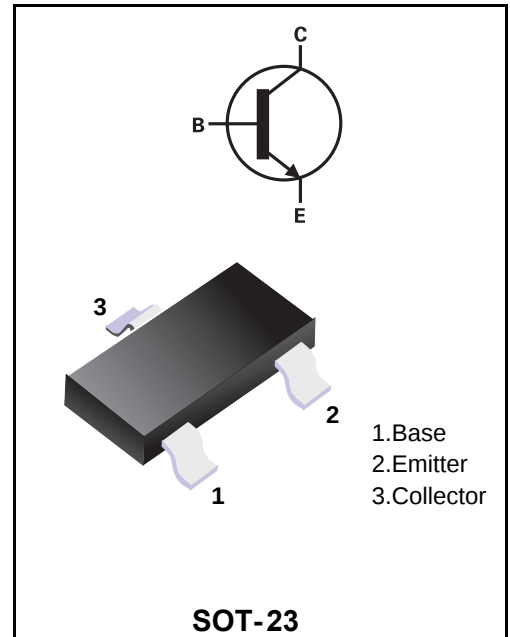


NPN Transistors

Features

- ◆6V reverse blocking capability
- ◆Low saturation voltage - 90mV @ 50mA
- ◆I_C=150mA continuous



Marking Code

FMMT459

459

Absolute Maximum Ratings Ta = 25°C

Parameters		Symbol	Value	Unit
Collector - Base Voltage		V_{CBO}	500	V
Collector-Emitter Voltage		V_{CEV}	500	V
Collector - Emitter Voltage		V_{CEO}	450	V
Emitter - Base Voltage		V_{EBO}	6	V
Emitter-Collector Voltage		V_{ECV}	6	V
Collector Current - Continuous		I_C	150	mA
Collector Current - Pulse		I_{CP}	500	mA
Base Current		I_B	200	mA
Power Dissipation	@ Ta=25°C	P_D	625	mW
	@ Ta=25°C (Note.1)		806	
Junction to ambient(Note.1)		R_{θJA}	200	°C/W
			155	°C/W
Junction Temperature		T_J	150	°C
Storage Temperature Range		T_{stg}	-55-+150	°C

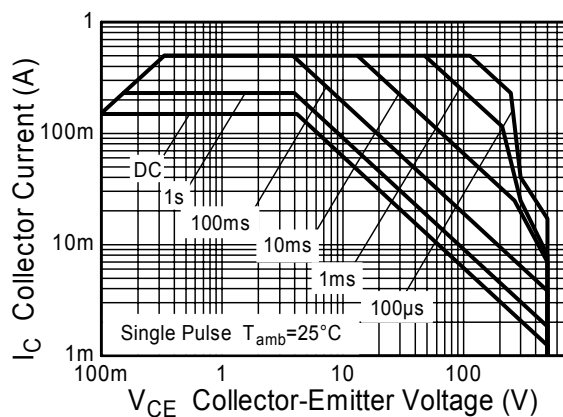
Note.1: as above measured at t<5secs.

Electrical Characteristics Ta = 25℃

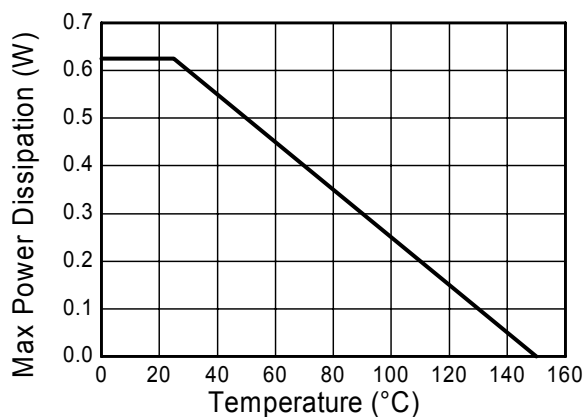
Parameter	Symbols	Test Condition	Limits			Unit
			Min	Typ	Max	
Collector- base breakdown voltage	V_{CBO}	I _C = 100 μA, I _E = 0	500			V
Collector-emitter breakdown voltage	V_{CEV}	I _C = 10μA, 0.3V > V _{BE} > -1V	500			V
Collector- emitter breakdown voltage(Note.1)	V_{CEO}	I _C = 10 mA, I _B = 0	450			V
Emitter - base breakdown voltage	V_{EBO}	I _E = 100μA, I _C = 0	6			V
Emitter-base breakdown voltage	V_{ECV}	I _C = 1μA, 0.3V > V _{BC} > -6V	6			V
Collector-base cut-off current	I_{CBO}	V _{CB} = 450 V, I _E = 0			100	nA
Collector- emitter cut-off current	I_{CES}	V _{CE} = 450 V, I _E = 0			100	nA
Emitter cut-off current	I_{EBO}	V _{EB} = 5V, I _C = 0			100	nA
Collector-emitter saturation voltage(Note.1)	V_{CE(sat)}	I _C = 20 mA, I _B = 2mA			75	mV
		I _C = 50 mA, I _B = 6mA			90	mV
Base - emitter saturation voltage(Note.1)	V_{BE(sat)}	I _C = 50 mA, I _B = 5mA			0.9	V
Base-emitter turn-on voltage(Note.1)	V_{BE(on)}	V _{CE} = 10V, I _C = 50mA			0.9	V
DC current gain	h_{FE(1)}	V _{CE} = 10V, I _C = 30mA	50			
	h_{FE(2)}	V _{CE} = 10V, I _C = 50mA		70		
Turn-on time	t_{on}	I _C = 50mA, V _C = 100V I _{B1} = 5mA, I _{B2} = 10mA		113		ns
Turn-off time	t_{off}			3450		ns
Collector output capacitance	C_{ob}	V _{CB} = 20V, f = 1MHz			5	PF
Transition frequency	f_T	V _{CE} = 20V, I _C = 10mA, f = 20MHz	50			MHz

Note.1: Pulse width = 300us; duty cycle <2%

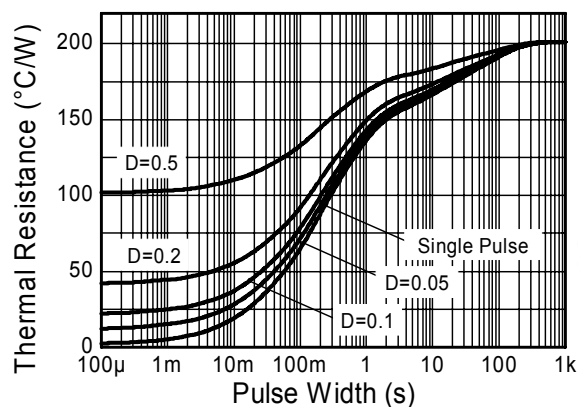
Typical characteristics



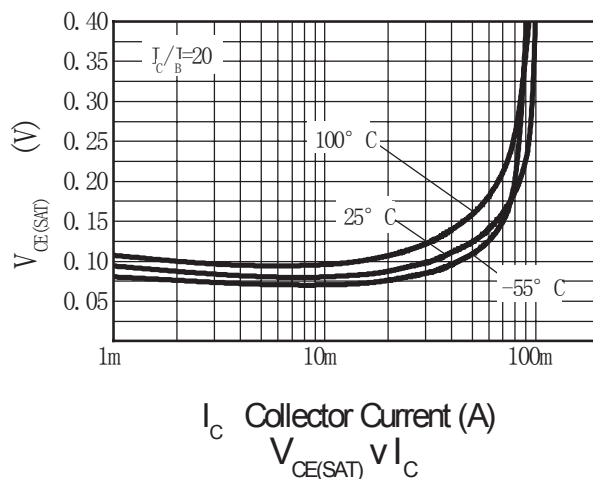
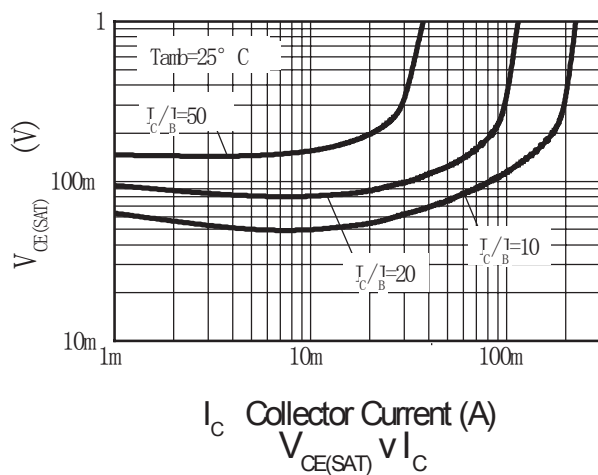
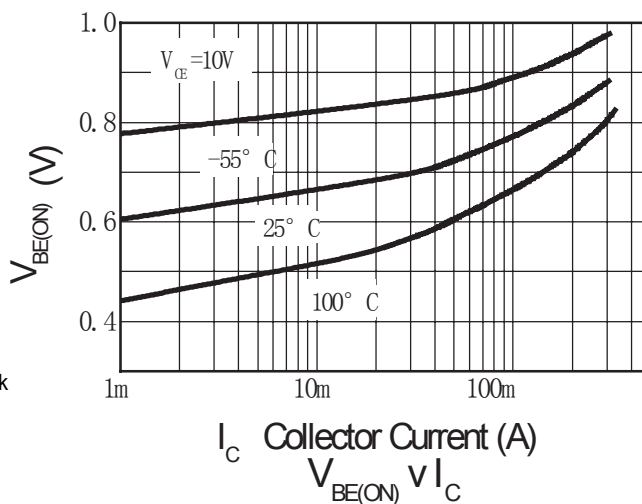
Safe Operating Area



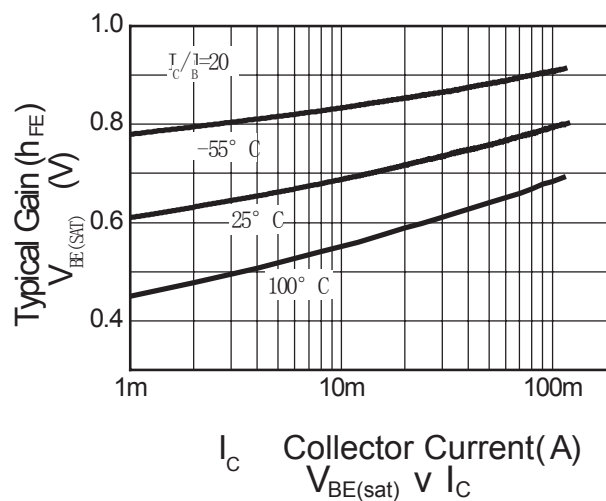
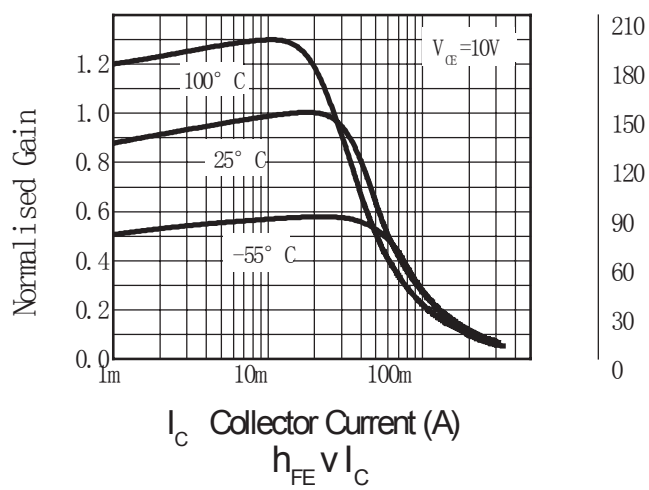
Derating Curve



Transient Thermal Impedance



Typical characteristics



Ordering information

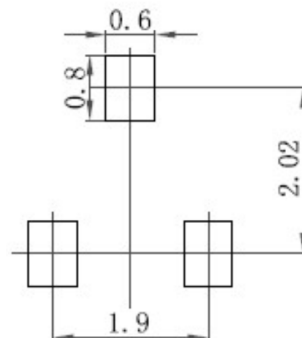
Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT-23

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.15	35	45
A1	0.1		3.9	
bp	0.38	0.48	15	19
C	0.09	0.15	3.54	5.9
D	2.8	3.0	110	118
E	1.2	1.4	47	55
E	1.9		75	
E1	0.95		37	
HE	2.1	2.55	83	100
Lp	0.15	0.45	5.9	18
Q	0.45	0.55	18	22
v	0.2		7.9	
W	0.1		4	

The recommended mounting pad size



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