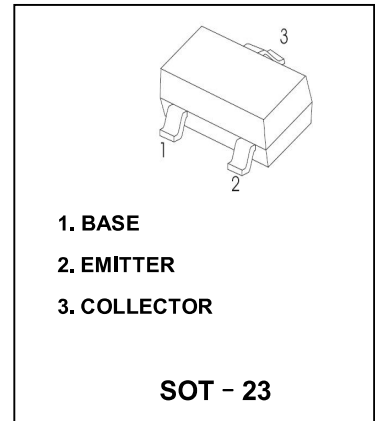


**Plastic-Encapsulate Transistors**

TRANSISTOR(NPN)

**FEATURES**

- High Voltage Application
- Telephone Application
- Complementary to MMBTA93


**MARKING:2D**
**MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)**

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	200	V
V <sub>CEO</sub>	Collector-Emitter Voltage	200	V
V <sub>EBO</sub>	Emitter-Base Voltage	5	V
I <sub>C</sub>	Collector Current	500	mA
P <sub>C</sub>	Collector Power Dissipation	350	mW
R <sub>θJA</sub>	Thermal Resistance From Junction To Ambient	357	°C/W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55~+150	°C

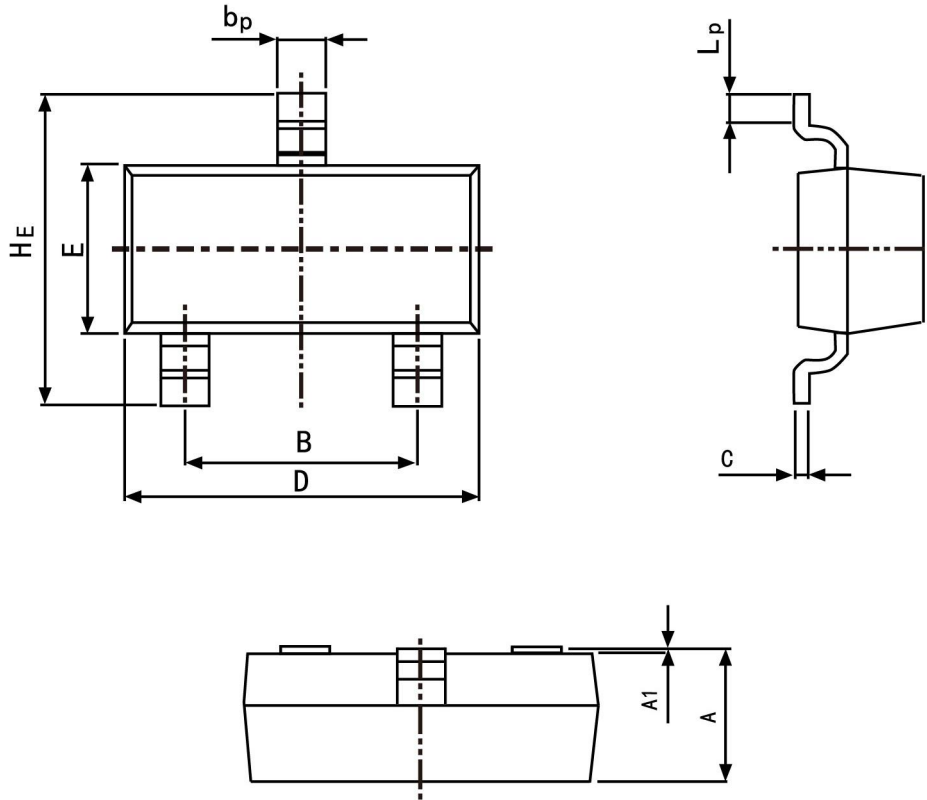
**ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =0.1mA, I <sub>E</sub> =0	200			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =1mA, I <sub>B</sub> =0	200			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =0.1mA, I <sub>C</sub> =0	5			V
DC current gain	h <sub>FE(1)</sub> *	V <sub>CE</sub> =10V, I <sub>C</sub> =10mA	40			
	h <sub>FE(2)</sub> *	V <sub>CE</sub> =10V, I <sub>C</sub> =1mA	40			
	h <sub>FE(3)</sub> *	V <sub>CE</sub> =10V, I <sub>C</sub> =30mA	40			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub> *	I <sub>C</sub> =20mA, I <sub>B</sub> =2mA			0.5	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub> *	I <sub>C</sub> =20mA, I <sub>B</sub> =2mA			0.9	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =20V, I <sub>E</sub> =10mA, f=100MHz	50			MHz
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> =20V, I <sub>E</sub> =0, f=1MHz			4	pF

\*Pulse test: pulse width ≤300μs, duty cycle ≤ 2.0%.

Package Outline

SOT-23



Symbol	Dimension in Millimeters	
	Min	Max
A	0.95	1.40
B	1.78	2.04
bp	0.35	0.50
C	0.08	0.19
D	2.70	3.10
E	1.20	1.65
HE	2.20	3.00
A1	0.100	0.013
Lp	0.20	0.50

Summary of Packing Options

Package	Packing Description	Packing Quantity	Industry Standard
SOT-23	Tape/Reel, 7" reel	3 000	EIA-481-1

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