

SuperTransistor –  $V_{CBO}$  80V,  $I_c$  500mA SOT-23 NPN Transistors

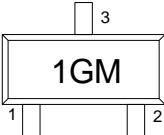
1. Features

- Complementary to MMBTA56
- Power dissipation of 300mW
- High stability and high reliability

2. Mechanical Data

- SOT-23 Small Outline Plastic Package
- Epoxy UL: 94V-0
- Mounting Position: Any

3. Pin configuration

Pin	Function	Outline
1	Base	
2	Emitter	
3	Collector	

4. Specification

Absolute Maximum Rating & Thermal Characteristics

Ratings at 25 °C ambient temperature unless otherwise specified.

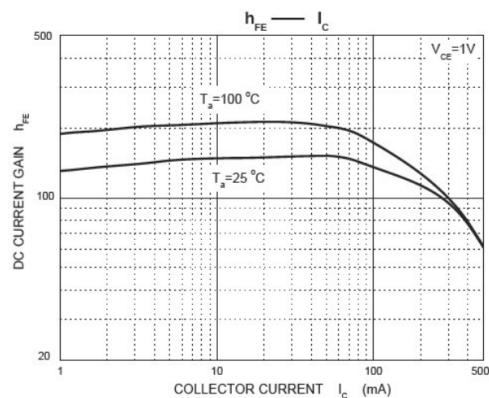
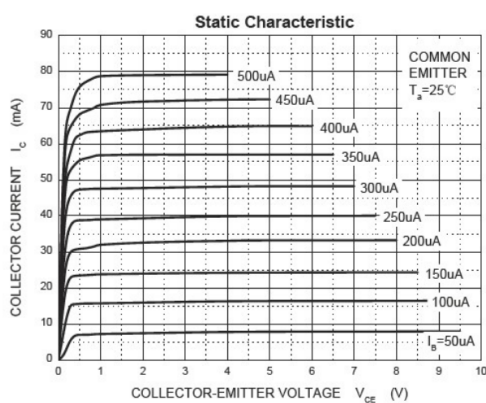
Parameters	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	80	V
Collector-Emitter Voltage	$V_{CEO}$	80	V
Emitter-Base Voltage	$V_{EBO}$	4	V
Collector Current-Continuous	$I_c$	500	mA
Collector Power Dissipation	$P_c$	300	mW
Junction Temperature	$T_j$	150	°C
Storage Temperature	$T_{STG}$	-55~150	°C
Thermal resistance from junction to ambient	$R_{\theta JA}$	416	°C/W

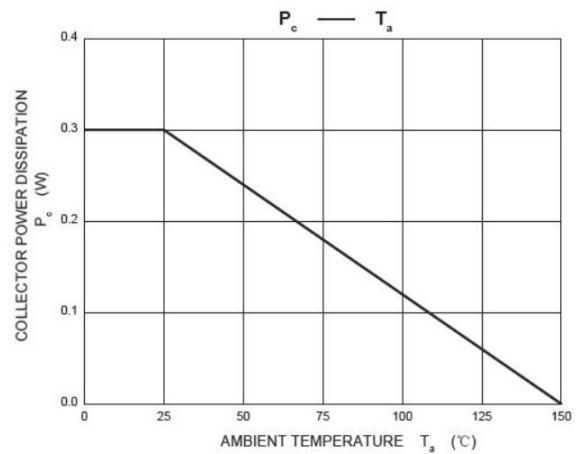
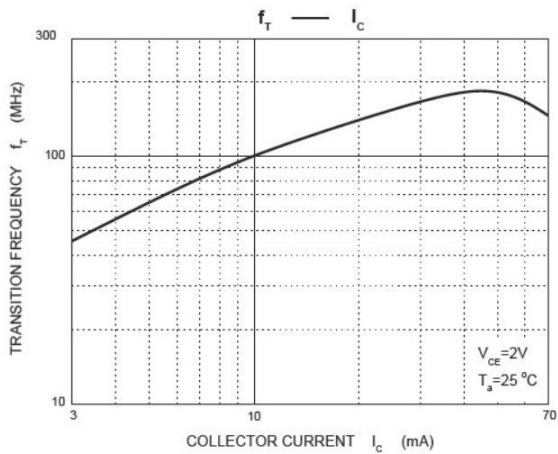
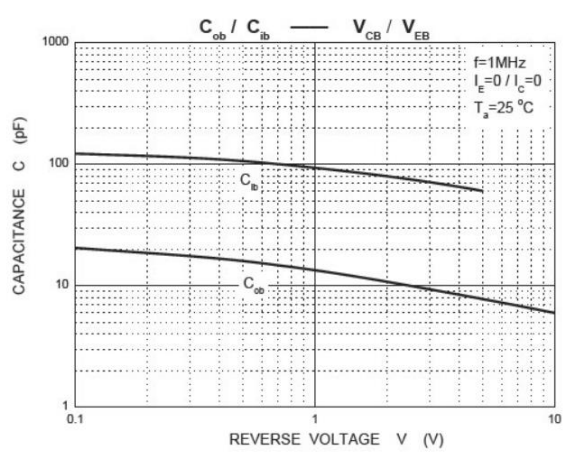
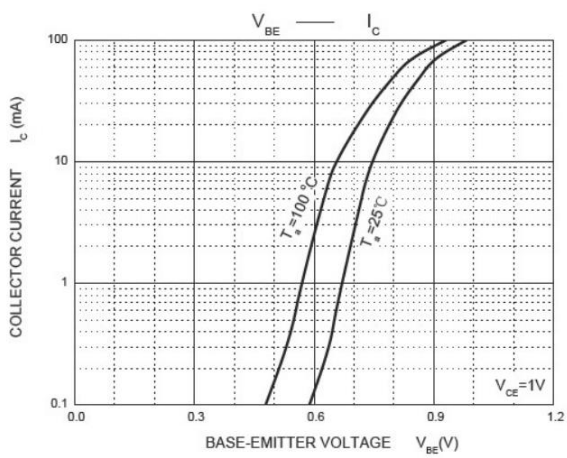
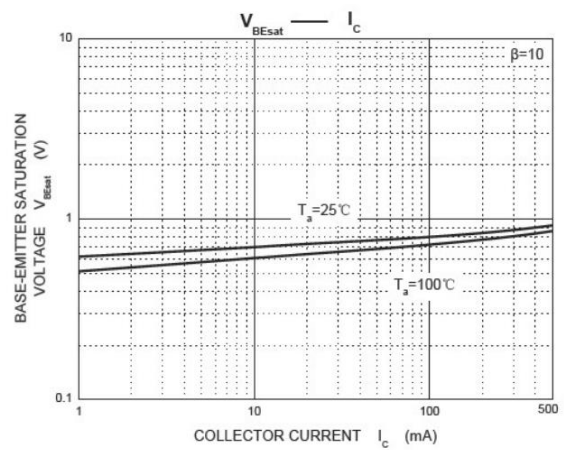
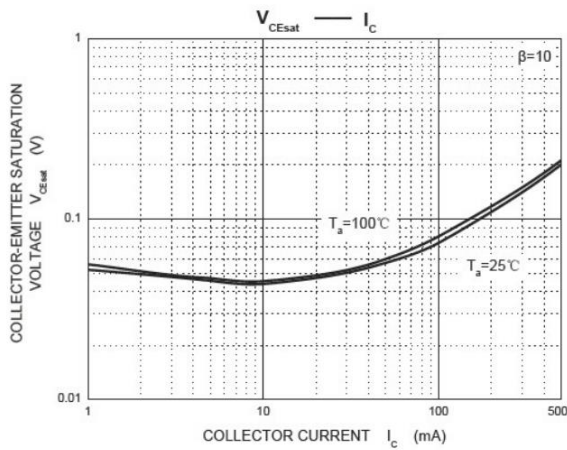
**Electrical Characteristics**(At TA = 25°C unless otherwise specified)

Parameters	Symbols	Test Condition	Limits			
			Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	80			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	80			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu A, I_C=0$	4			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=80V, I_E=0$			100	nA
	$I_{CEO}$	$V_{CE}=60V, I_B=0$			1	uA
Emitter cut-off current	$I_{EBO}$	$V_{EB}=3V, I_C=0$			100	nA
DC current gain	$h_{FE1}^*$	$V_{CE}=1V, I_C=10mA$	100		400	
	$h_{FE2}^*$	$V_{CE}=1V, I_C=100mA$	100			
Collector-emitter saturation voltage	$V_{CE(sat)}^*$	$I_C=100mA, I_B=10mA$			0.25	V
Base -emitter saturation voltage	$V_{BE(sat)}^*$	$I_C=100mA, I_B=10mA$			1.20	V
Transition frequency	$f_T$	$V_{CE}=2V, I_C=10mA, f=100MHz$	100			MHz

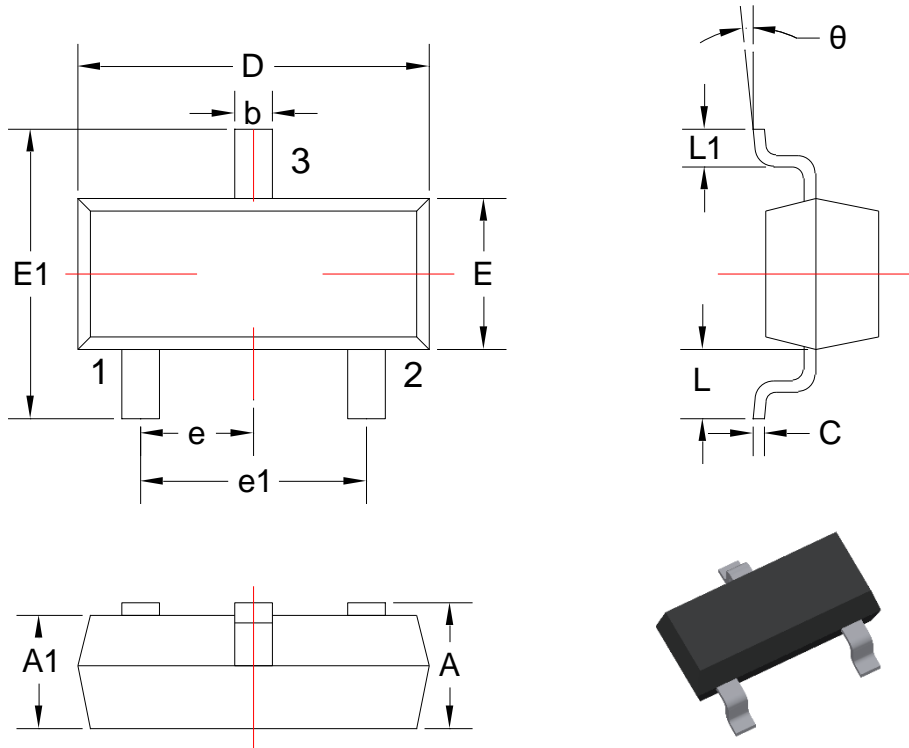
\*Pulse test: pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2.0\%$

**5. Typical Characteristic**



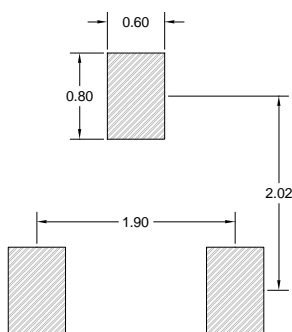


6. Dimension and Patterns (SOT-23)



Units: mm

Symbol	Dimensions		Symbol	Dimensions	
	Min.	Max.		Min.	Max.
A	0.900	1.150	E1	2.250	2.550
A1	0.900	1.050	e	0.950TYP	
b	0.300	0.500	e1	1.800	2.000
c	0.080	0.150	L	0.550REF	
D	2.800	3.00	L1	0.300	0.500
E	1.200	1.400	θ	0°	8°



Note:

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

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