

# SuperSOT

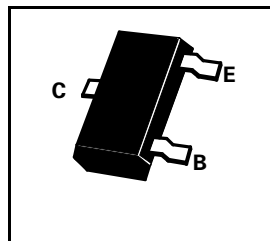
## SOT23 PNP SILICON POWER (SWITCHING) TRANSISTORS

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	<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	$V_{CBO}$	-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
<b>Continuous Collector Current</b>	$I_C$	<b>-2.5</b>	<b>-1.5</b>	<b>-1.5</b>	<b>-1.5</b>	<b>-1</b>	<b>A</b>
Base Current	$I_B$	-500					mA
<b>Power Dissipation at <math>T_{amb}=25^{\circ}C^*</math></b>	$P_{tot}$	<b>625</b>					<b>mW</b>
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=300μs. Duty cycle ≤ 2%  
Spice parameter data is available upon request for these devices

# FMMT718 FMMT720

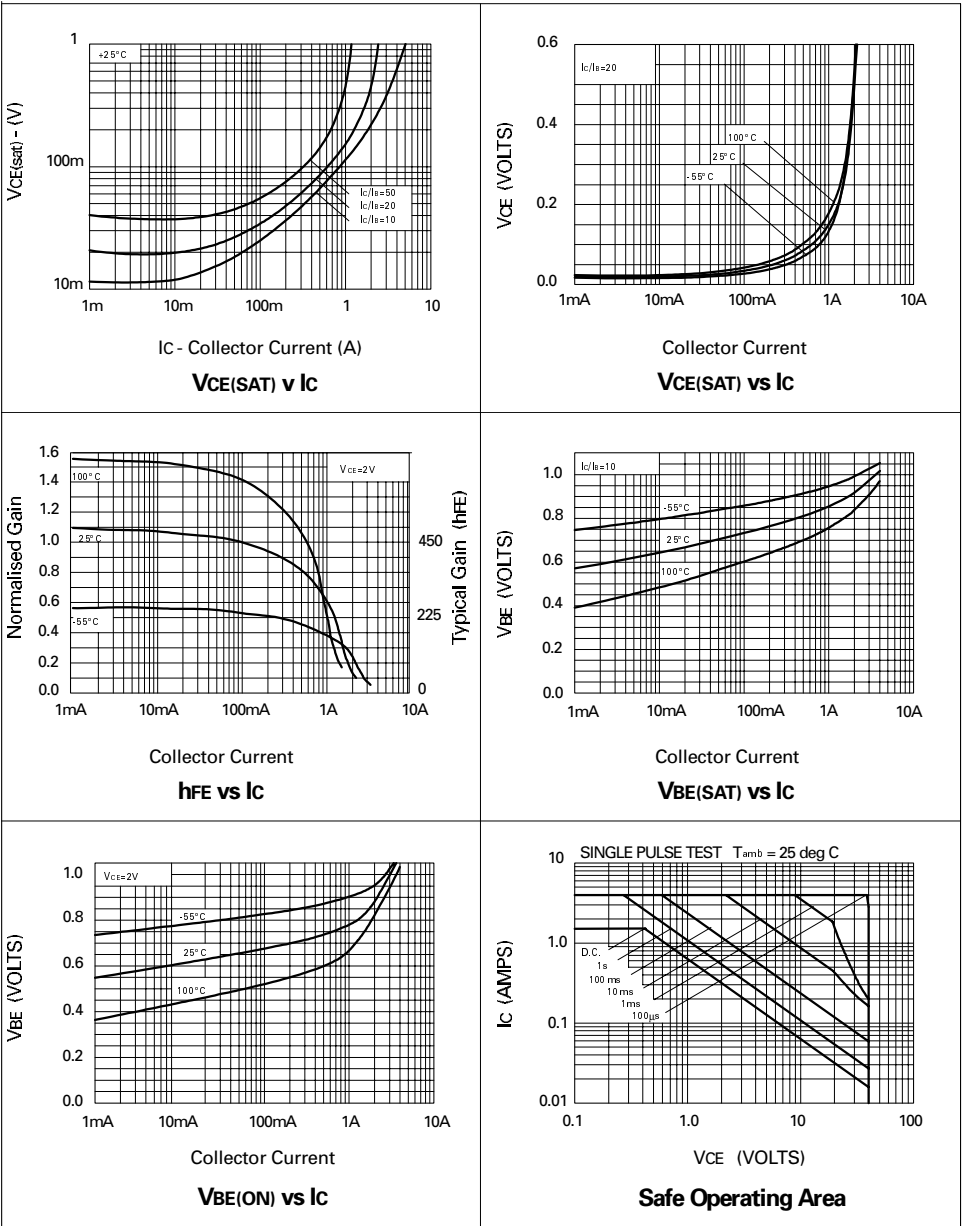
## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	FMMT718			FMMT720			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-20	-65		-40	-95		V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-20	-55		-40	-85		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				nA nA	$V_{CB} = -15\text{V}$ $V_{CB} = -35\text{V}$
Emitter Cut-Off Current	$I_{EBO}$			-100				nA	$V_{EB} = -4\text{V}$
Collector Emitter Cut-Off Current	$I_{CES}$			-100				nA nA	$V_{CES} = -15\text{V}$ $V_{CES} = -35\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-16 -130 -145	-40 -200 -220		-25 -150 -245	-40 -220 -330	mV mV mV mV	$I_C = -0.1\text{A}, I_B = -10\text{mA}^*$ $I_C = -1\text{A}, I_B = -20\text{mA}^*$ $I_C = -1\text{A}, I_B = -50\text{mA}^*$ $I_C = -1.5\text{A}, I_B = -50\text{mA}^*$ $I_C = -1.5\text{A}, I_B = -100\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-0.87	-1.0		-0.89	-1.0	V V	$I_C = -1.5\text{A}, I_B = -50\text{mA}^*$ $I_C = -1.5\text{A}, I_B = -75\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.81	-1.0		-0.80	-1.0	V V	$I_C = -2\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -1.5\text{A}, V_{CE} = -2\text{V}^*$
Static Forward Current Transfer Ratio	$h_{FE}$	300 300	475 450		300 300 180 60	480 450 290 130			$I_C = -10\text{mA}, V_{CE} = -2\text{V}^*$ $I_C = -0.1\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -1\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -1.5\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -2\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -3\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -4\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -6\text{A}, V_{CE} = -2\text{V}^*$
Transition Frequency	$f_T$	150	180		150	190		MHz	$I_C = -50\text{mA}, V_{CE} = -10\text{V}$ $f = 100\text{MHz}$
Output Capacitance	$C_{obo}$		21	30		19	25	pF	$V_{CB} = -10\text{V}, f = 1\text{MHz}$
Turn-On Time	$t_{(on)}$		40					ns	$V_{CC} = -10\text{V}, I_C = -1\text{A}$ $I_{B1} = I_{B2} = -20\text{mA}$
Turn-Off Time	$t_{(off)}$		670					ns	
Turn-On Time	$t_{(on)}$					40		ns	$V_{CC} = -15\text{V}, I_C = -0.75\text{A}$ $I_{B1} = I_{B2} = -15\text{mA}$
Turn-Off Time	$t_{(off)}$					435		ns	

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

# FMMT720

## TYPICAL CHARACTERISTICS

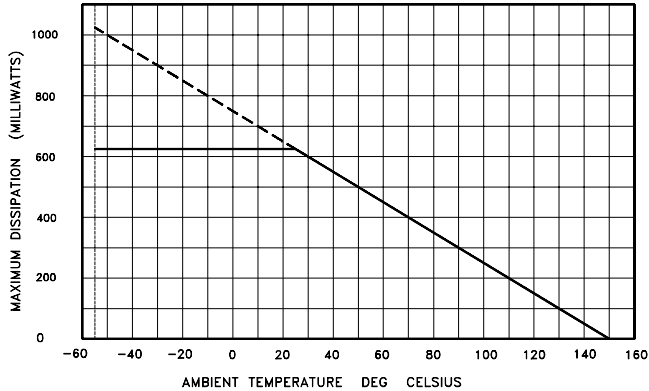


FMMT617 FMMT624  
 FMMT618 FMMT625  
 FMMT619

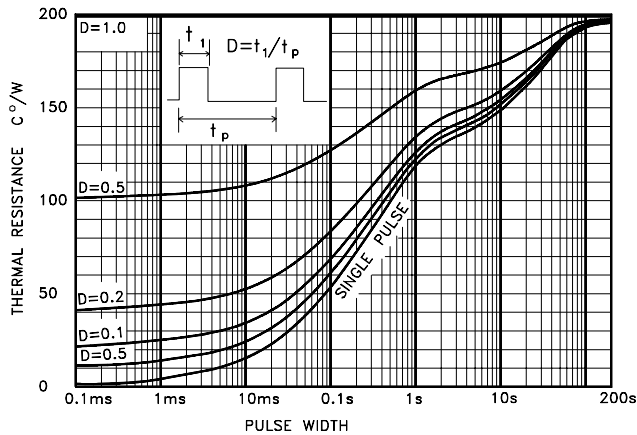
## SuperSOT Series

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