

SuperSOT

SOT23 NPN SILICON POWER

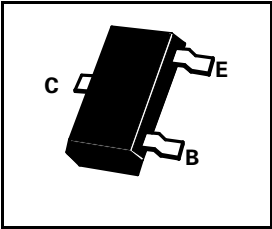
(SWITCHING) TRANSISTORS

ISSUE 3 - NOVEMBER 1995

FMMT617 FMMT618
FMMT619 FMMT624
FMMT625

FEATURES

- * **625mW POWER DISSIPATION**
- * **I_C CONT 3A**
- * 12A Peak Pulse Current
- * Excellent H_{FE} Characteristics Up To 12A (pulsed)
- * Extremely Low Saturation Voltage E.g. 8mV Typ.
- * Extremely Low Equivalent On Resistance; **R_{CE(sat)}**



DEVICE TYPE	COMPLEMENT	PARTMARKING	R _{CE(sat)}
FMMT617	FMMT717	617	50mΩ at 3A
FMMT618	FMMT718	618	50mΩ at 2A
FMMT619	FMMT720	619	75mΩ at 2A
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 _{CBO}	15	20	50	125	150	V
Collector-Emitter Voltage	V _{CEO}	15	20	50	125	150	V
Emitter-Base Voltage	V _{EBO}	5	5	5	5	5	V
Peak Pulse Current**	I _{CM}	12	6	6	3	3	A
Continuous Collector Current	I _C	3	2.5	2	1	1	A
Base Current	I _B	500					mA
Power Dissipation at T _{amb} =25°C*	P _{tot}	625					mW
Operating and Storage Temperature Range	T _j :T _{stg}	-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

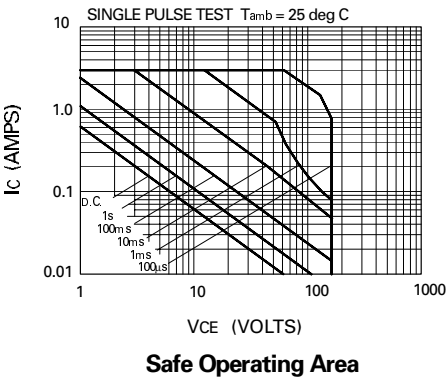
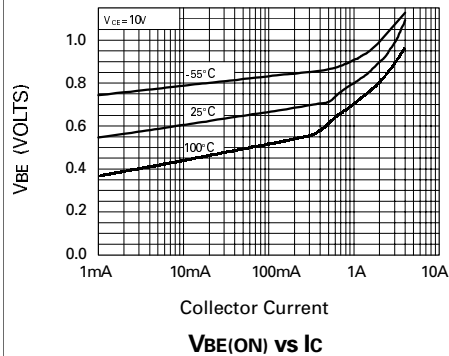
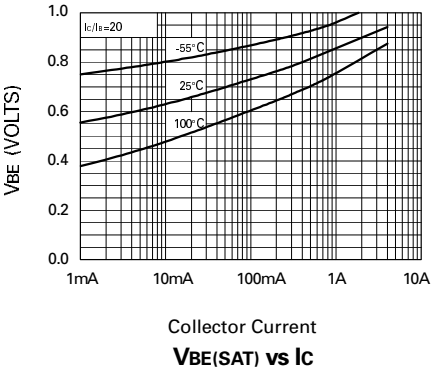
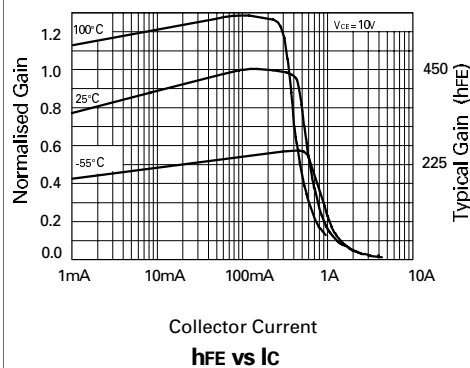
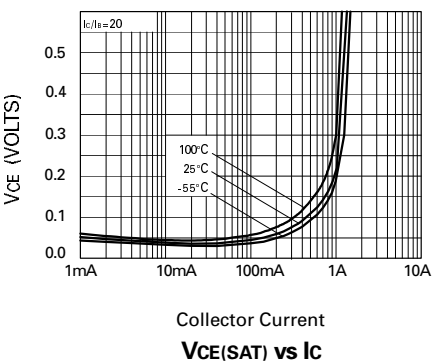
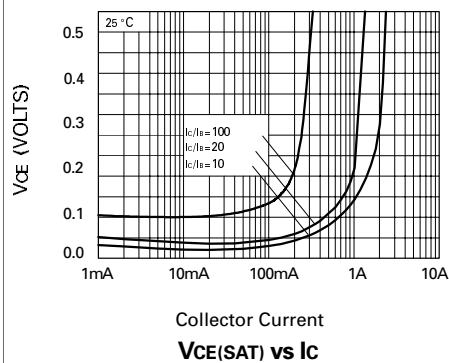
FMMT625

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			100	nA nA	$V_{CB}=100\text{V}$ $V_{CB}=130\text{V}$
Emitter Cut-Off Current	I_{EBO}			100			100	nA	$V_{EB}=4\text{V}$
Collector Emitter Cut-Off Current	I_{CES}			100			100	nA nA	$V_{CES}=100\text{V}$ $V_{CES}=130\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		26	50		26	50	mV	$I_C=0.1\text{A}, I_B=10\text{mA}^*$ $I_C=0.1\text{A}, I_B=1\text{mA}^*$ $I_C=0.5\text{A}, I_B=50\text{mA}^*$ $I_C=0.5\text{A}, I_B=10\text{mA}^*$ $I_C=1\text{A}, I_B=50\text{mA}^*$
			70	150		110	200	mV	
			160	220				mV	
			165	250		180	300	mV	
								mV	
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	400		200	400			$I_C=10\text{mA}, V_{CE}=10\text{V}^*$ $I_C=0.2\text{A}, V_{CE}=10\text{V}^*$ $I_C=1\text{A}, V_{CE}=10\text{V}^*$ $I_C=3\text{A}, V_{CE}=10\text{V}^*$
		300	450		300	450			
		100	140		30	45			
			18			15			
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 μs . Duty cycle $\leq 2\%$

TYPICAL CHARACTERISTICS

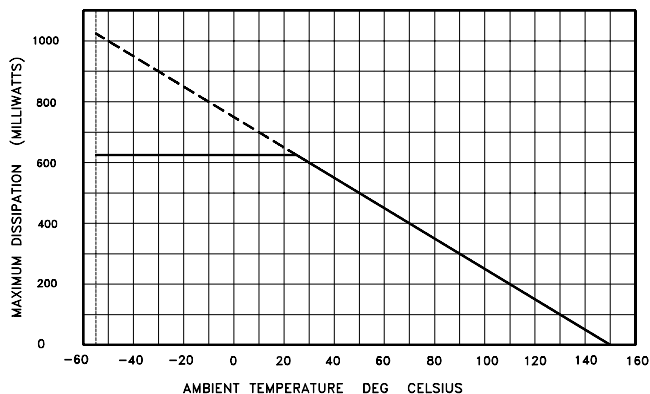


FMMT617 FMMT624
FMMT618 FMMT625
FMMT619

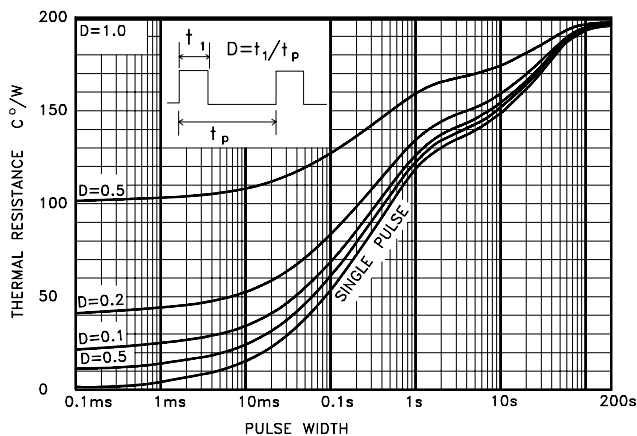
SuperSOT Series

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