

# SuperSOT

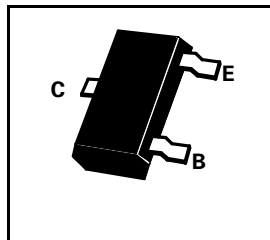
## SOT23 PNP SILICON POWER (SWITCHING) TRANSISTORS

FMMT717 FMMT718  
FMMT720 FMMT722  
FMMT723

ISSUE 3 JUNE 1996

### FEATURES

- \* **625mW POWER DISSIPATION**
- \* **I<sub>C</sub> CONT 2.5A**
- \* I<sub>C</sub> Up To 10A Peak Pulse Current
- \* Excellent h<sub>fe</sub> Characteristics Up To 10A (pulsed)
- \* Extremely Low Saturation Voltage E.g. 10mV Typ.
- \* Exhibits extremely low equivalent on-resistance; R<sub>CE(sat)</sub>



DEVICE TYPE	COMPLEMENT	PARTMARKING	R <sub>CE(sat)</sub>
FMMT717	FMMT617	717	<b>72mΩ at 2.5A</b>
FMMT718	FMMT618	718	<b>97mΩ at 1.5A</b>
FMMT720	FMMT619	720	<b>163mΩ at 1.5A</b>
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 <sub>CBO</sub>	-12	-20	-40	-70	-100	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-12	-20	-40	-70	-100	V
Emitter-Base Voltage	V <sub>EBO</sub>	-5	-5	-5	-5	-5	V
Peak Pulse Current**	I <sub>CM</sub>	-10	-6	-4	-3	-2.5	A
<b>Continuous Collector Current</b>	<b>I<sub>C</sub></b>	<b>-2.5</b>	<b>-1.5</b>	<b>-1.5</b>	<b>-1.5</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

# FMMT722 FMMT723

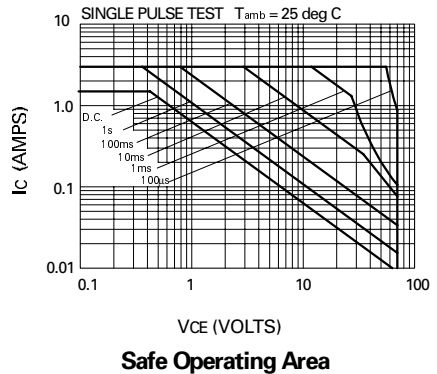
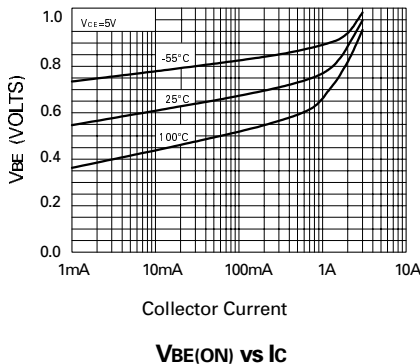
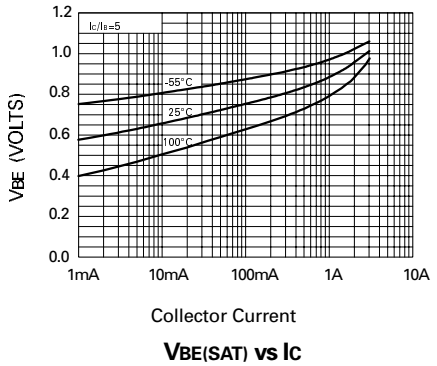
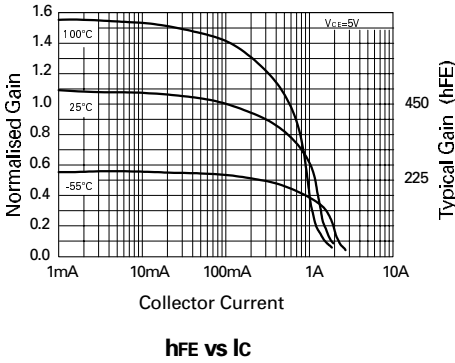
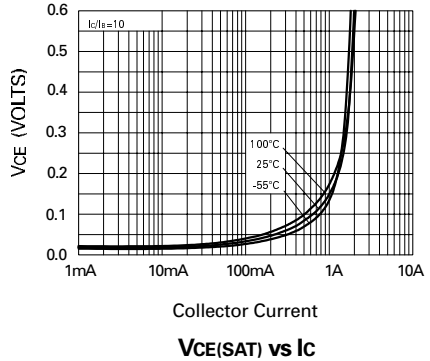
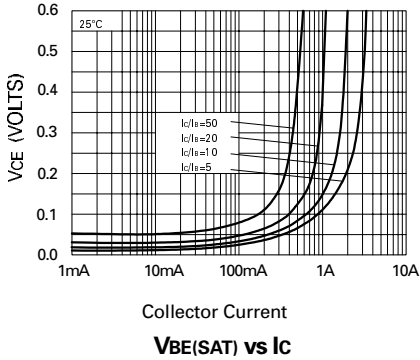
## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

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	$I_C = -1\text{A}, I_B = -150\text{mA}^*$ $I_C = -1.5\text{A}, I_B = -200\text{mA}^*$	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-0.94	-1.05		-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 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

# FMMT722

## TYPICAL CHARACTERISTICS

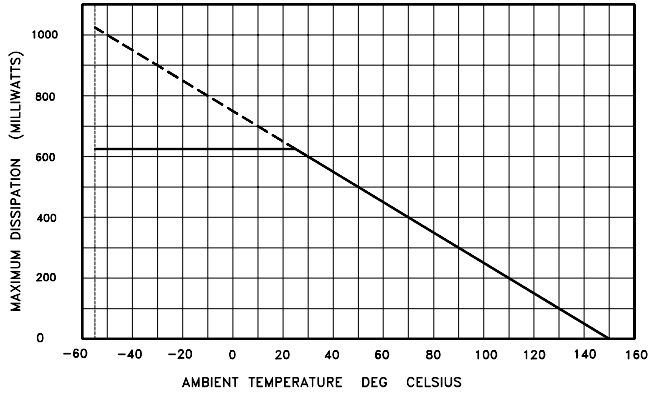


FMMT617 FMMT624  
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 FMMT619

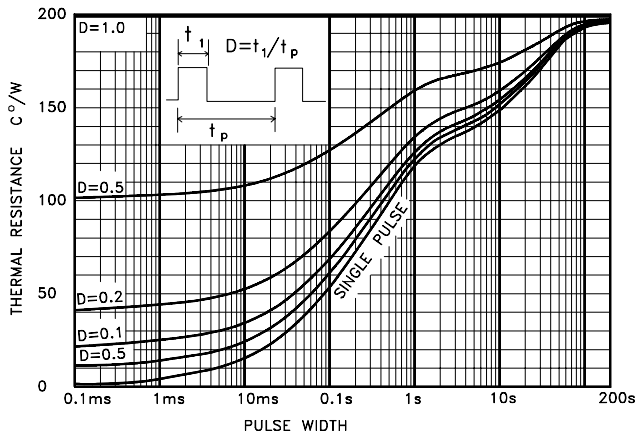
## SuperSOT Series

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