

# TRANSISTOR(NPN)

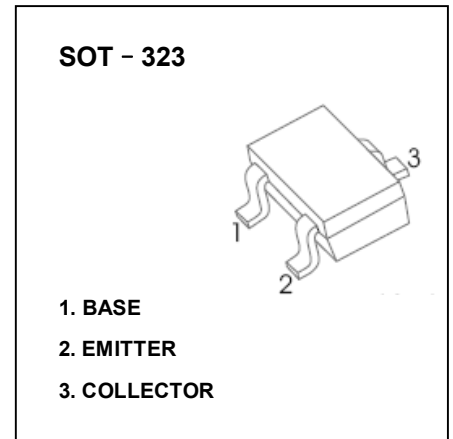
## FEATURES

- Complementary to MMST3906

**MARKING:K2N**

## MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	60	V
V <sub>CEO</sub>	Collector-Emitter Voltage	40	V
V <sub>EBO</sub>	Emitter-Base Voltage	5	V
I <sub>C</sub>	Collector Current	200	mA
P <sub>C</sub>	Collector Power Dissipation	200	mW
R <sub>θJA</sub>	Thermal Resistance From Junction To Ambient	625	°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> =10μA, I <sub>E</sub> =0	60			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub> *	I <sub>C</sub> =1mA, I <sub>B</sub> =0	40			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub> *	I <sub>E</sub> =10μA, I <sub>C</sub> =0	5			V
Collector cut-off current	I <sub>CBO</sub> *	V <sub>CB</sub> =60V, I <sub>E</sub> =0			60	nA
Collector cut-off current	I <sub>CEO</sub> *	V <sub>CE</sub> =40V, I <sub>B</sub> =0			500	nA
DC current gain	h <sub>FE</sub> *	V <sub>CE</sub> =1V, I <sub>C</sub> =100μA	40			
		V <sub>CE</sub> =1V, I <sub>C</sub> =1mA	70			
		V <sub>CE</sub> =1V, I <sub>C</sub> =10mA	100		300	
		V <sub>CE</sub> =1V, I <sub>C</sub> =50mA	60			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub> *	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA			0.25	V
		I <sub>C</sub> =50mA, I <sub>B</sub> =5mA			0.3	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub> *	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA			0.85	V
		I <sub>C</sub> =50mA, I <sub>B</sub> =5mA			0.95	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =20V, I <sub>C</sub> =10mA, f=100MHz	300			MHz
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> =5V, I <sub>E</sub> =0, f=1MHz			4	pF
Collector output capacitance	C <sub>ib</sub>	V <sub>EB</sub> =0.5V, I <sub>E</sub> =0, f=1MHz			8	pF
Delay time	t <sub>d</sub>	V <sub>CC</sub> =3V, V <sub>BE(off)</sub> =0.5V, I <sub>C</sub> =10mA,			35	ns
Rise time	t <sub>r</sub>	I <sub>B1</sub> =1mA			35	ns
Storage time	t <sub>s</sub>	V <sub>CC</sub> =3V, I <sub>C</sub> =10mA, I <sub>B1</sub> =I <sub>B2</sub> =1mA			225	ns
Fall time	t <sub>f</sub>				75	ns

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