

SuperTransistor – V_{CBO} 400V, I_C 200mA SOT-23 Plastic-Encapsulate NPN Transistors

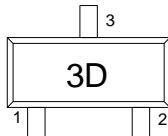
1. Features

- Complementary to MMBTA94
- Power dissipation of 350mW
- 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.

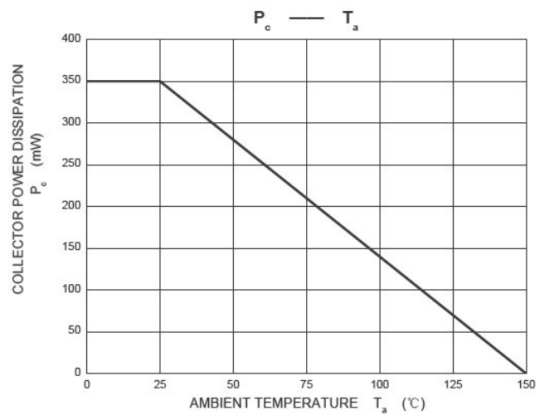
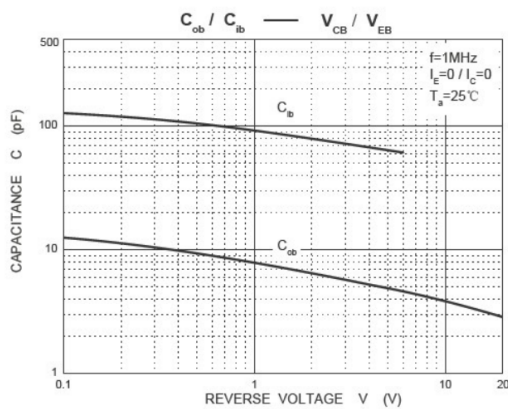
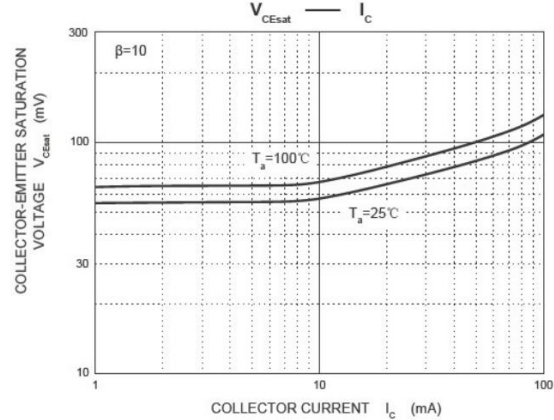
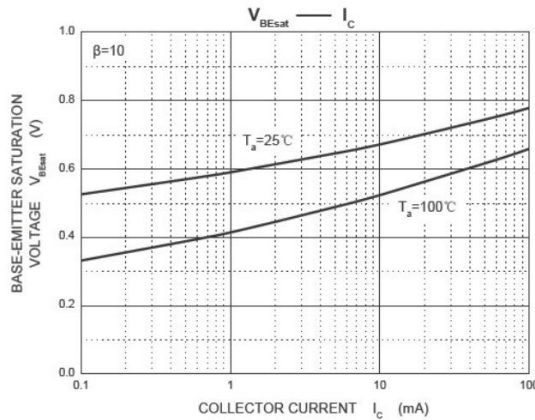
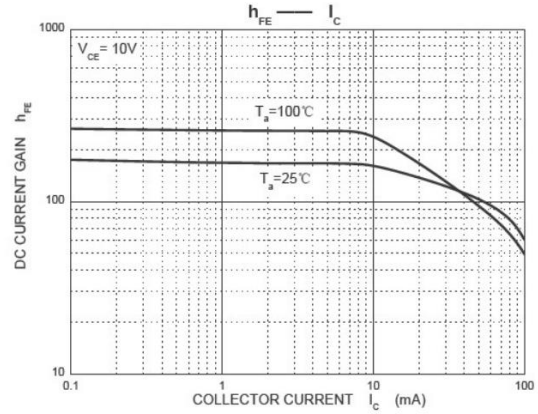
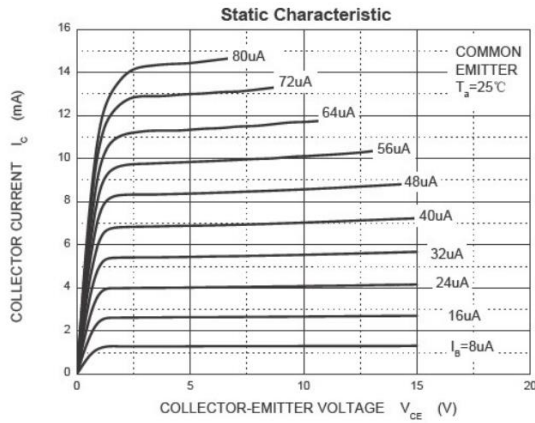
Parameters	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	400	V
Collector-Emitter Voltage	V_{CEO}	400	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current-Continuous	I_C	200	mA
Collector Power Dissipation	P_C	350	mW
Junction Temperature	T_j	150	°C
Storage Temperature	T_{STG}	-55~150	°C
Thermal resistance from junction to ambient	$R_{\theta JA}$	357	°C/W

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

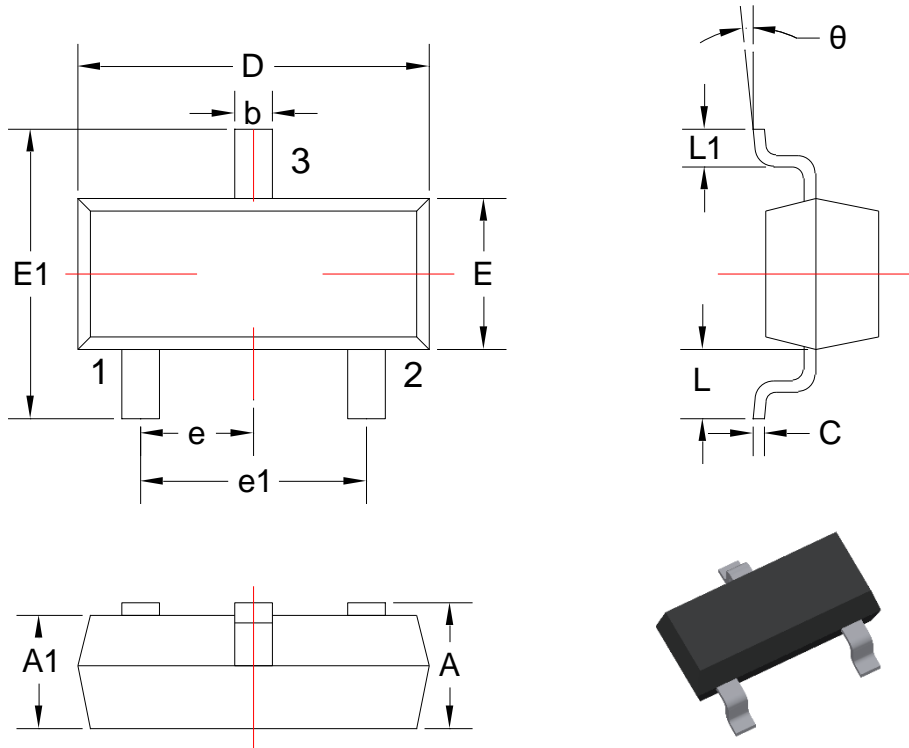
Parameters	Symbols	Test Condition	Limits			
			Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	400			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}^*$	$I_C=1\text{mA}, I_B=0$	400			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB}=400\text{V}, I_E=0$			100	nA
Emitter cut-off current	I_{EBO}	$V_{EB}=4\text{V}, I_C=0$			100	nA
DC current gain	h_{FE1}^*	$V_{CE}=10\text{V}, I_C=1\text{mA}$	40			
	h_{FE2}^*	$V_{CE}=10\text{V}, I_C=10\text{mA}$	50		200	
	h_{FE3}^*	$V_{CE}=10\text{V}, I_C=50\text{mA}$	45			
	h_{FE4}^*	$V_{CE}=10\text{V}, I_C=100\text{mA}$	40			
Collector-emitter saturation voltage	$V_{CE(sat)}^*$	$I_C=1\text{mA}, I_B=0.1\text{mA}$			0.40	V
		$I_C=10\text{mA}, I_B=1\text{mA}$			0.50	V
		$I_C=50\text{mA}, I_B=5\text{mA}$			0.75	V
Base -emitter saturation voltage	$V_{BE(sat)}^*$	$I_C=10\text{mA}, I_B=1\text{mA}$			0.75	V
Collector output capacitance	C_{OB}	$V_{CB}=20\text{V}, I_E=0\text{mA}, f=1\text{MHz}$			7	pF
Emitter input capacitance	C_{IB}	$V_{EB}=0.5\text{V}, I_C=0\text{mA}, f=1\text{MHz}$			130	pF

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

5. Typical Characteristic

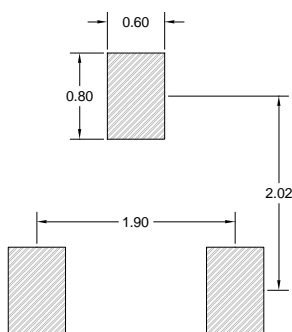


6. Dimension and Patterns (SOT-23)



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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