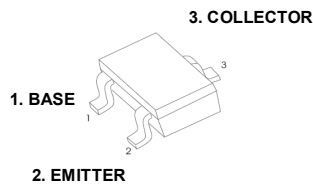
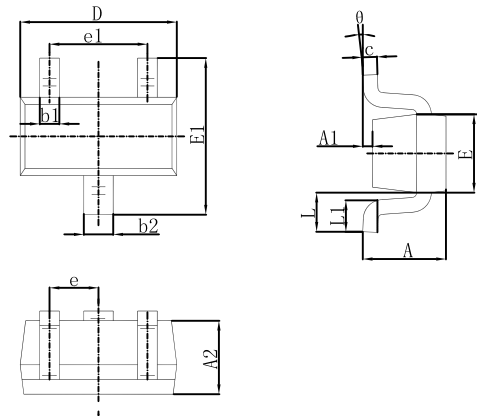


**FEATURES**

Epitaxial Planar Die Construction  
Complementary NPN Type Available  
Also Available in Lead Free Version



**SOT-523**



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

Dimensions in inches and (millimeters)

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

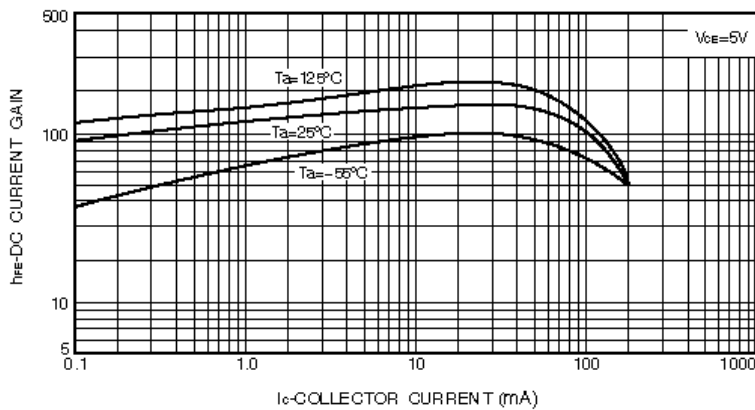
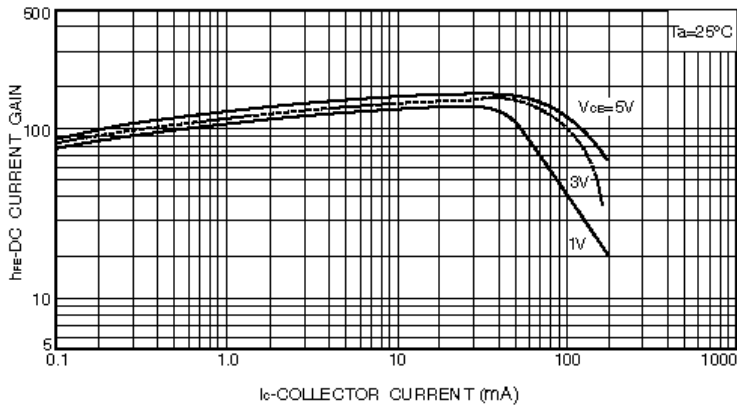
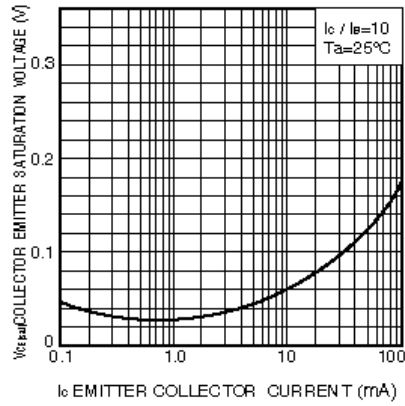
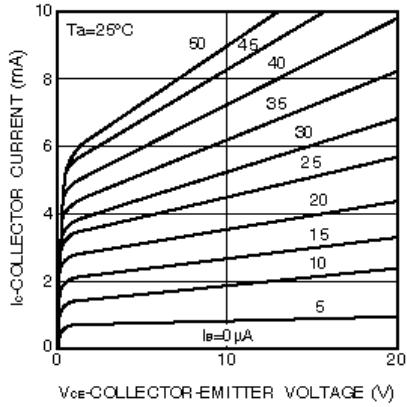
Symbol	Parameter	Value	Units
V <sub>CB0</sub>	Collector-Base Voltage	-40	V
V <sub>CEO</sub>	Collector-Emitter Voltage	-40	V
V <sub>EBO</sub>	Emitter-Base Voltage	-5.0	V
I <sub>c</sub>	Collector Current -Continuous	-200	mA
P <sub>c</sub>	Collector Power Dissipation	150	mW
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient	833	°C/W
T <sub>J</sub>	Operating Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55-150	°C

# MMBT3906T

## ELECTRICAL CHARACTERISTICS(Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-10\mu A, I_E=0$	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-1mA, I_B=0$	-40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-10\mu A, I_C=0$	-5			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=-30V, I_E=0$			-0.1	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=-5V, I_C=0$			-0.1	$\mu A$
DC current gain	$h_{FE(1)}$	$V_{CE}=-1V, I_C=-0.1mA$	60			
	$h_{FE(2)}$	$V_{CE}=-1V, I_C=-1mA$	80			
	$h_{FE(3)}$	$V_{CE}=-1V, I_C=-10mA$	100		300	
	$h_{FE(4)}$	$V_{CE}=-1V, I_C=-50mA$	60			
	$h_{FE(5)}$	$V_{CE}=-1V, I_C=-100mA$	30			
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=-10mA, I_B=-1mA$			-0.25	V
	$V_{CE(sat)2}$	$I_C=-50mA, I_B=-5mA$			-0.4	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C=-10mA, I_B=-1mA$	-0.65		-0.85	V
	$V_{BE(sat)2}$	$I_C=-50mA, I_B=-5mA$			-0.95	V
Transition frequency	$f_T$	$V_{CE}=-20V, I_C=-10mA, f=100MHz$	250			MHz
Collector output capacitance	$C_{obo}$	$V_{CB}=-5V, I_E=0, f=1MHz$			4.5	pF
Input capacitance	$C_{iob}$	$V_{EB}=-0.5V, I_E=0, f=1MHz$			10	pF
Noise figure	NF	$V_{CE}=-5V, I_C=0.1mA,$			4	dB
Delay time	$t_d$	$V_{CC}=-3V, V_{BE(OFF)}=-0.5V$			35	ns
Rise time	$t_r$	$I_C=-10mA, I_{B1}=-1mA$			35	ns
Storage time	$t_s$	$V_{CC}=-3V, I_C=-10mA$			225	ns
Fall time	$t_f$	$I_{B1}=I_{B2}=-1mA$			75	ns

RATING AND CHARACTERISTIC CURVES ( MMBT3906T )



## RATING AND CHARACTERISTIC CURVES ( MMBT3906T )

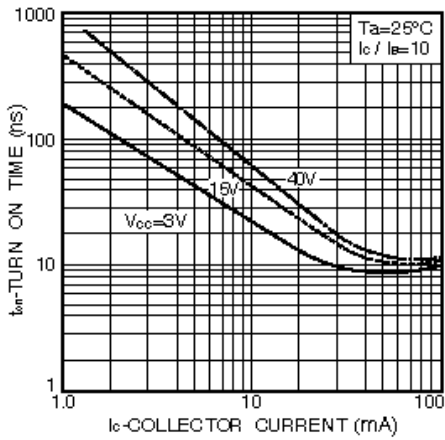


Fig.8 Turn-on time vs. collector current

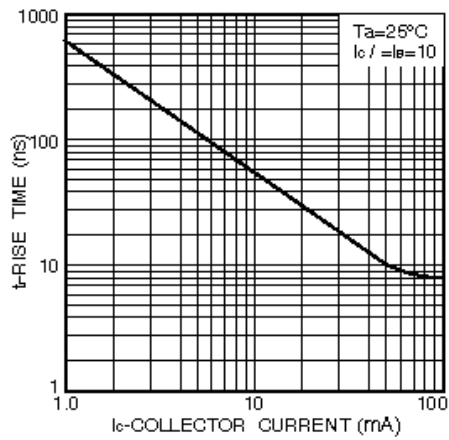


Fig.9 Rise time vs. collector current

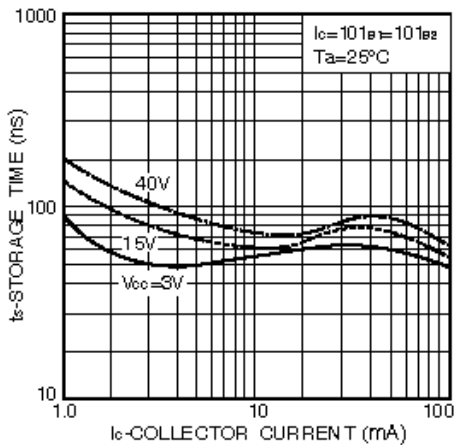


Fig.10 Storage time vs. collector current

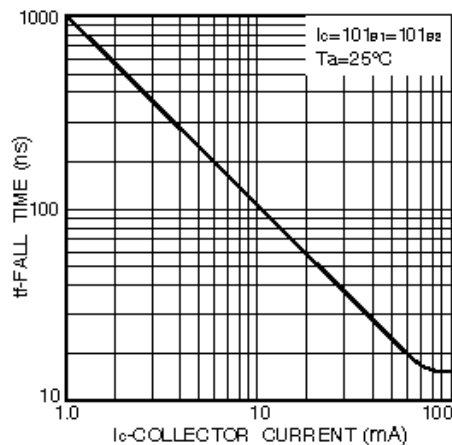


Fig.11 Fall time vs. collector current

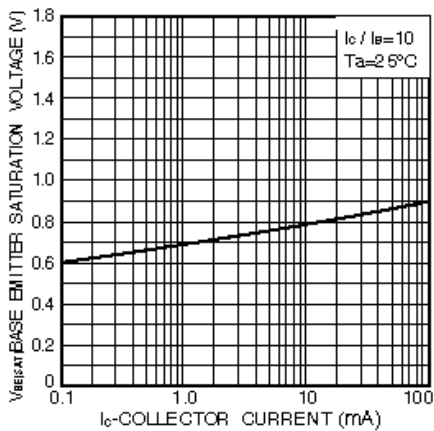


Fig.6 Base-emitter saturation voltage vs. collector current

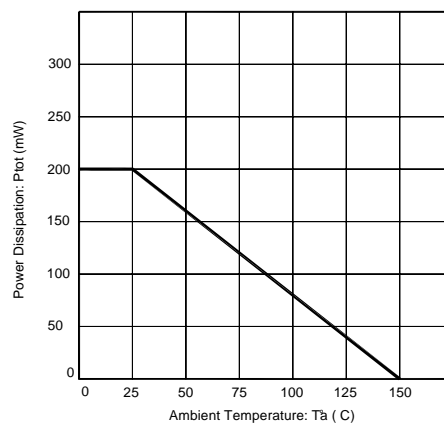


Fig.10 Power Dissipation vs Ambient Temperature

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