

# TRANSISTOR (NPN)

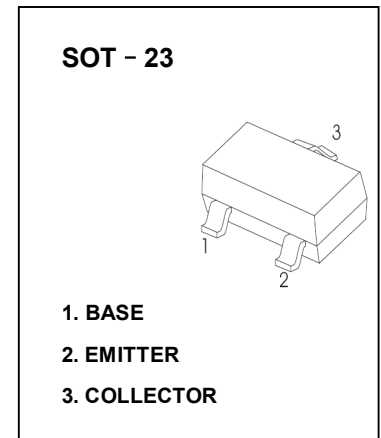
## FEATURES

- Complementary Type FMMT593

**MARKING:493**

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

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	120	V
V <sub>CEO</sub>	Collector-Emitter Voltage	100	V
V <sub>EBO</sub>	Emitter-Base Voltage	5	V
I <sub>C</sub>	Collector Current	1000	mA
P <sub>C</sub>	Collector Power Dissipation	250	mW
R <sub>θJA</sub>	Thermal Resistance From Junction To Ambient	500	°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> =100μA, I <sub>E</sub> =0	120			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =0	100			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =100μA, I <sub>C</sub> =0	5			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> =100V, I <sub>E</sub> =0			0.1	μA
Collector cut-off current	I <sub>CES</sub>	V <sub>CE</sub> =100V, I <sub>E</sub> =0			0.1	μA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =4V, I <sub>C</sub> =0			0.1	μA
DC current gain	h <sub>FE(1)</sub> *	V <sub>CE</sub> =10V, I <sub>C</sub> =1mA	100			
	h <sub>FE(2)</sub> *	V <sub>CE</sub> =10V, I <sub>C</sub> =250mA	100		300	
	h <sub>FE(3)</sub> *	V <sub>CE</sub> =10V, I <sub>C</sub> =0.5A	60			
	h <sub>FE(4)</sub> *	V <sub>CE</sub> =10V, I <sub>C</sub> =1A	20			
Collector-emitter saturation voltage	V <sub>CE(sat)1</sub> *	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA			0.3	V
	V <sub>CE(sat)2</sub> *	I <sub>C</sub> =1A, I <sub>B</sub> =100mA			0.6	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub> *	I <sub>C</sub> =1A, I <sub>B</sub> =100mA			1.15	V
Base-emitter voltage	V <sub>BE</sub> *	V <sub>CE</sub> =10V, I <sub>C</sub> =1A			1	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =50mA, f=100MHz	150			MHz
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1MHz			10	pF

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