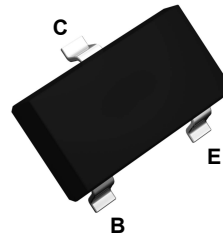
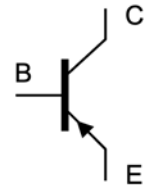


Features

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



SOT-323



Schematic Diagram

Absolute Maximum Ratings (T_J = 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 _{EB0}	-5	V
Collector Current-Continuous	I _C	-200	mA
Collector Power Dissipation	P _C	200	mW
Thermal Resistance from Junction to Ambient	R _{θJA}	625	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 to +150	°C

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

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

Note:

1. Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2.0\%$.

Ratings and Characteristic Curves

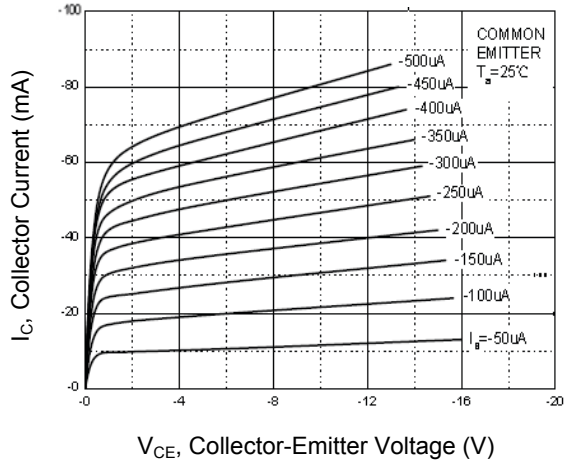


Figure 1. Static Characteristic

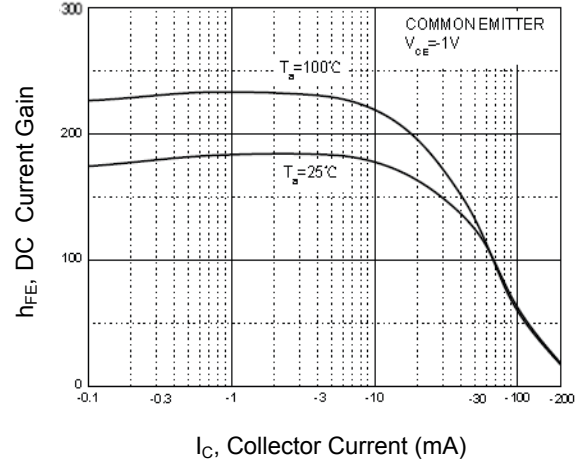


Figure 2. DC Current Gain vs. Collector Current

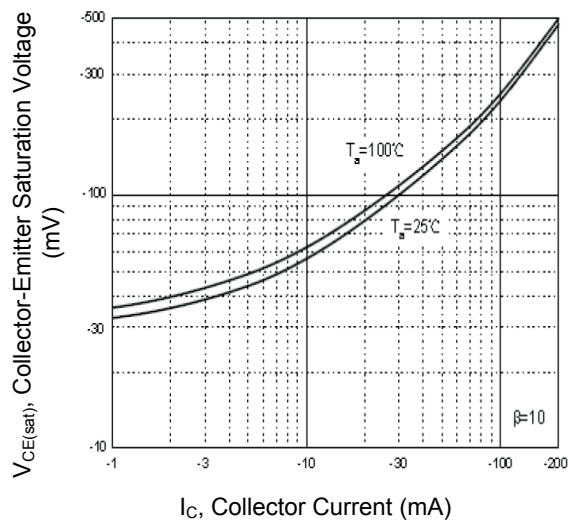


Figure 3. Collector - Emitter Saturation Voltage vs. Collector Current

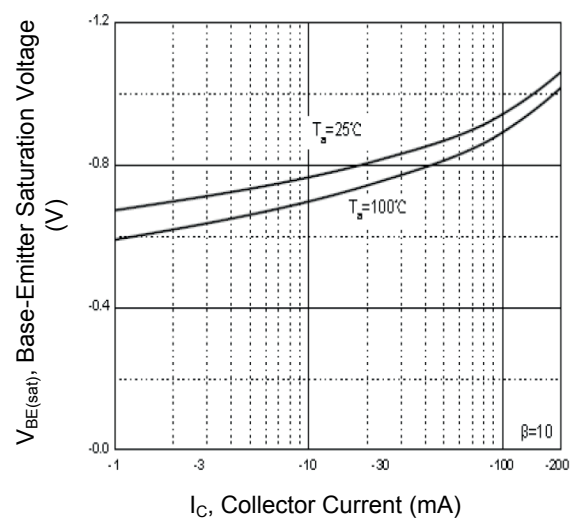


Figure 4. Base - Emitter Saturation Voltage vs. Collector Current

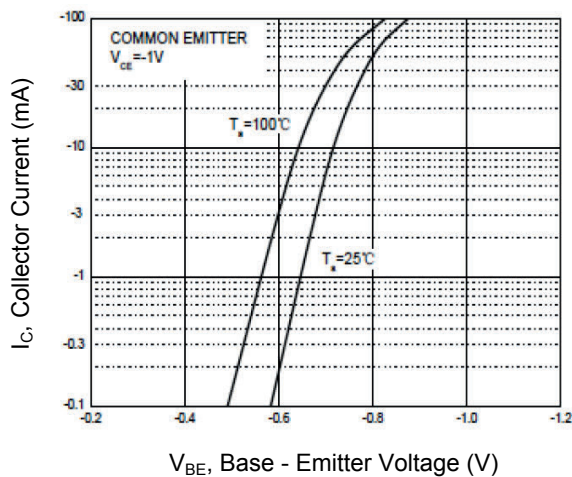


Figure 5. Collector Current vs. Base - Emitter Voltage

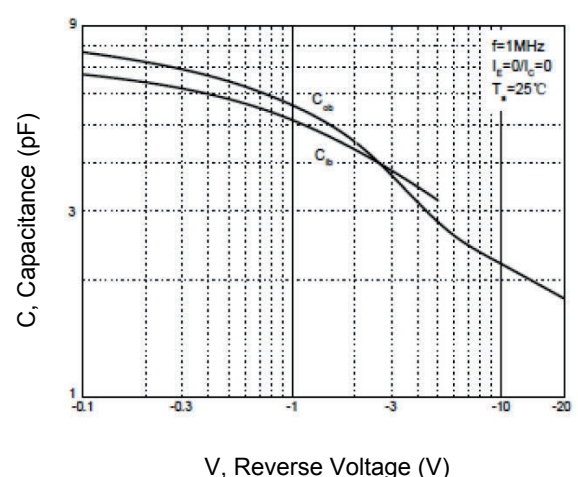


Figure 6. Capacitance Characteristics

Ratings and Characteristic Curves

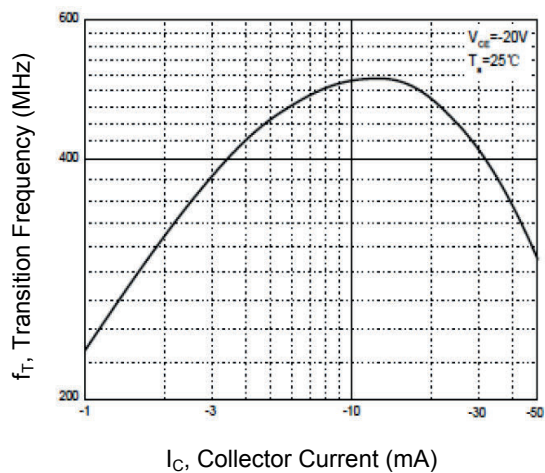


Figure 7. Transition Frequency vs. Collector Current

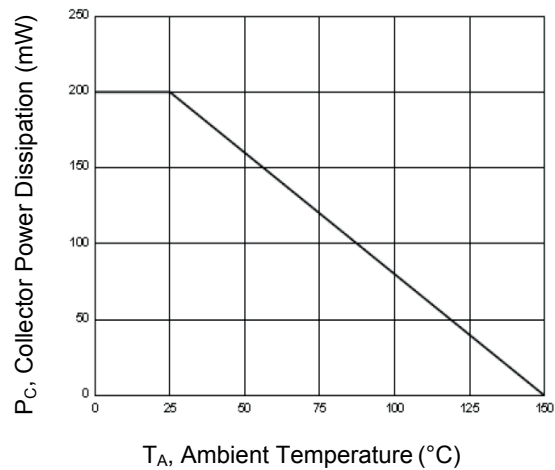
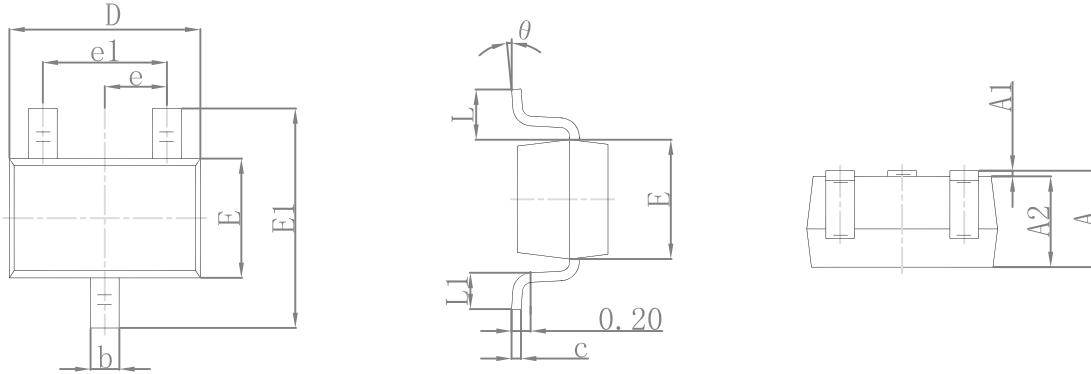


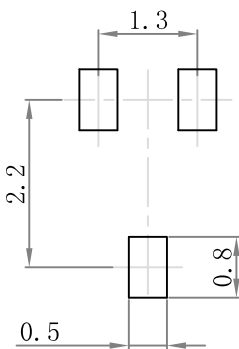
Figure 8. Power Dissipation vs. Ambient Temperature

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: $\pm 0.05\text{mm}$
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

For more information, please contact us at: inquiry@goodarksemi.com