

SuperSOT

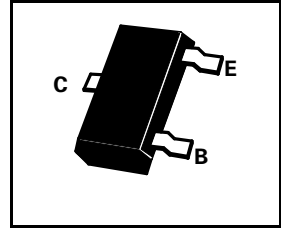
SOT23 NPN SILICON POWER (SWITCHING) TRANSISTORS

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

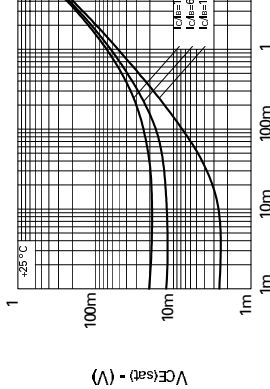
**Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%
Spice parameter data is available upon request for these devices

FMMT617

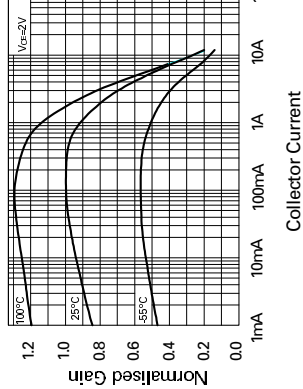
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	15	70		V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	15	18		V	$I_C = 10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	8.2		V	$I_E = 100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}			100	nA	$V_{CB} = 10\text{V}$
Emitter Cut-Off Current	I_{EBO}			100	nA	$V_{EB} = 4\text{V}$
Collector Emitter Cut-Off Current	I_{CES}			100	nA	$V_{CES} = 10\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		8 70 150	14 100 200	mV	$I_C = 0.1\text{A}, I_B = 10\text{mA}^*$ $I_C = 1\text{A}, I_B = 10\text{mA}^*$ $I_C = 3\text{A}, I_B = 50\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.9	1.0	V	$I_C = 3\text{A}, I_B = 50\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.84	1.0	V	$I_C = 3\text{A}, V_{CE} = 2\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	200 300 200 150	415 450 320 240			$I_C = 10\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 200\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 3\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 5\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 12\text{A}, V_{CE} = 2\text{V}^*$
Transition Frequency	f_T	80	120		MHz	$I_C = 50\text{mA}, V_{CE} = 10\text{V}$ $f = 50\text{MHz}$
Output Capacitance	C_{obo}		30	40	pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}$

TYPICAL CHARACTERISTICS



IC - Collector Current (A)
 $V_{CE(sat)}$ v I_C



$V_{CE} = 2\text{V}$
 h_{FE} vs I_C

1.4

1.2

$V_{CE} = 2\text{V}$

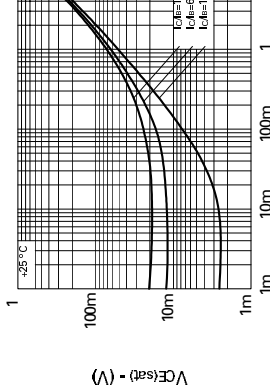
Collector Current

FMMT617

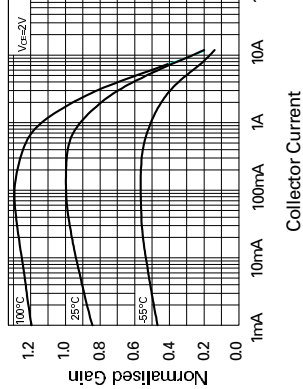
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Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.84	1.0	V	$I_C = 3\text{A}, V_{CE} = 2\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	200 300 200 150	415 450 320 240			$I_C = 10\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 200\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 3\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 5\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 12\text{A}, V_{CE} = 2\text{V}^*$
Transition Frequency	f_T	80	120		MHz	$I_C = 50\text{mA}, V_{CE} = 10\text{V}$ $f = 50\text{MHz}$
Output Capacitance	C_{ob0}		30	40	pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}$

TYPICAL CHARACTERISTICS



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$V_{CE} = 2\text{V}$
 h_{FE} vs I_C

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$V_{CE} = 2\text{V}$

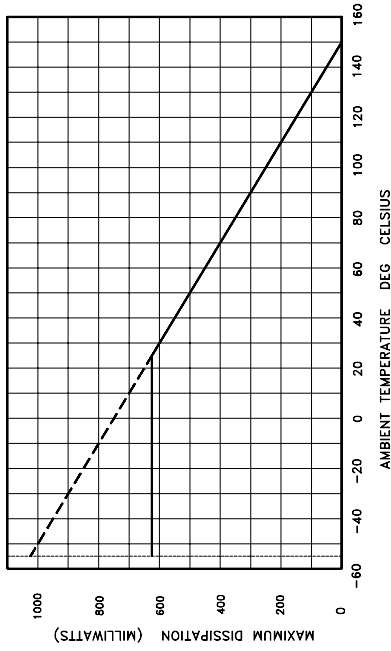
$V_{CE} = 2\text{V}$

FMMT617 FMMT624
FMMT618 FMMT625
FMMT619

SuperSOT Series

FMMT717 FMMT722
FMMT718 FMMT723
FMMT720

THERMAL CHARACTERISTICS AND DERATING INFORMATION



DERATING CURVE

