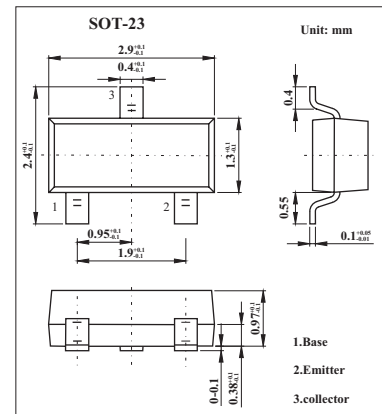


## Silicon NPN High Voltage Switching Transistor

## FMMT459

## ■ Features

- 6V reverse blocking capability
- Low saturation voltage - 90mV @ 50mA
- $h_{FE} > 50 @ 30 \text{ Ma}$
- $I_c=150\text{mA}$  continuous

■ Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$ 

Parameter	Symbol	Rating	Unit
Collector-base voltage	$V_{CB0}$	500	V
Collector-emitter voltage	$V_{CEV}$	500	V
Collector-emitter voltage	$V_{CEO}$	450	V
Emitter-base voltage	$V_{EB0}$	6	V
Emitter-collector voltage	$V_{ECV}$	6	V
Peak pulse current	$I_{CM}$	0.5	A
Continuous collector current * 1	$I_c$	0.15	A
Base current	$I_B$	0.2	A
Power dissipation @ $T_A=25^\circ\text{C}$ * 1	$P_D$	625	mW
Linear derating factor		5	mW/ $^\circ\text{C}$
Power dissipation @ $T_A=25^\circ\text{C}$ *2	$P_D$	806	mW
Linear derating factor		6.4	mW/ $^\circ\text{C}$
Operating and storage temperature range	$T_j; T_{stg}$	-55 to +150	$^\circ\text{C}$
?Junction to ambient *1	$R_{\theta JA}$	200	$^\circ\text{C}/\text{W}$
Junction to ambient *2	$R_{\theta JA}$	155	$^\circ\text{C}/\text{W}$

\*1 For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of 1oz copper, in still air conditions

\*2 as above measured at  $t < 5\text{secs}$ .

## FMMT459

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Collector-base breakdown voltage	BV <sub>CB0</sub>	I <sub>C</sub> =100μA	500	700		V
Collector-emitter breakdown voltage	BV <sub>CEV</sub>	I <sub>C</sub> =10μA, 0.3V > V <sub>BE</sub> > -1V	500	700		V
Collector-emitter breakdown voltage *	BV <sub>CEO</sub>	I <sub>C</sub> =10mA	450	500		V
Emitter-base breakdown voltage	BV <sub>EBO</sub>	I <sub>E</sub> =100μA	6	8.1		V
Emitter-base breakdown voltage	BV <sub>ECV</sub>	I <sub>C</sub> =1μA, 0.3V > V <sub>BC</sub> > -6V	6	8.1		V
Collector-emitter cut-off current	I <sub>CES</sub>	V <sub>CE</sub> =450V			100	nA
Collector-base cut-off current	I <sub>CB0</sub>	V <sub>CB</sub> =450V			100	nA
Emitter-base cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =5V			100	nA
Static forward current transfer ratio	h <sub>FE</sub>	I <sub>C</sub> =30mA, V <sub>CE</sub> =10V	50	120		
		I <sub>C</sub> =50mA, V <sub>CE</sub> =10V *		70		
Collector-emitter saturation voltage *	V <sub>CE(sat)</sub>	I <sub>C</sub> =20mA, I <sub>B</sub> =2mA		60	75	mV
		I <sub>C</sub> =50mA, I <sub>B</sub> =6mA		70	90	mV
Base-emitter saturation voltage *	V <sub>BE(sat)</sub>	I <sub>C</sub> =50mA, I <sub>B</sub> =5mA		0.76	0.9	V
Base-emitter turn on voltage *	V <sub>BE(on)</sub>	I <sub>C</sub> =50mA, V <sub>CE</sub> =10V		0.71	0.9	V
Transition frequency	f <sub>T</sub>	I <sub>C</sub> =10mA, V <sub>CE</sub> =20V, f=20MHz	50			MHz
Output capacitance	C <sub>obo</sub>	V <sub>CB</sub> =20V, f=1MHz			5	pF
Turn-on time	t <sub>on</sub>	I <sub>C</sub> =50mA, V <sub>CC</sub> =100V		113		ns
Turn-off time	t <sub>off</sub>	I <sub>B1</sub> =5mA, I <sub>B2</sub> =10mA		3450		ns

\* Measured under pulsed conditions. Pulse width = 300 μs; duty cycle <2%

## ■ Marking

Marking	459
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