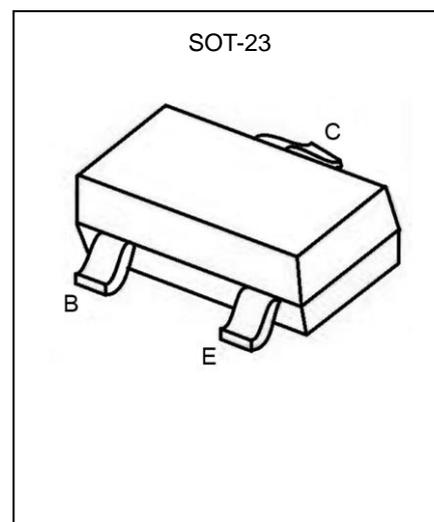


**MMBT3906 Transistor(PNP)**
**Feature**

- Epitaxial Planar Die Construction
- Complementary NPN Type Available(MMBT3904)
- Ideal for Medium Power Amplification and Switching
- AEC-Q101 Qualified
- Expsemi electronics

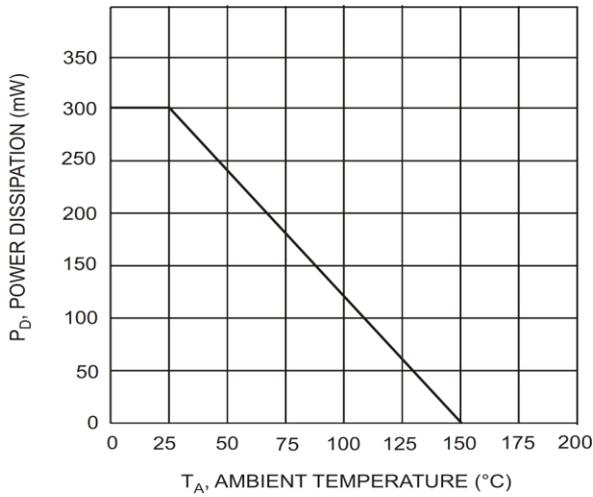
**Marking: 2A/ 3E**

**MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	-40	V
Collector-Emitter Voltage	V <sub>CE0</sub>	-40	V
Emitter-Base Voltage	V <sub>EB0</sub>	-5	V
Collector Current -Continuous	I <sub>C</sub>	-0.2	A
Power Dissipation	P <sub>d</sub>	0.3	W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>STG</sub>	-55~ +150	°C

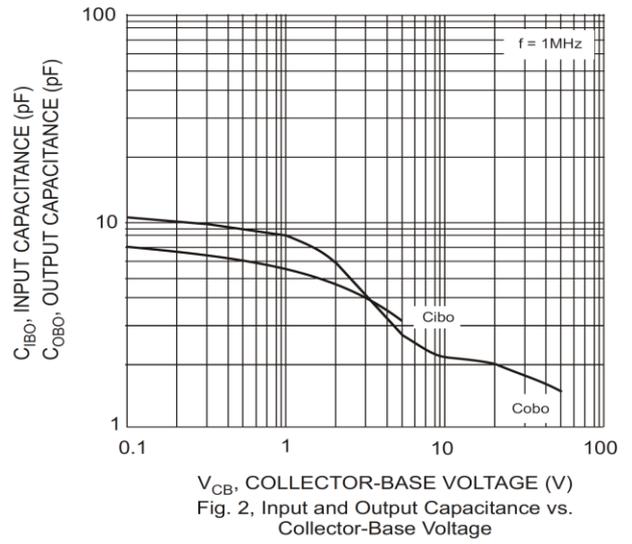
**ELECTRICAL CHARACTERISTICS( $T_a=25^{\circ}\text{C}$  unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}, I_E=0$	-40		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}, I_B=0$	-40		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}, I_C=0$	-5		V
Collector cut-off current	$I_{CBO}$	$V_{CB}=-30\text{V}, I_E=0$		-50	nA
Collector cut-off current	$I_{CEO}$	$V_{CE}=-30\text{V}, V_{EB(OFF)}=-3\text{V}$		-50	nA
Base cut-off current	$I_{BL}$	$V_{CE}=-30\text{V}, V_{EB(OFF)}=-3\text{V}$		-50	nA
DC current gain	$h_{FE}$	$V_{CE}=-1\text{V}, I_C=-10\text{mA}$	100	300	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-10\text{mA}, I_B=-1\text{mA}$		-0.25	V
		$I_C=-50\text{mA}, I_B=-5\text{mA}$		-0.4	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=-10\text{mA}, I_B=-1\text{mA}$	-0.65	-0.85	V
		$I_C=-50\text{mA}, I_B=-5\text{mA}$		-0.95	V
Transition frequency	$f_T$	$V_{CE}=-20\text{V}, I_C=-10\text{mA},$ $f=100\text{MHz}$	250		MHZ
Output Capacitance	$C_{ob0}$	$V_{CB}=-5.0\text{V}, f=1.0\text{MHz}, I_E=0$		4.5	pf
Input Capacitance	$C_{ib0}$	$V_{EB}=-0.5\text{V}, f=1.0\text{MHz}, I_C=0$		10	pf
Delay Time	$t_d$	$V_{CC}=-3.0\text{V}, I_C=-10\text{mA},$		35	ns
Rise Time	$t_r$	$V_{BE(off)}=0.5\text{V}, I_{B1}=-1.0\text{mA}$		35	ns
Storage Time	$t_s$	$V_{CC}=-3.0\text{V}, I_C=-10\text{mA},$		225	ns
Fall Time	$t_f$	$I_{B1}=I_{B2}=-1.0\text{mA}$		75	ns

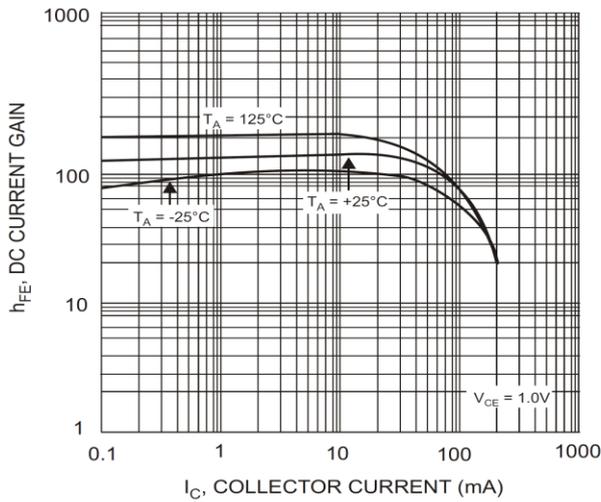
### Typical Characteristics



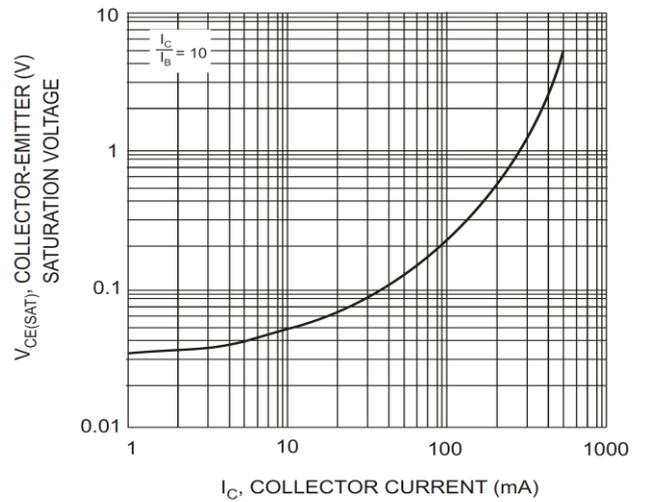
$T_A$ , AMBIENT TEMPERATURE (°C)  
Fig. 1, Max Power Dissipation vs Ambient Temperature



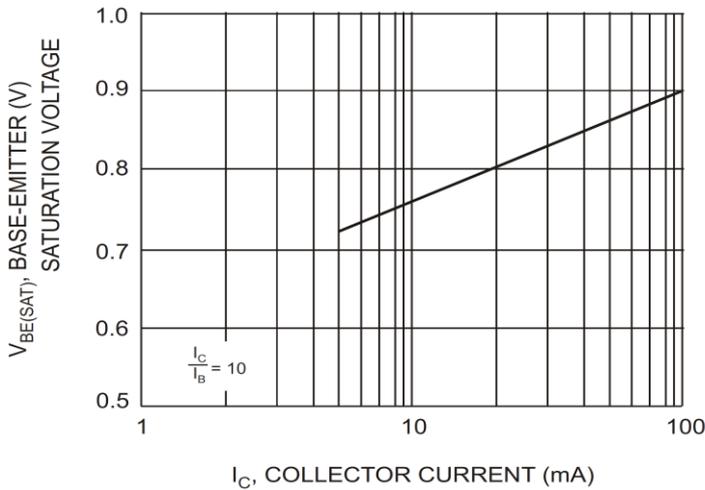
$V_{CB}$ , COLLECTOR-BASE VOLTAGE (V)  
Fig. 2, Input and Output Capacitance vs. Collector-Base Voltage



$I_C$ , COLLECTOR CURRENT (mA)  
Fig. 3, Typical DC Current Gain vs Collector Current

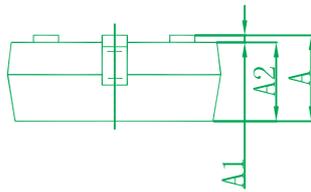
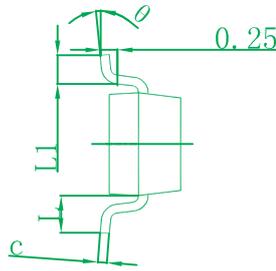
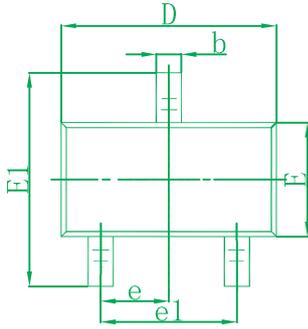


$I_C$ , COLLECTOR CURRENT (mA)  
Fig. 4, Typical Collector-Emitter Saturation Voltage vs. Collector Current



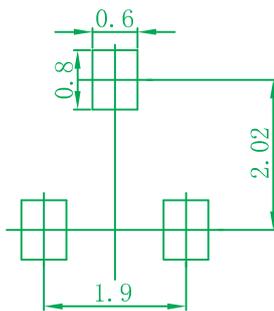
$I_C$ , COLLECTOR CURRENT (mA)  
Fig. 5, Typical Base-Emitter Saturation Voltage vs. Collector Current

### SOT-23 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.150	0.035	0.045
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.050	0.110	0.120
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

### SOT-23 Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
  2. General tolerance:  $\pm 0.05$  mm.
  3. The pad layout is for reference purposes only.

3000/Tape&Reel(7inches)

### Ordering information

Device	Package	Shipping
MMBT3906	SOT-23	3000/Tape&Reel