

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

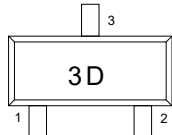
1. Features

- 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.

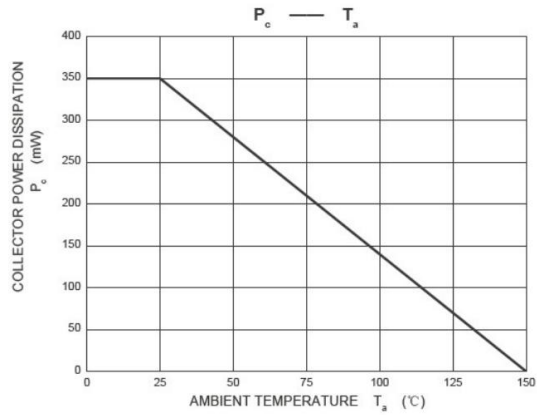
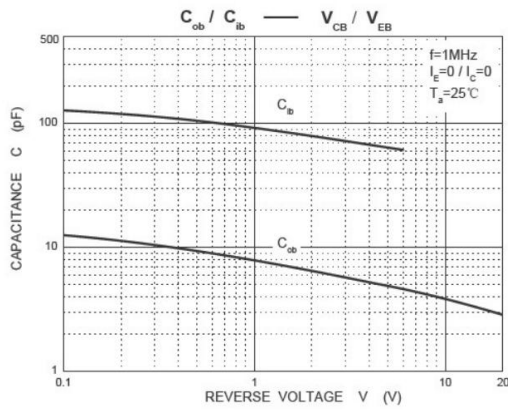
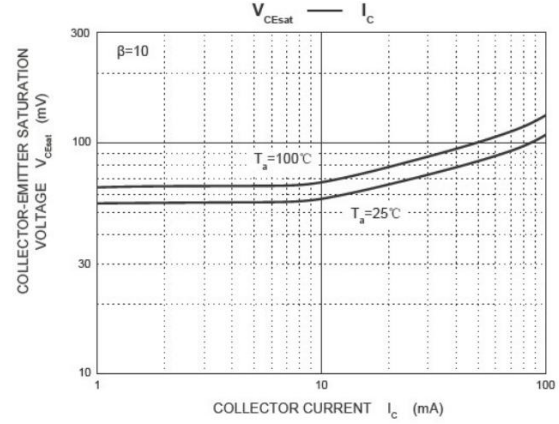
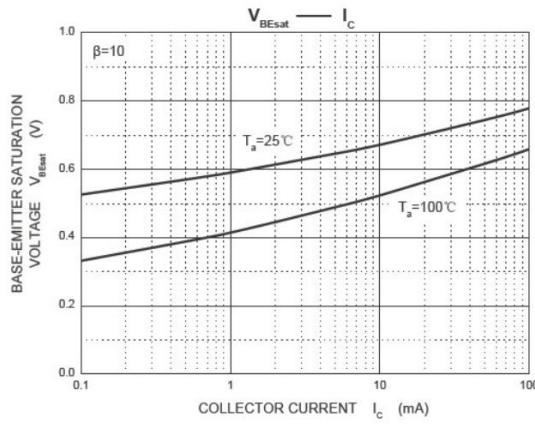
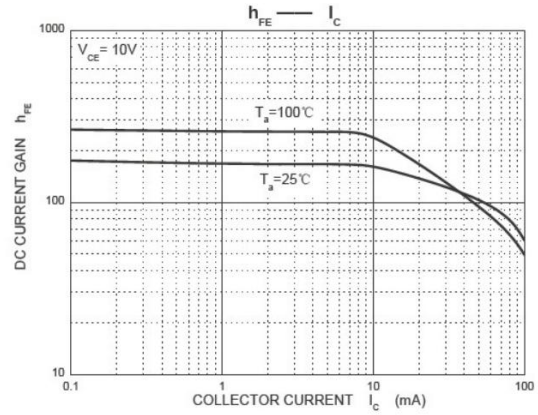
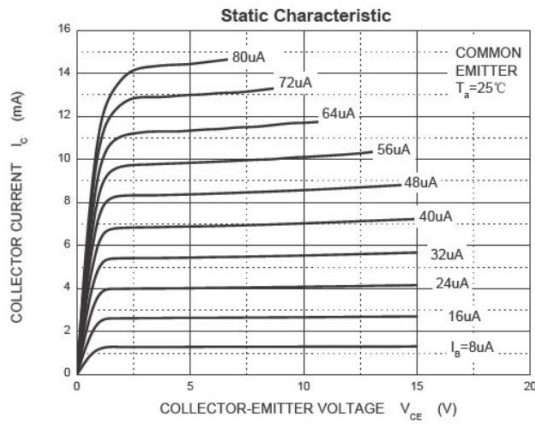
Parameters	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	400	V
Collector-Emitter Voltage	V _{CEO}	400	V
Emitter-Base Voltage	V _{EBO}	6	V
Collector Current-Continuous	I _C	200	mA
Collector Power Dissipation	P _C	350	mW
Junction Temperature	T _j	150	°C
Storage Temperature	T _{STG}	-55~150	°C
Thermal resistance from junction to ambient	R _{θJA}	357	°C/W

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

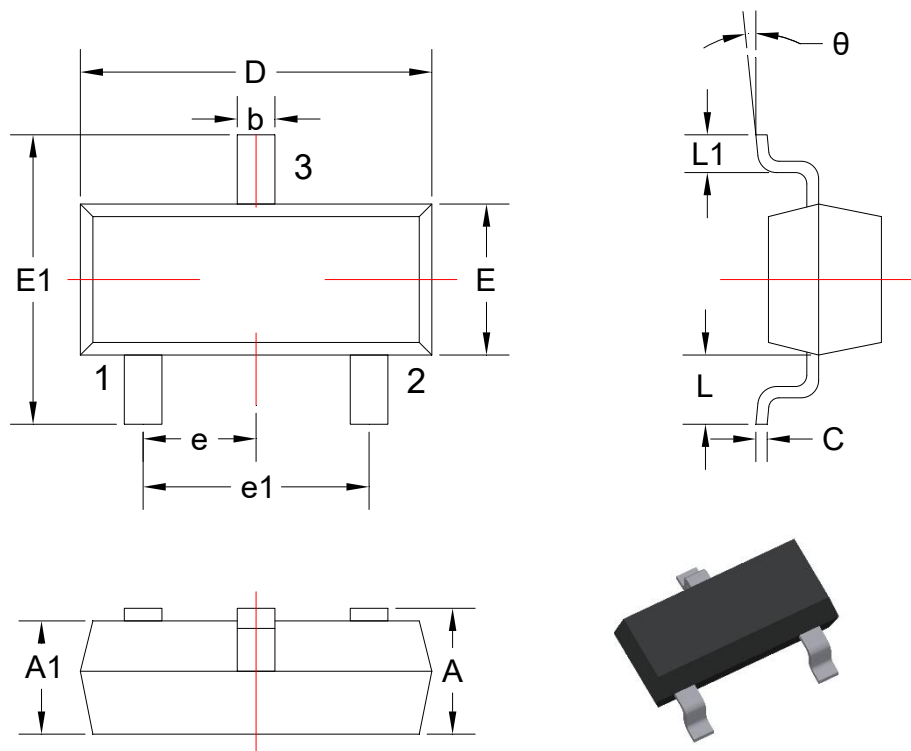
Parameters	Symbols	Test Condition	Limits			
			Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	400			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}^*$	$I_C=1mA, I_B=0$	400			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	6			V
Collector cut-off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

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

5. Typical Characteristic

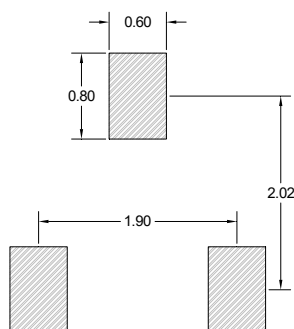


6. Dimension and Patterns (SOT-23)



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: $\pm 0.05\text{mm}$
3. The pad layout is for reference only
4. Unit: mm

Notice

1. All product, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise. The right to explain is owned by CCX electronics company.
2. Confirm that operation temperature is within the specified range described in the product specification.

Avoid applying power exceeding normal rated power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.
3. CCX shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.