

# SuperSOT

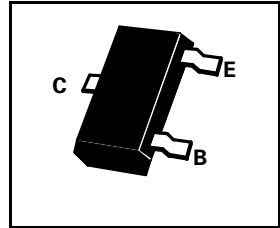
## SOT23 NPN SILICON POWER (SWITCHING) TRANSISTORS

ISSUE 3 - NOVEMBER 1995

FMMT617 FMMT618  
FMMT619 FMMT624  
FMMT625

### FEATURES

- \* **625mW POWER DISSIPATION**
- \* **I<sub>C</sub> CONT 3A**
- \* 12A Peak Pulse Current
- \* Excellent H<sub>FE</sub> Characteristics Up To 12A (pulsed)
- \* Extremely Low Saturation Voltage E.g. 8mV Typ.
- \* Extremely Low Equivalent On Resistance; R<sub>CE(sat)</sub>



DEVICE TYPE	COMPLEMENT	PARTMARKING	R <sub>CE(sat)</sub>
FMMT617	FMMT717	617	<b>50mΩ at 3A</b>
FMMT618	FMMT718	618	<b>50mΩ at 2A</b>
FMMT619	FMMT720	619	<b>75mΩ at 2A</b>
FMMT624	FMMT723	624	-
FMMT625	-	625	-

### ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	FMMT 617	FMMT 618	FMMT 619	FMMT 624	FMMT 625	UNIT
Collector-Base Voltage	V <sub>CBO</sub>	15	20	50	125	150	V
Collector-Emitter Voltage	V <sub>CEO</sub>	15	20	50	125	150	V
Emitter-Base Voltage	V <sub>EBO</sub>	5	5	5	5	5	V
Peak Pulse Current**	I <sub>CM</sub>	12	6	6	3	3	A
<b>Continuous Collector Current</b>	<b>I<sub>C</sub></b>	<b>3</b>	<b>2.5</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>A</b>
Base Current	I <sub>B</sub>	500					mA
<b>Power Dissipation at T<sub>amb</sub>=25°C*</b>	<b>P<sub>tot</sub></b>	<b>625</b>					<b>mW</b>
Operating and Storage Temperature Range	T <sub>j</sub> ; T <sub>stg</sub>	-55 to +150					°C

\* Maximum power dissipation is calculated assuming that the device is mounted on a ceramic substrate measuring 15x15x0.6mm

\*\*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%  
Spice parameter data is available upon request for these devices

# FMMT624 FMMT625

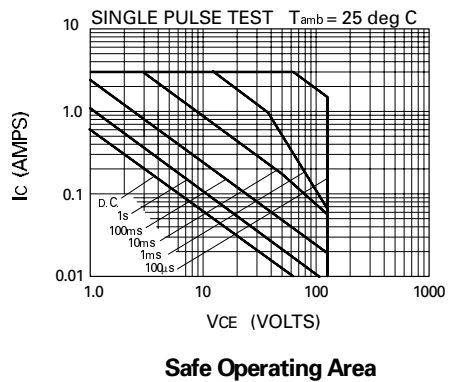
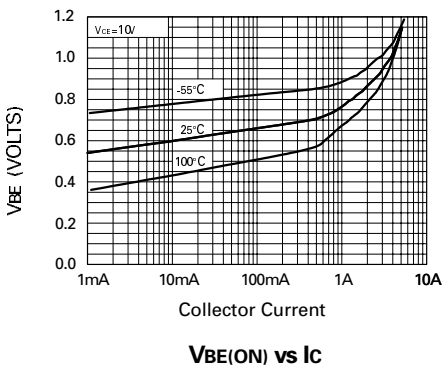
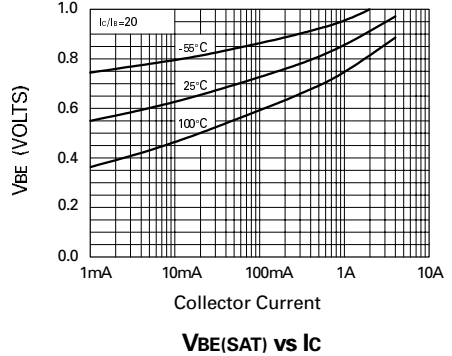
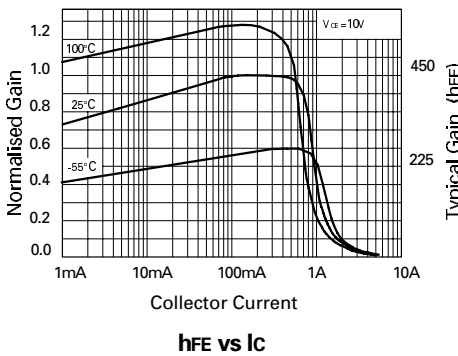
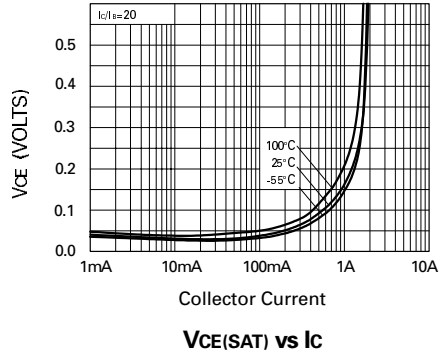
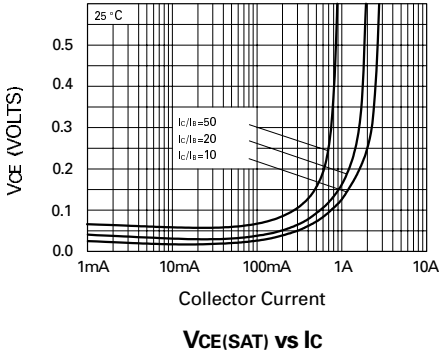
## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	FMMT624			FMMT625			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	125	250		150	300		V	$I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	125	160		150	175		V	$I_C=10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	8.3		5	8.3		V	$I_E=100\mu\text{A}$
Collector Cut-Off Current	$I_{CBO}$			100				nA nA	$V_{CB}=100\text{V}$ $V_{CB}=130\text{V}$
Emitter Cut-Off Current	$I_{EBO}$			100				nA	$V_{EB}=4\text{V}$
Collector Emitter Cut-Off Current	$I_{CES}$			100				nA nA	$V_{CES}=100\text{V}$ $V_{CES}=130\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		26 70 160 165	50 150 220 250		26 110 50 200 180 300		mV mV mV mV mV	$I_C=0.1\text{A}, I_B=10\text{mA}^*$ $I_C=0.1\text{A}, I_B=1\text{mA}^*$ $I_C=0.5\text{A}, I_B=50\text{mA}^*$ $I_C=0.5\text{A}, I_B=10\text{mA}^*$ $I_C=1\text{A}, I_B=50\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$		0.85	1.0		0.85	1.0	V	$I_C=1\text{A}, I_B=50\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$		0.7	1.0		0.74	1.0	V	$I_C=1\text{A}, V_{CE}=10\text{V}^*$
Static Forward Current Transfer Ratio	$h_{FE}$	200 300 100	400 450 140 18		200 300 30	400 450 45 15			$I_C=10\text{mA}, V_{CE}=10\text{V}^*$ $I_C=0.2\text{A}, V_{CE}=10\text{V}^*$ $I_C=1\text{A}, V_{CE}=10\text{V}^*$ $I_C=3\text{A}, V_{CE}=10\text{V}^*$
Transition Frequency	$f_T$	100	155		100	135		MHz	$I_C=50\text{mA}, V_{CE}=10\text{V}$ $f=100\text{MHz}$
Output Capacitance	$C_{OBO}$		7	15		6	10	pF	$V_{CB}=10\text{V}, f=1\text{MHz}$
Turn-On Time	$t_{(ON)}$		60			160		ns	$V_{CC}=50\text{V}, I_C=0.5\text{A}$
Turn-Off Time	$t_{(OFF)}$		1300			1500		ns	$I_{B1}=-I_{B2}=50\text{mA}$

\*Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

# FMMT624

## TYPICAL CHARACTERISTICS

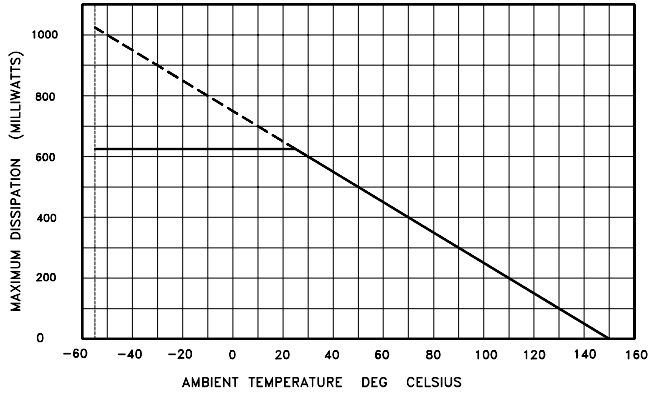


FMMT617 FMMT624  
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 FMMT619

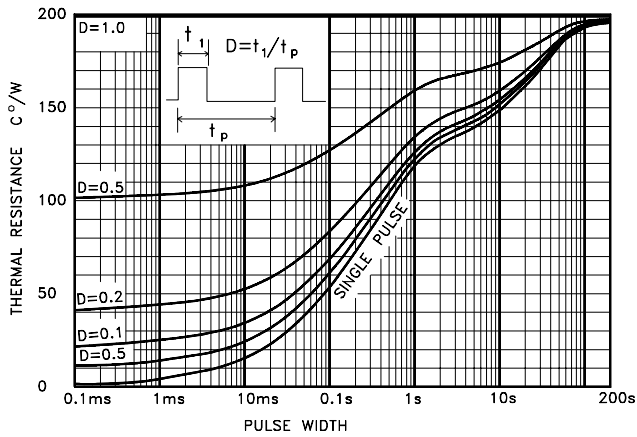
## SuperSOT Series

FMMT717 FMMT722  
 FMMT718 FMMT723  
 FMMT720

### THERMAL CHARACTERISTICS AND DERATING INFORMATION



DERATING CURVE



MAXIMUM TRANSIENT THERMAL RESISTANCE

\* Reference above figures, Devices were mounted on a 15mmx15mm ceramic substrate