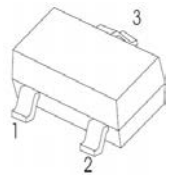
SOT-23 Plastic-Encapsulate Transistors

SOT－23



1. BASE
2. EMITTER
3. COLLECTOR

FEATURES

- For Switching and Amplifier Applications
- Complementary Type PNP Transistor MMBTA56

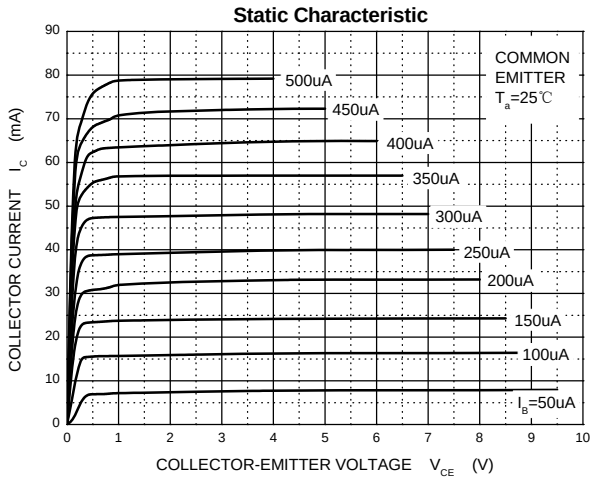
MARKING: 1GM

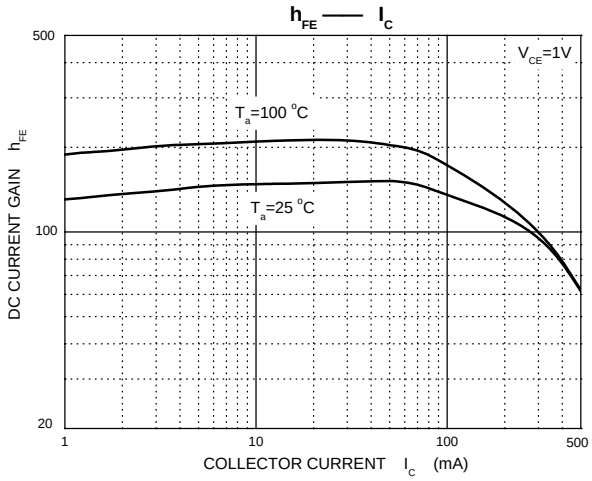
MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

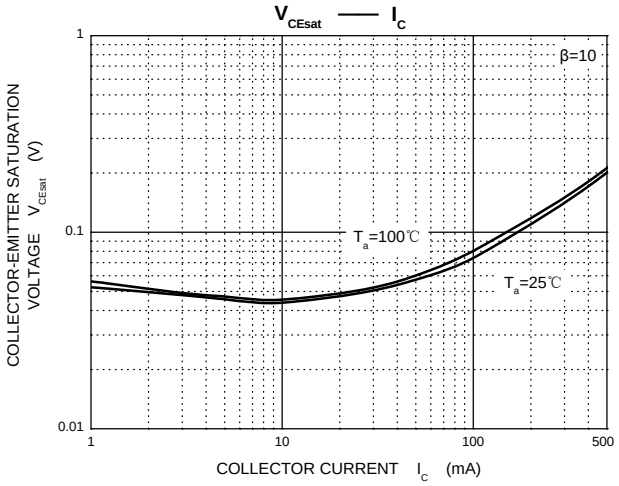
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	80	V
V_{CEO}	Collector-Emitter Voltage	80	V
V_{EBO}	Emitter-Base Voltage	4	V
I_C	Collector Current	500	mA
P_C	Collector Power Dissipation	300	mW
$R_{\Theta JA}$	Thermal Resistance From Junction To Ambient	416	℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55～+150	℃

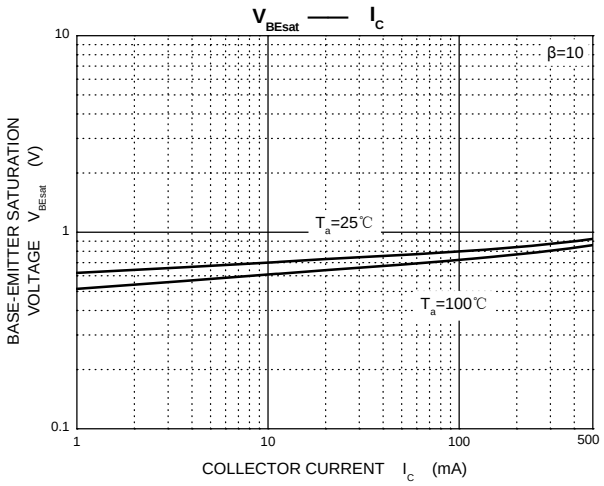
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

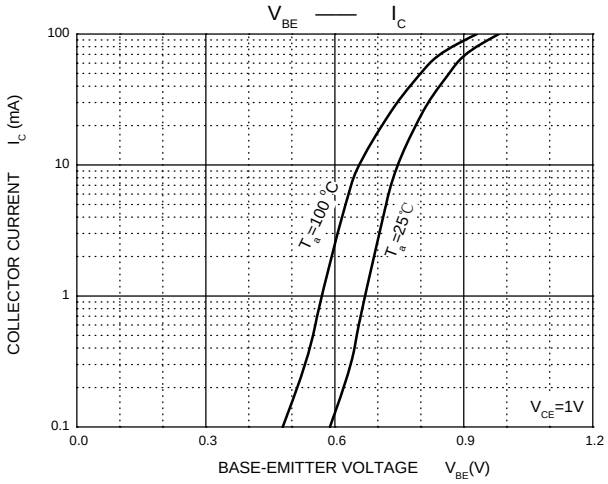
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=0.1mA, I_E=0	80			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=1mA, I_B=0	80			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=0.1mA, I_C=0	4			V
Collector cut-off current	I_{CBO}	V_{CB}=80V, I_E=0			0.1	μA
Collector cut-off current	I_{CEO}	V_{CE}=60V, I_B=0			1	μA
Emitter cut-off current	I_{EBO}	V_{EB}=3V, I_C=0			0.1	μA
DC current gain	$h_{FE(1)}$	V_{CE}=1V, I_C=10mA	100		400	
	$h_{FE(2)}$	V_{CE}=1V, I_C=100mA	100			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=100mA, I_B=10mA			0.25	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=100mA, I_B=10mA			1.2	V
Transition frequency	f_T	V_{CE}=2V,I_C=10mA, f=100MHz	100			MHz

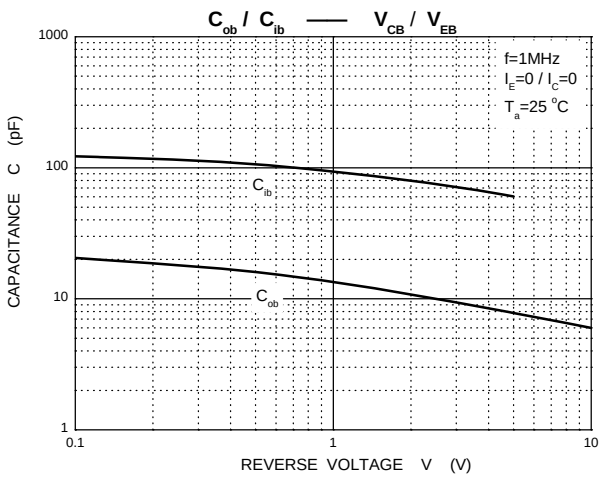

Static Characteristic
COMMON EMITTER
Ta=25℃
500uA
450uA
400uA
350uA
300uA
250uA
200uA
150uA
100uA
IB=50uA
COLLECTOR CURRENT IC (mA)
COLLECTOR-EMITTER VOLTAGE VCE (V)

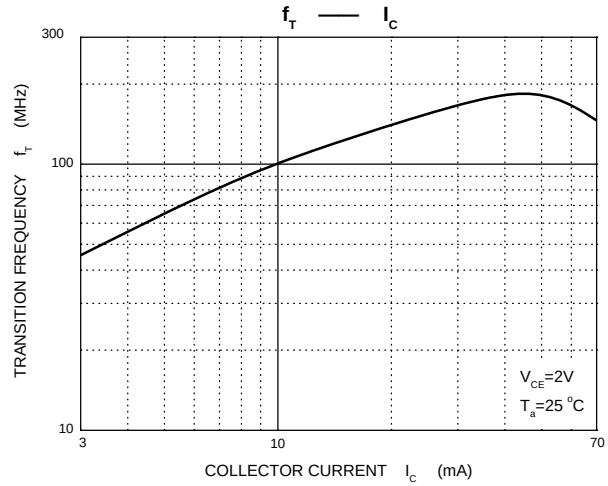

hFE — IC
VCE=1V
Ta=100 °C
Ta=25 °C
DC CURRENT GAIN hFE
COLLECTOR CURRENT IC (mA)

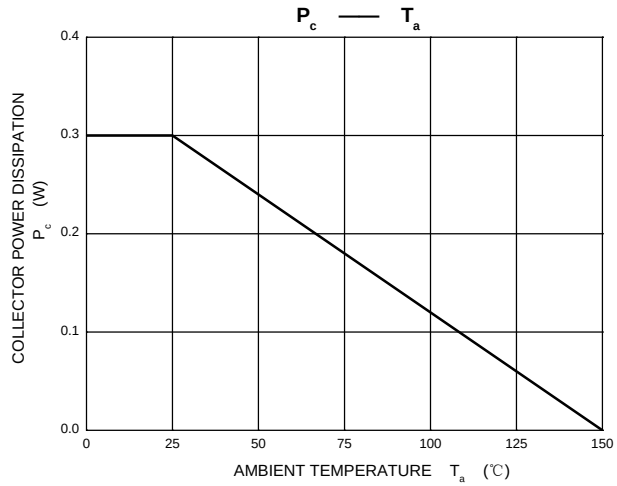

VCEsat — IC
β=10
Ta=100℃
Ta=25℃
COLLECTOR-EMITTER SATURATION VOLTAGE VCEsat (V)
COLLECTOR CURRENT IC (mA)

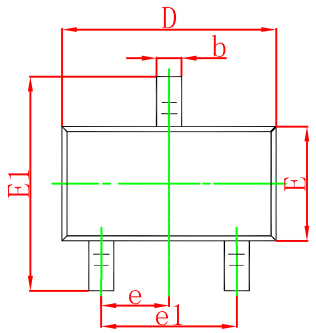

VBEsat — IC
β=10
Ta=25℃
Ta=100℃
BASE-EMITTER SATURATION VOLTAGE VBEsat (V)
COLLECTOR CURRENT IC (mA)

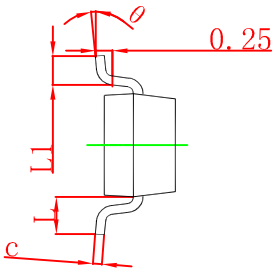

VBE — IC
Ta=100 °C
Ta=25℃
VCE=1V
COLLECTOR CURRENT IC (mA)
BASE-EMITTER VOLTAGE VBE(V)

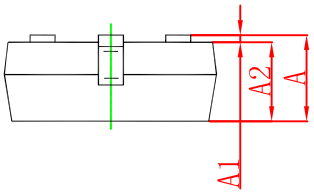

Cob / Cib — VCB / VEB
f=1MHz
IE=0 / IC=0
Ta=25 °C
Cib
Cob
CAPACITANCE C (pF)
REVERSE VOLTAGE V (V)


fT — IC
VCE=2V
Ta=25 °C
TRANSITION FREQUENCY fT (MHz)
COLLECTOR CURRENT IC (mA)


Pc — Ta
COLLECTOR POWER DISSIPATION Pc (W)
AMBIENT TEMPERATURE Ta (℃)

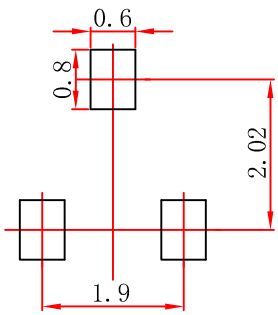






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 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:± 0.05mm.
3.The pad layout is for reference purposes only.