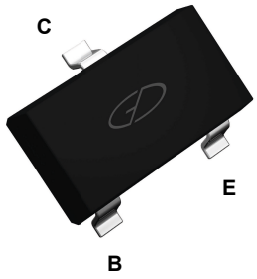
GOOD-ARK
SEMICONDUCTOR

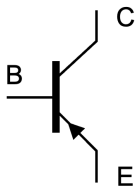
MMST3906
PNP Transistor

Features

- Complementary to MMST3904
- Epoxy meets UL 94 V-0 flammability rating
- Small outline surface mount package



SOT-323



Schematic Diagram

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-40	V
Collector-Emitter Voltage	V_{CEO}	-40	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current-Continuous	I_C	-200	mA
Collector Power Dissipation	P_C	200	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	625	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 to +150	℃

Electrical Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Max	Unit
Collector-Base Breakdown Voltage[1]	$V_{(BR)CBO}$	I_C=-10μA, I_E=0	-40	-	V
Collector-Emitter Breakdown Voltage[1]	$V_{(BR)CEO}$	I_C=-1mA, I_B=0	-40	-	V
Emitter-Base Breakdown Voltage[1]	$V_{(BR)EBO}$	I_E=-10μA, I_C=0	-5	-	V
Base Cut-Off Current[1]	I_{BL}	V_{CE}=-30V, $V_{EB(Off)}$=-3V	-	-50	nA
Collector Cut-Off Current[1]	I_{CEX}	V_{CE}=-30V, $V_{EB(Off)}$=-3V	-	-50	nA
DC Current Gain[1]	h_{FE}	V_{CE}=-1V, I_C=-100μA	60	-	-
		V_{CE}=-1V, I_C=-1mA	80	-	-
		V_{CE}=-1V, I_C=-10mA	100	300	-
		V_{CE}=-1V, I_C=-50mA	60	-	-
Collector-Emitter Saturation Voltage[1]	$V_{CE(sat)}$	I_C=-10mA, I_B=-1mA	-	-0.2	V
		I_C=-50mA, I_B=-5mA	-	-0.3	V
Base-Emitter Saturation Voltage[1]	$V_{BE(sat)}$	I_C=-10mA, I_B=-1mA	-0.65	-0.85	V
		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_{ob}	V_{CB}=-5V, I_E=0, F=1MHz	-	4.5	pF
Collector Output Capacitance	C_{ib}	V_{EB}=-0.5V, I_E=0, F=1MHz	-	10	pF
Delay Time	t_d	V_{CC}=-3V, $V_{BE(off)}$=-0.5V, I_C=-10mA, I_{B1}=-1mA	-	35	nS
Rise Time	t_r		-	35	nS
Storage Time	t_s	V_{CC}=3V, I_C=-10mA, I_{B1}=I_{B2}=-1mA	-	225	nS
Fall Time	t_f		-	75	nS

Note:

1. Pulse test: pulse width ≤300μs, duty cycle≤ 2.0%.

Ratings and Characteristic Curves

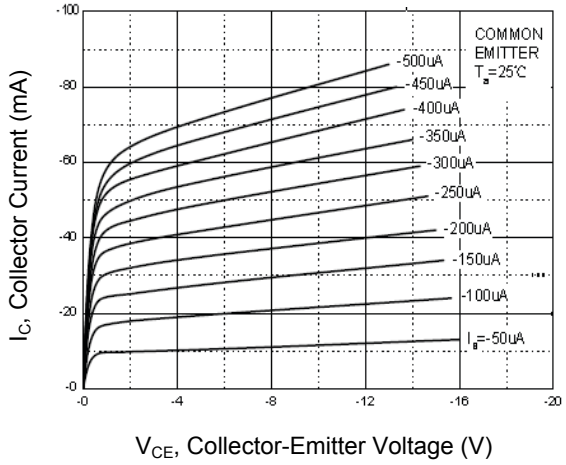


Figure 1. Static Characteristic

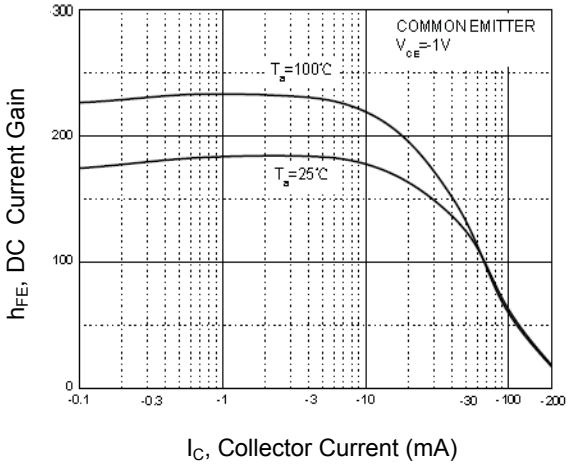


Figure 2. DC Current Gain vs. Collector Current

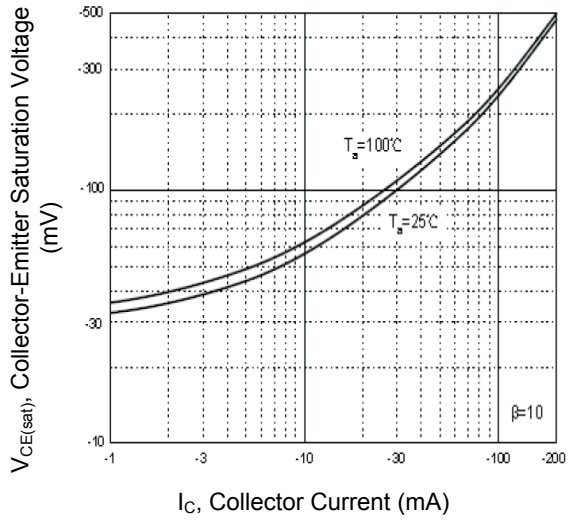


Figure 3. Collector - Emitter Saturation Voltage vs. Collector Current

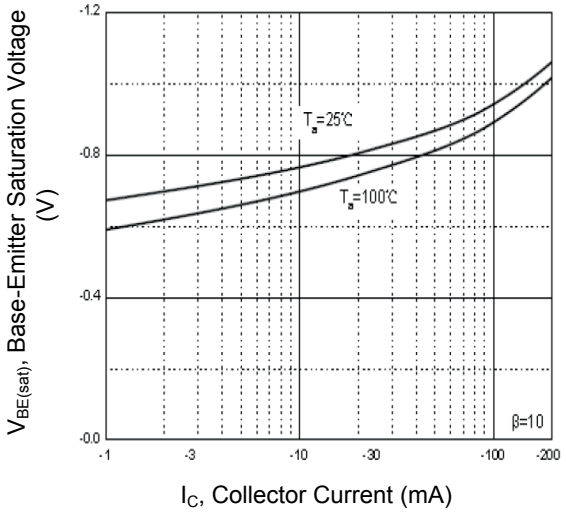


Figure 4. Base - Emitter Saturation Voltage vs. Collector Current

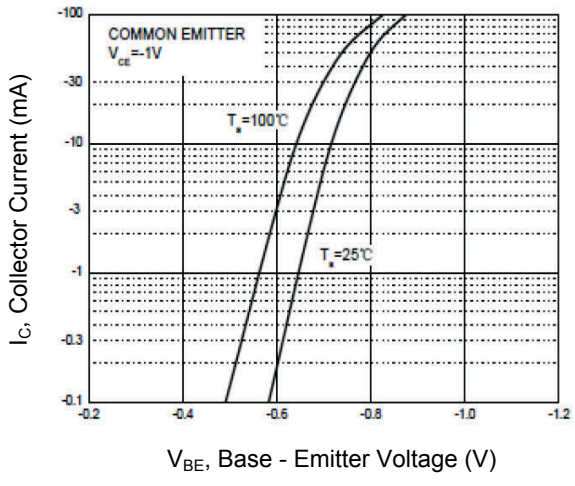


Figure 5. Collector Current vs. Base - Emitter Voltage

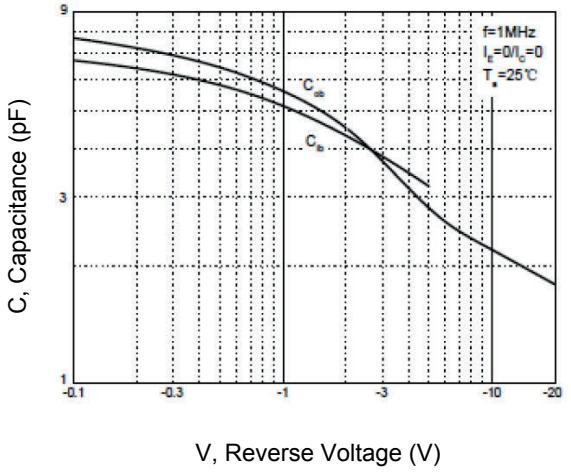


Figure 6. Capacitance Characteristics

Ratings and Characteristic Curves

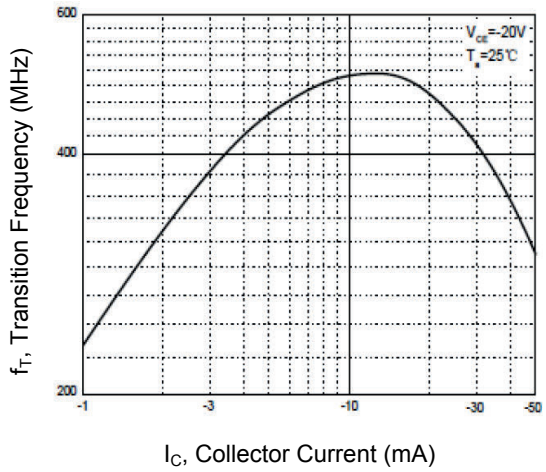


Figure 7. Transition Frequency vs. Collector Current

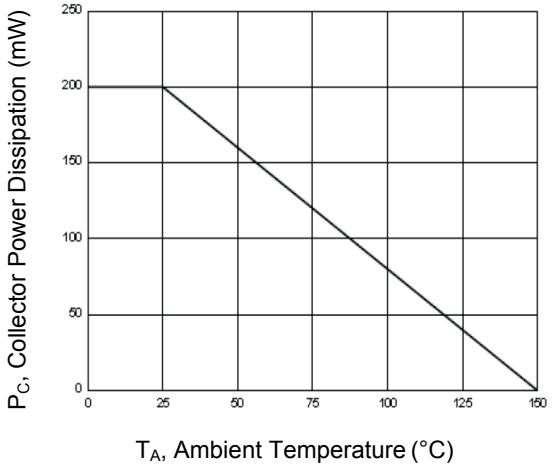
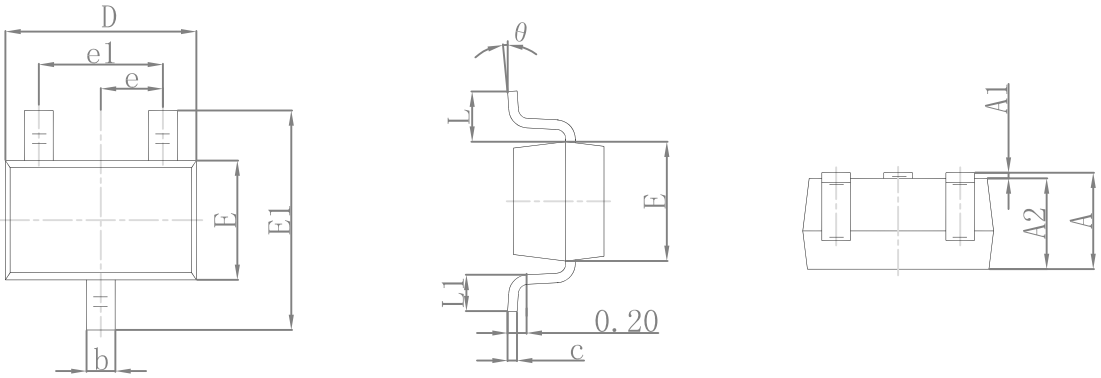


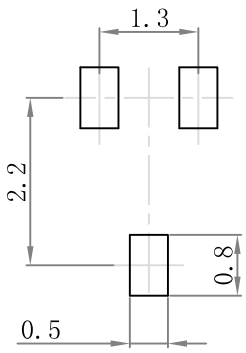
Figure 8. Power Dissipation vs. Ambient Temperature

Package Outline Dimensions (SOT-323)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

Recommended Pad Layout



Note:

1. Controlling dimension: in millimeters
2. General tolerance: ±0.05mm
3. The pad layout is for reference purposes only

Order Information

Device	Package	Marking	Quantity	HSF Status
MMST3906	SOT-323	K5N	3,000pcs / Reel	RoHS Compliant