

SuperSOT

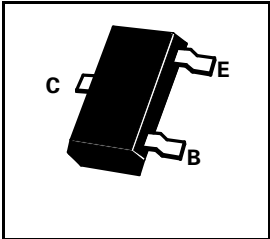
SOT23 PNP SILICON POWER (SWITCHING) TRANSISTORS

FMMT717 FMMT718
FMMT720 FMMT722
FMMT723

ISSUE 3 JUNE 1996

FEATURES

- * **625mW POWER DISSIPATION**
- * **I_C CONT 2.5A**
- * I_C Up To 10A Peak Pulse Current
- * Excellent h_{fe} Characteristics Up To 10A (pulsed)
- * Extremely Low Saturation Voltage E.g. 10mV Typ.
- * Exhibits extremely low equivalent on-resistance; $R_{CE(sat)}$



DEVICE TYPE	COMPLEMENT	PARTMARKING	$R_{CE(sat)}$
FMMT717	FMMT617	717	72mΩ at 2.5A
FMMT718	FMMT618	718	97mΩ at 1.5A
FMMT720	FMMT619	720	163mΩ at 1.5A
FMMT722	–	722	-
FMMT723	FMMT624	723	-

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	FMMT 717	FMMT 718	FMMT 720	FMMT 722	FMMT 723	UNIT
Collector-Base Voltage	V_{CBO}	-12	-20	-40	-70	-100	V
Collector-Emitter Voltage	V_{CEO}	-12	-20	-40	-70	-100	V
Emitter-Base Voltage	V_{EBO}	-5	-5	-5	-5	-5	V
Peak Pulse Current**	I_{CM}	-10	-6	-4	-3	-2.5	A
Continuous Collector Current	I_C	-2.5	-1.5	-1.5	-1.5	-1	A
Base Current	I_B	-500					mA
Power Dissipation at $T_{amb}=25^{\circ}C^*$	P_{tot}	625					mW
Operating and Storage Temperature Range	$T_j: T_{stg}$	-55 to +150					$^{\circ}C$

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

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

FMMT722

FMMT723

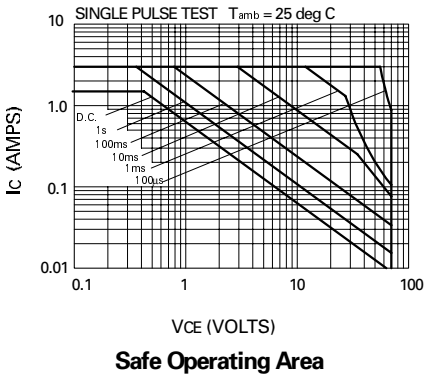
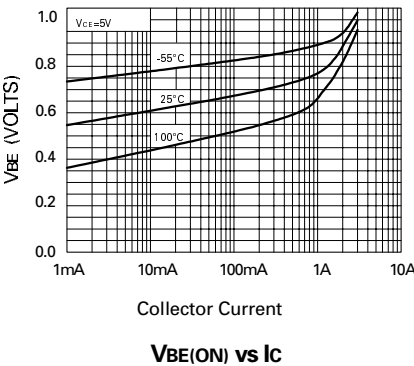
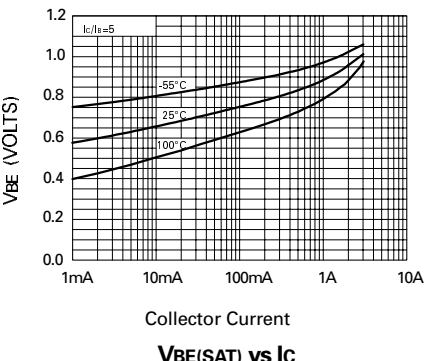
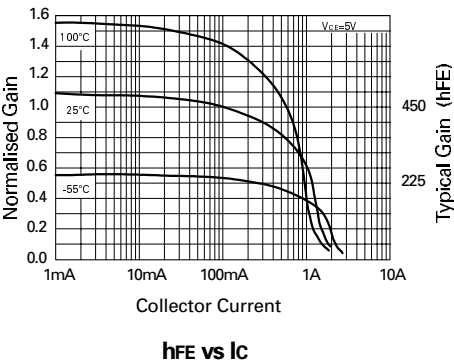
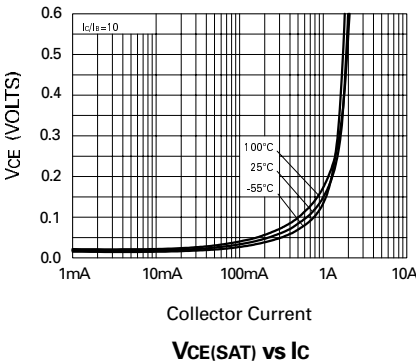
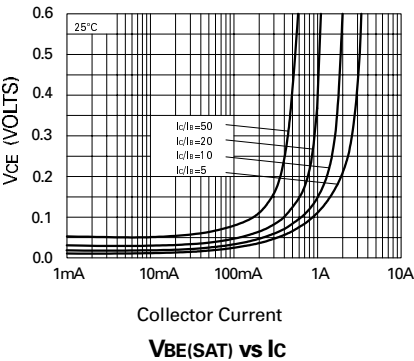
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	FMMT722			FMMT723			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-70	-150		-100	-200		V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-70	-125		-100	-160		V	$I_C = -10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5	-8.8		-5	-8.8		V	$I_E = -100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}			-100			-100	nA nA	$V_{CB} = -60\text{V}$ $V_{CB} = -80\text{V}$
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	$V_{CES} = -60\text{V}$ $V_{CES} = -80\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-35	-50	-50	-80		mV	$I_C = -0.1\text{A}, I_B = -10\text{mA}^*$
			-135	-200				mV	$I_C = -0.5\text{A}, I_B = -20\text{mA}^*$
					-125	-200		mV	$I_C = -0.5\text{A}, I_B = -50\text{mA}^*$
			-140	-220				mV	$I_C = -1\text{A}, I_B = -100\text{mA}^*$
			-175	-260	-210	-330		mV mV	$I_C = -1\text{A}, I_B = -150\text{mA}^*$ $I_C = -1.5\text{A}, I_B = -200\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$					-0.89	-1.0	V	$I_C = -1\text{A}, I_B = -150\text{mA}^*$ $I_C = -1.5\text{A}, I_B = -200\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-0.78	-1.0		-0.71	-1.0	V	$I_C = -1\text{A}, V_{CE} = -10\text{V}^*$ $I_C = -1.5\text{A}, V_{CE} = -5\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	300	470						$I_C = -10\text{mA}, V_{CE} = -5\text{V}^*$
		300	450		300	475			$I_C = -10\text{mA}, V_{CE} = -10\text{V}^*$
					300	450			$I_C = -0.1\text{A}, V_{CE} = -5\text{V}^*$
					250	375			$I_C = -0.1\text{A}, V_{CE} = -10\text{V}^*$
		175	275						$I_C = -0.5\text{A}, V_{CE} = -10\text{V}^*$
		40	60			250			$I_C = -1\text{A}, V_{CE} = -5\text{V}^*$
			10			30			$I_C = -1\text{A}, V_{CE} = -10\text{V}^*$
									$I_C = -1.5\text{A}, V_{CE} = -5\text{V}^*$
									$I_C = -1.5\text{A}, V_{CE} = -10\text{V}^*$
									$I_C = -3\text{A}, V_{CE} = -5\text{V}^*$
Transition Frequency	f_T	150	200		150	200		MHz	$I_C = -50\text{mA}, V_{CE} = -10\text{V}$ $f = 100\text{MHz}$
Output Capacitance	C_{obo}		14	20		13	20	pF	$V_{CB} = -10\text{V}, f = 1\text{MHz}$
Turn-On Time	$t_{(on)}$		40			50		ns	$V_{CC} = -50\text{V}, I_C = -0.5\text{A}$
Turn-Off Time	$t_{(off)}$		700			760		ns	$I_{B1} = I_{B2} = -50\text{mA}$

*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$

FMMT722

TYPICAL CHARACTERISTICS

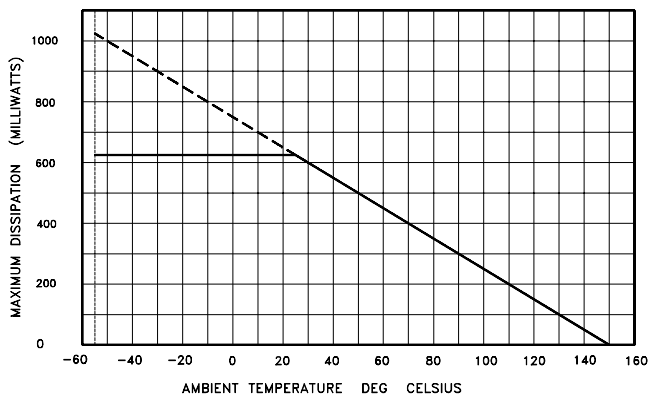


FMMT617 FMMT624
FMMT618 FMMT625
FMMT619

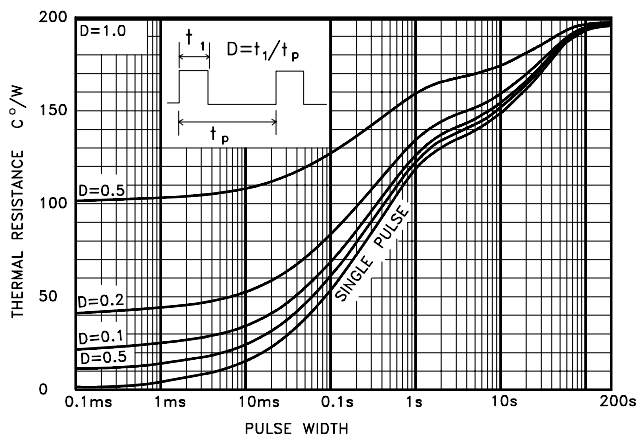
SuperSOT Series

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