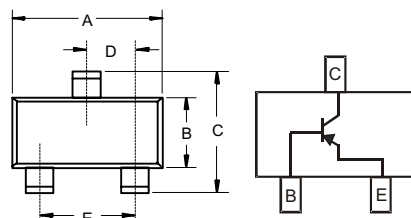
OFF CHARACTERISTICS

$V_{(BR)CEO}$	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 ($V_{CB}=-30\text{Vdc}$, $I_E=0$)		-50	nAdc
I_{EBO}	Emitter Cut-off Current ($V_{EB}=-5\text{Vdc}$, $I_C=0$)		-50	nAdc

ON CHARACTERISTICS

h_{FE}	DC Current Gain* ($I_C=-0.1\text{mA}$, $V_{CE}=-1.0\text{Vdc}$) ($I_C=-1.0\text{mA}$, $V_{CE}=-1.0\text{Vdc}$) ($I_C=-10\text{mA}$, $V_{CE}=-1.0\text{Vdc}$) ($I_C=-50\text{mA}$, $V_{CE}=-1.0\text{Vdc}$) ($I_C=-100\text{mA}$, $V_{CE}=-1.0\text{Vdc}$)	60 80 100 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

SOT-523



DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.059	.067	1.50	1.70	
B	.030	.033	0.75	0.85	
C	.057	.069	1.45	1.75	
D	.020 Nominal		0.50 Nominal		
E	.035	.043	0.90	1.10	
G	.000	.004	.000	.100	
H	.028	.031	.70	0.80	
J	.004	.008	.100	.200	
K	.010	.014	.25	.35	

MMBT3906T



TM

Micro Commercial Components

SMALL-SIGNAL CHARACTERISTICS

Symbol	Parameter	Min	Max	Units
f_T	Current Gain-Bandwidth Product ($I_C=-10\text{mA}$ dc, $V_{CE}=-20\text{V}$ dc, $f=100\text{MHz}$)	250		MHz
C_{obo}	Output Capacitance ($V_{CB}=-5.0\text{V}$ dc, $I_E=0$, $f=1\text{MHz}$)		4.5	pF
C_{ibo}	Input Capacitance ($V_{BE}=-0.5\text{V}$ dc, $I_C=0$, $f=1\text{kHz}$)		10.0	pF
NF	Noise Figure ($I_C=-100\mu\text{A}$ dc, $V_{CE}=-5.0\text{V}$ dc, $R_S=1.0\text{k}\Omega$, $f=1\text{kHz}$)		4.0	dB

SWITCHING CHARACTERISTICS

t_d	Delay Time	(V _{CC} =-3.0Vdc, V _{BE} =-0.5Vdc, I _C =-10mA, I _{B1} =-1.0mA)	35	ns
t_r	Rise Time		35	ns
t_s	Storage Time	(V _{CC} =-3.0Vdc, I _C =-10mA, I _{B1} =I _{B2} =-1.0mA)	225	ns
t_f	Fall Time		75	ns

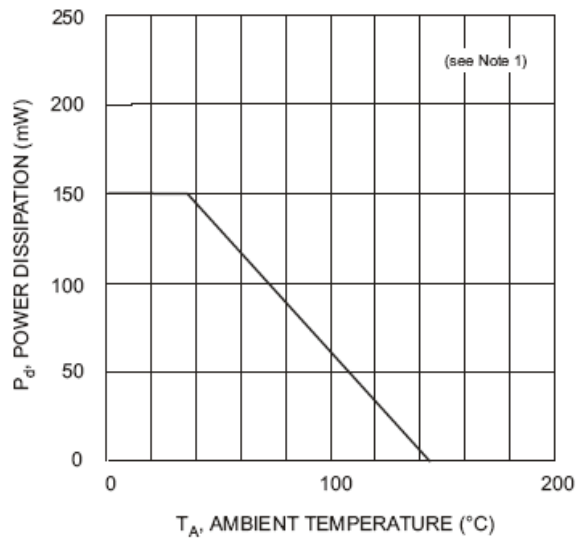


Fig. 1, Power Derating Curve

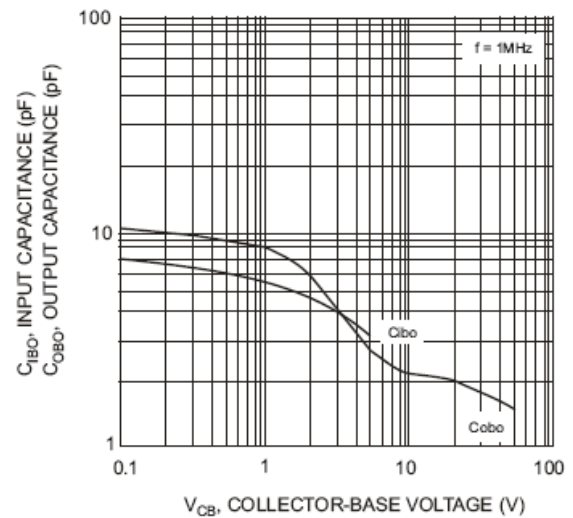


Fig. 2, Input and Output Capacitance vs. Collector-Base Voltage

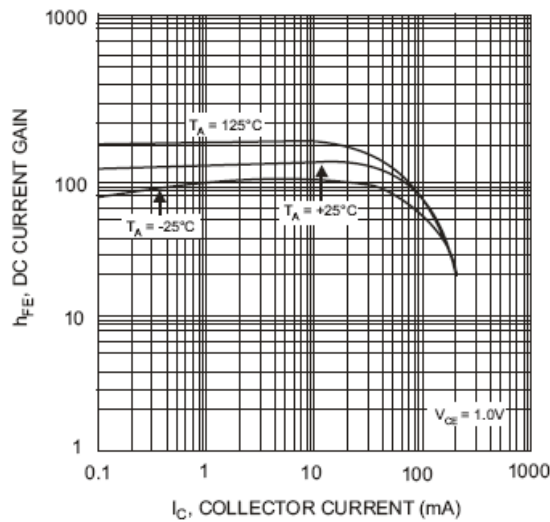


Fig. 3, Typical DC Current Gain vs. Collector Current

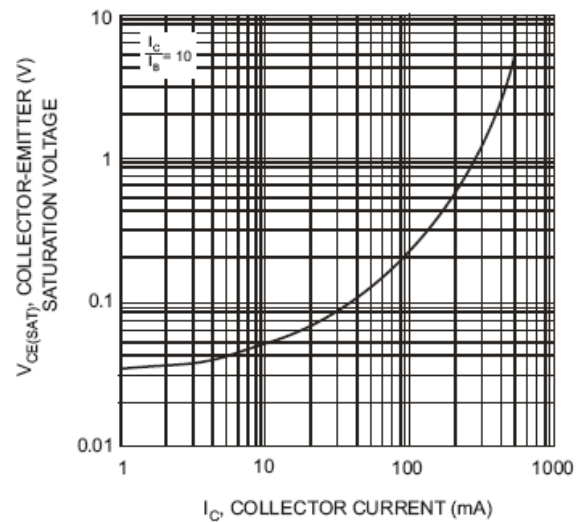


Fig. 4, Typical Collector-Emitter Saturation Voltage vs. Collector Current

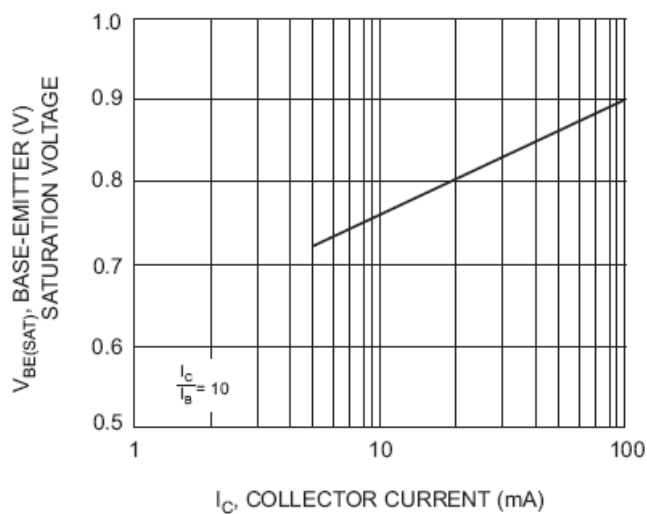


Fig. 5, Typical Base-Emitter Saturation Voltage vs. Collector Current

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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