

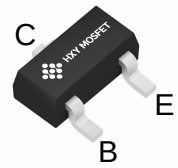


Features

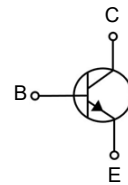
- Collector Current: $I_C=0.5A$
- Power Dissipation of 300mW

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MMS9013HE3-H-TP	SOT-23	J3	3000



SOT-23



Maximum Ratings (Ta=25°C unless otherwise noted)

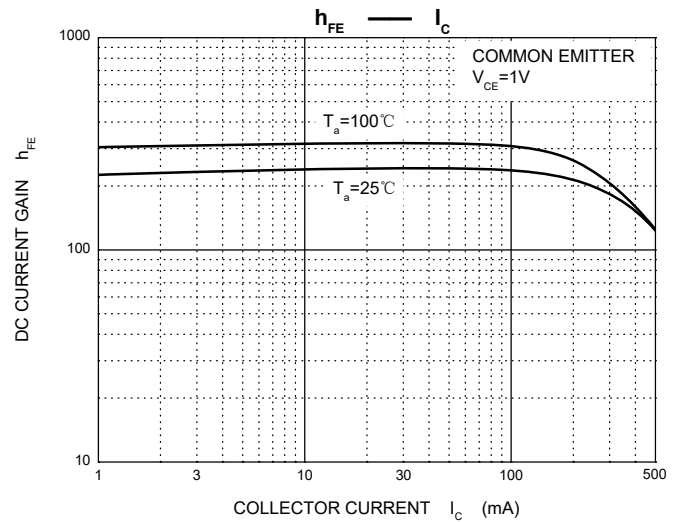
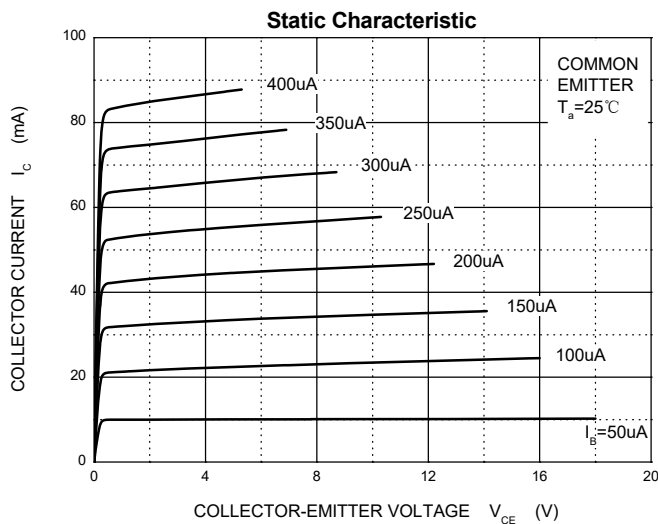
Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	40	V
Collector-Emitter Voltage	V_{CEO}	25	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	500	mA
Collector Power Dissipation	P_C	350	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	416	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{stg}	-55~+150	°C

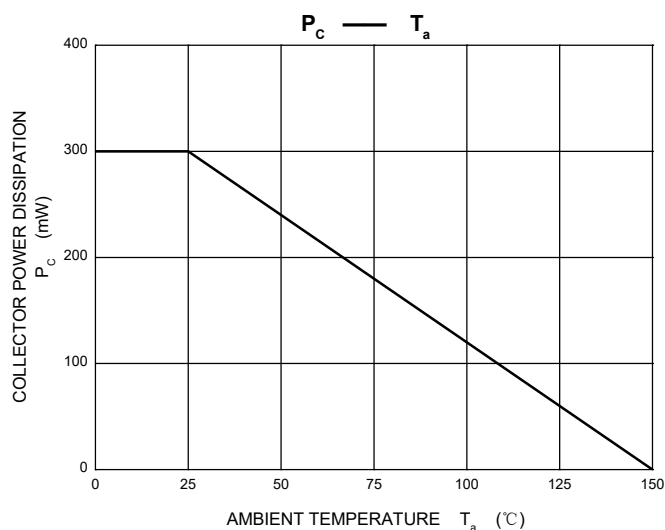
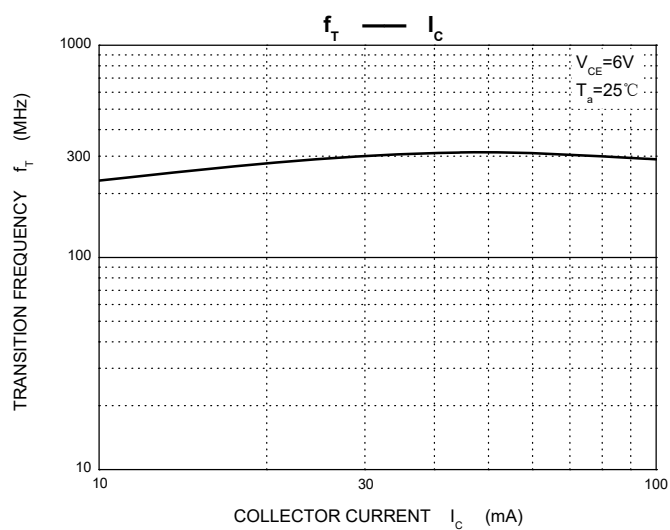
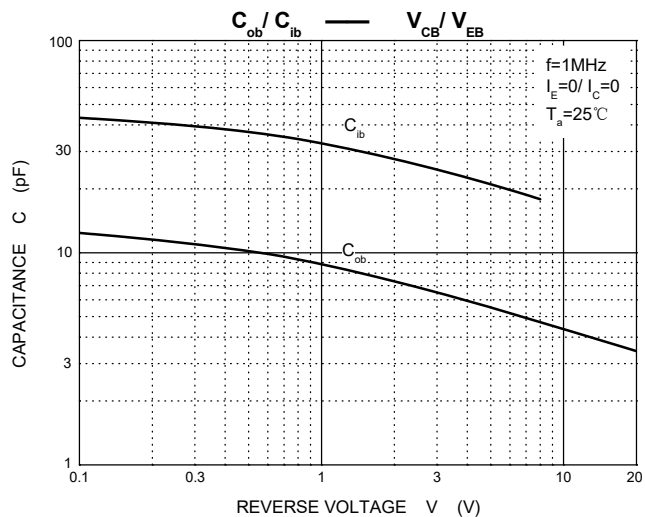
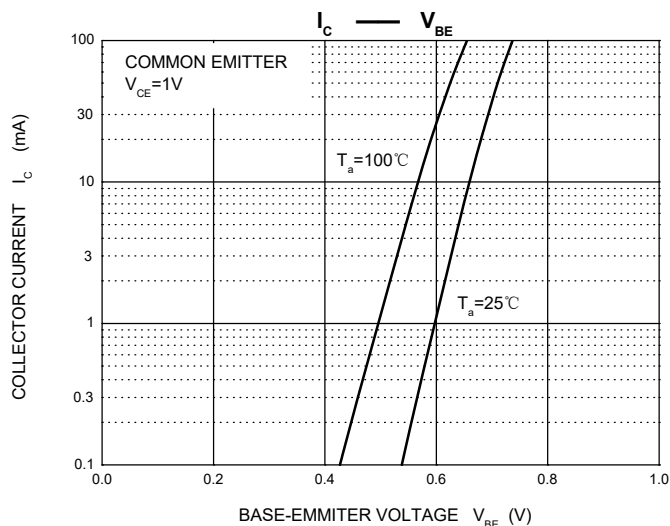
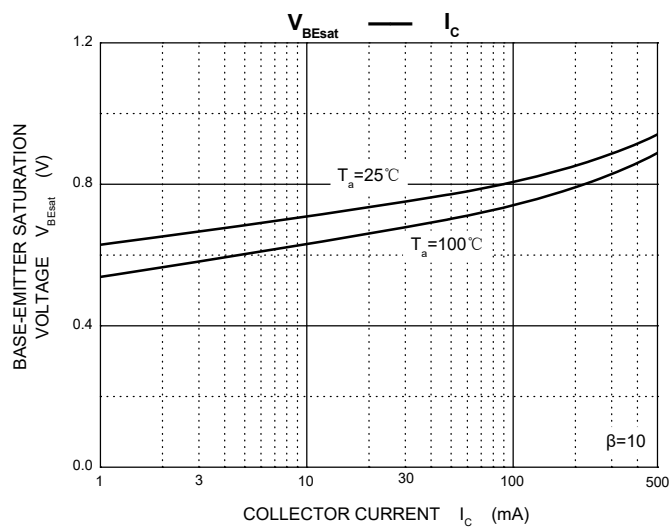
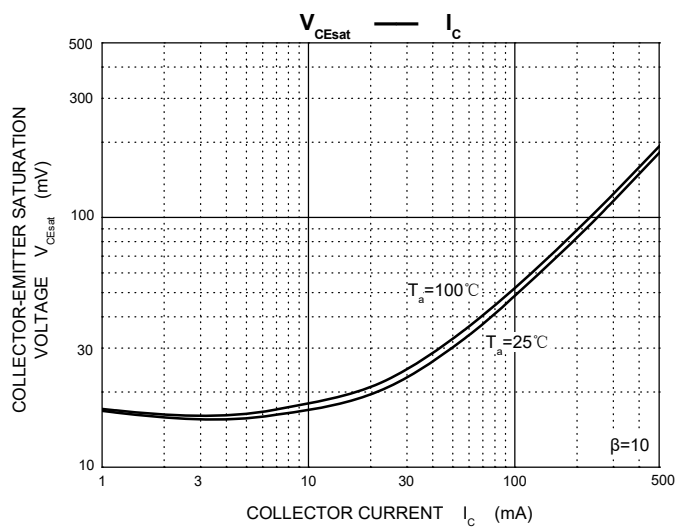


Electrical Characteristics (T_a=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V _{(BR)CBO}	I _C =0.1mA, I _E =0	40			V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C =1mA, I _B =0	25			V
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E =0.1mA, I _C =0	5			V
Collector cut-off current	I _{CBO}	V _{CB} =40V, I _E =0			0.1	uA
Collector cut-off current	I _{CEO}	V _{CE} =20V, I _B =0			0.1	uA
Emitter cut-off current	I _{EBO}	V _{EB} =5V, I _C =0			0.1	uA
DC current gain	h _{FE(1)}	V _{CE} =1V, I _C =50mA	120		400	
	h _{FE(2)}	V _{CE} =1V, I _C =500mA	40			
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =500mA, I _B =50mA			0.6	V
Base-emitter saturation voltage	V _{BE(sat)}	I _C =500mA, I _B =50mA			1.2	V
Base-emitter voltage	V _{BE}	V _{CB} =1V, I _C =10mA,			0.7	V
Transition frequency	f _T	V _{CE} =6V, I _C =20mA, f=30MHz	150			MHz
Collector output capacitance	C _{ob}	V _{CB} =6V, I _E =0, f=1MHz			8	pF

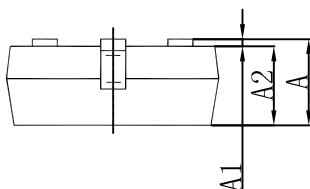
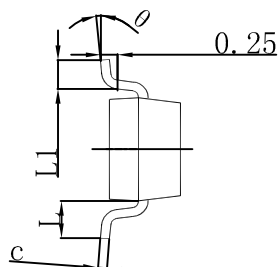
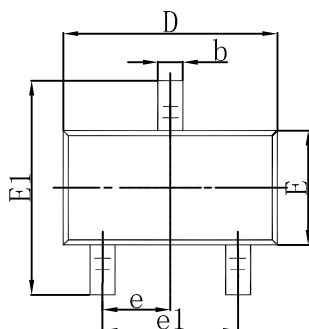
Typical Characteristics





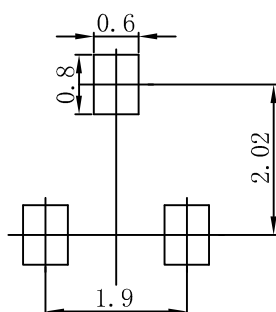


SOT-23 Package Outline Dimensions



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	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
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: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.



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