

## SOT-23 Plastic-Encapsulate Transistors

### Features

- Complementary to S9012
- 300 mW Power Dissipation of 300mW
- High Stability and High Reliability

### Mechanical Data

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



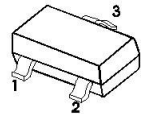
**RoHS**  
COMPLIANT



Marking: J3

SOT-23

Pin definition



1. BASE  
2. EMITTER  
3. COLLECTOR

### Maximum Ratings & Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	40	V
Collector-Emitter Voltage	V <sub>CEO</sub>	25	V
Emitter -Base Voltage	V <sub>EBO</sub>	5	V
Collector Current-Continuous	I <sub>C</sub>	500	mA
Collector Power Dissipation	P <sub>C</sub>	300	mW
Operating junction temperature range	T <sub>J</sub>	150	°C
Storage temperature range	T <sub>STG</sub>	-55-+150	°C
Thermal Resistance from Junction to Ambient	R <sub>θJA</sub>	416	°C/W

### Electrical Specifications (T<sub>A</sub>=25°C unless otherwise noted)

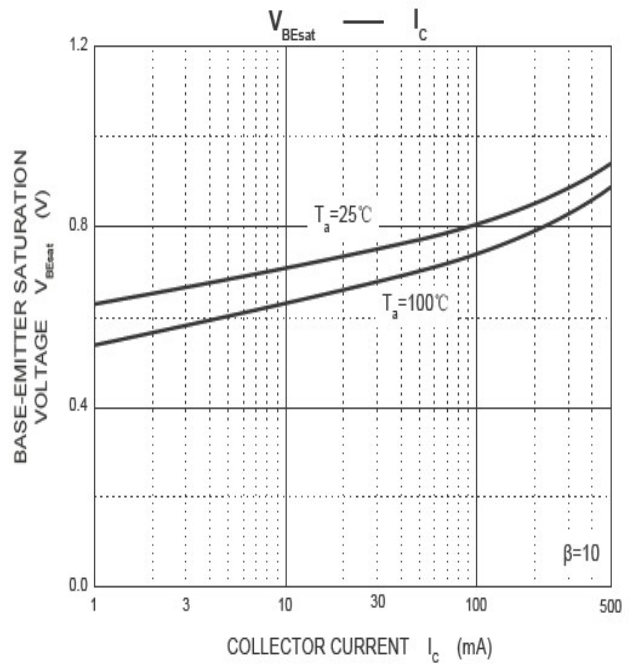
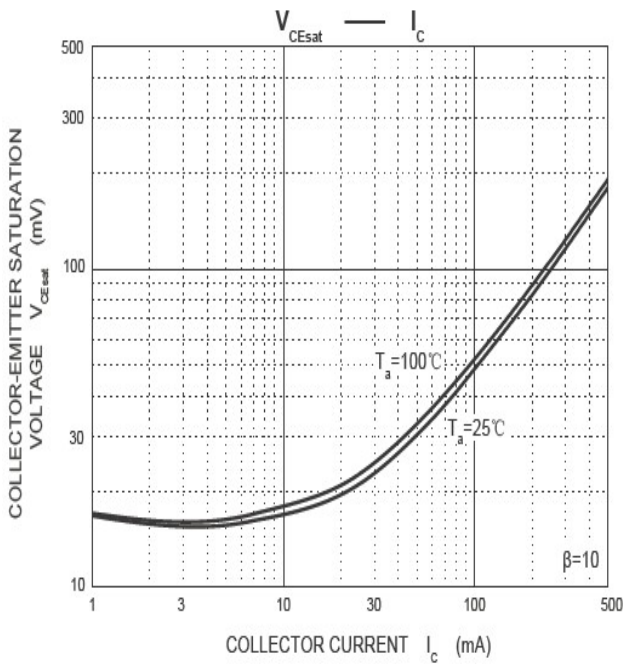
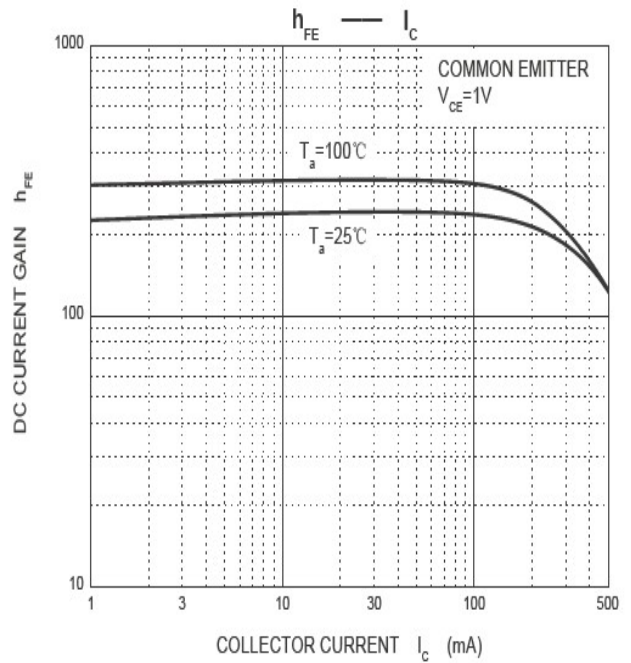
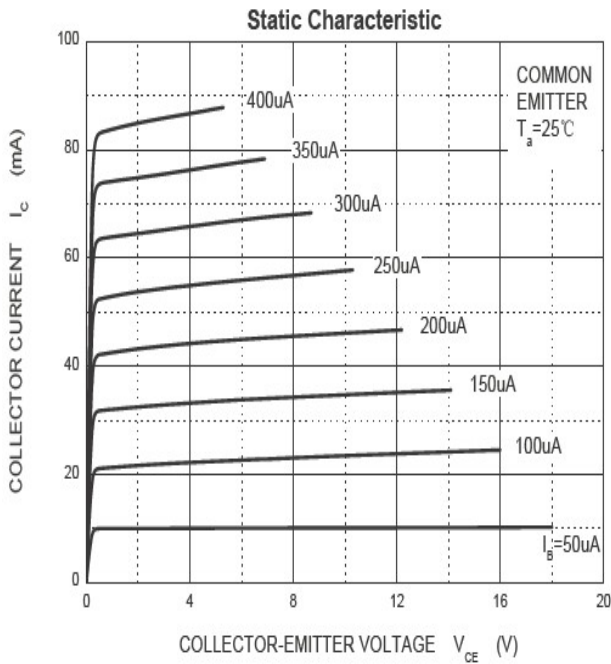
Parameter	Symbol	Test Conditions	Limits		Unit
			Min	Max	
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =100uA, I <sub>E</sub> =0	40		V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =1mA, I <sub>B</sub> =0	25		
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =100uA, I <sub>C</sub> =0	5		
Collector cut-off current	I <sub>CEO</sub>	V <sub>CE</sub> =20V, I <sub>B</sub> =0		100	nA
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> =40V, I <sub>E</sub> =0		100	nA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =5V, I <sub>C</sub> =0		100	nA
DC current gain	h <sub>FE</sub>	V <sub>CE</sub> =1V, I <sub>C</sub> =50mA	120	400	
		V <sub>CE</sub> =1V, I <sub>C</sub> =500mA	40		
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA		0.60	V
Base -emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA		1.20	V
Base -emitter voltage	V <sub>BE</sub>	V <sub>CB</sub> =1V, I <sub>C</sub> =10mA		0.70	V
Transition frequency	f <sub>T</sub>	V <sub>CB</sub> =1V, I <sub>C</sub> =10mA	150		MHz
Collector output capacitance	C <sub>ob</sub>	V <sub>CE</sub> =6V, I <sub>C</sub> =20mA, f=30MHz		8	pF

### Classification OF h<sub>FE(1)</sub>

RANK	L	H	J
RANGE	120-200	200-350	300-400

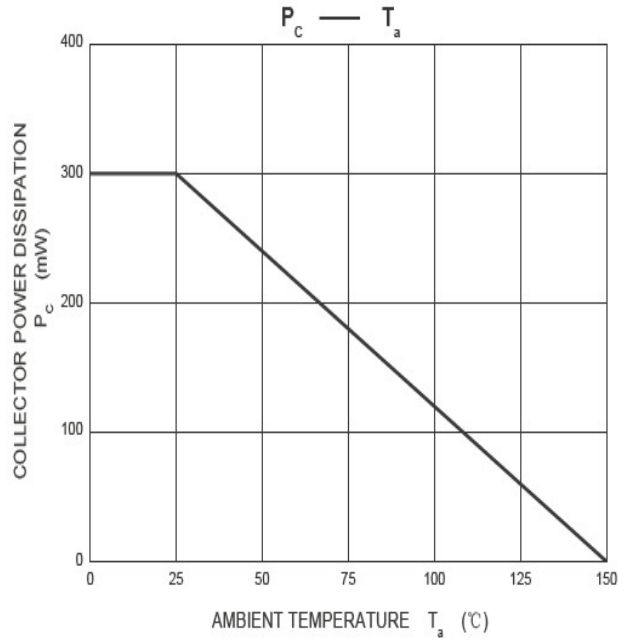
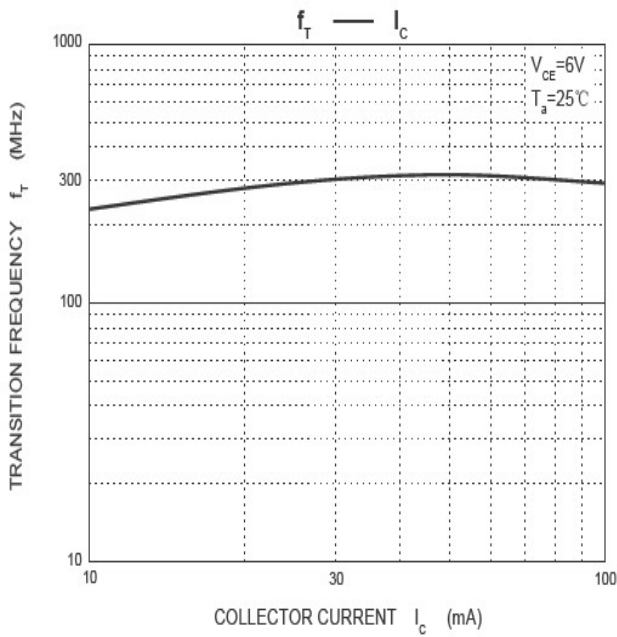
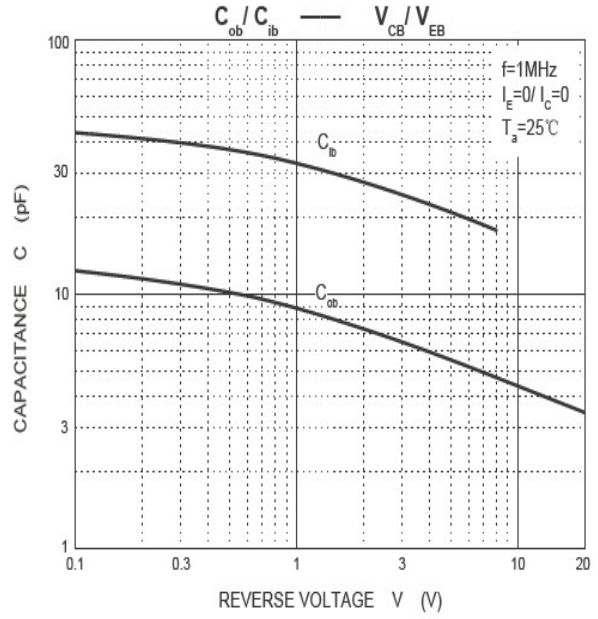
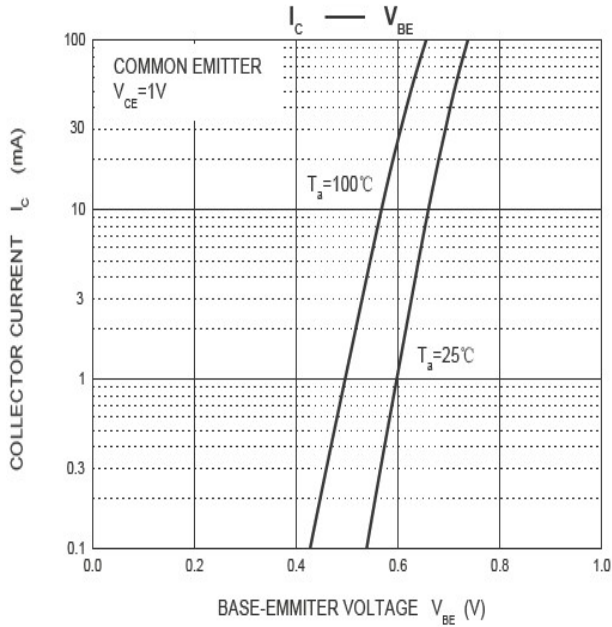
## Ratings and Characteristics Curves

( $T_a = 25^\circ\text{C}$  unless otherwise noted)



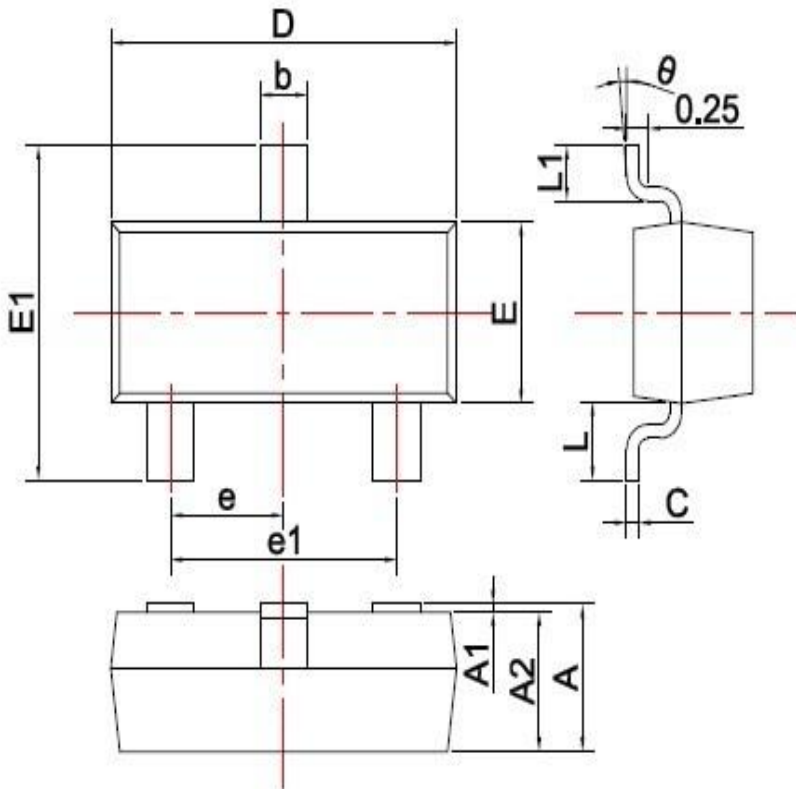
## Ratings and Characteristics Curves

( $T_a = 25^\circ\text{C}$  unless otherwise noted)



**Package Outline Dimensions**

in inches (millimeters)



SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Unit: mm

**Revision History**

Document Version	Date of release	Description of changes
Rev.A	2017.02.16	First issue

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