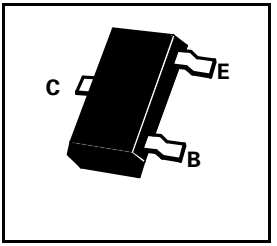
SuperSOT
SOT23 PNP SILICON POWER (SWITCHING) TRANSISTORS

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°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

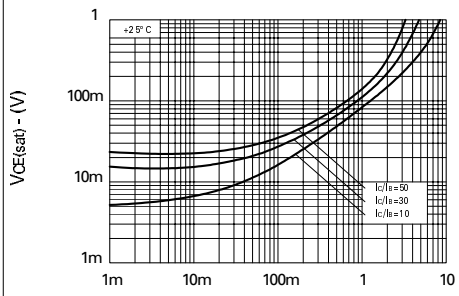
FMMT718
FMMT720

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

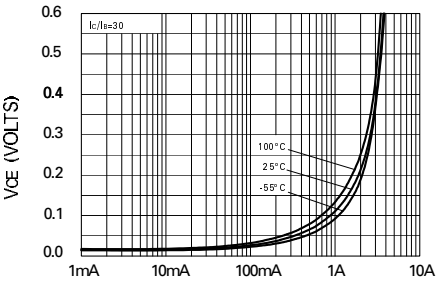
PARAMETER	SYMBOL	FMMT718			FMMT720			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-20	-65		-40	-95		V	I_C=-100μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-20	-55		-40	-85		V	I_C=-10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5	-8.8		-5	-8.8		V	I_E=-100μA
Collector Cut-Off Current	I_{CBO}			-100			 -100	nA nA	V_{CB}=-15V V_{CB}=-35V
Emitter Cut-Off Current	I_{EBO}			-100			-100	nA	V_{EB}=-4V
Collector Emitter Cut-Off Current	I_{CES}			-100			 -100	nA nA	V_{CES}=-15V V_{CES}=-35V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-16 -130 -145	-40 -200 -220		-25 -150 -245	-40 -220 -330	mV mV mV mV mV	I_C=-0.1A, I_B=-10mA* I_C=-1A, I_B=-20mA* I_C=-1A, I_B=-50mA* I_C=-1.5A, I_B=-50mA* I_C=-1.5A, I_B=-100mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-0.87	-1.0		 -0.89	 -1.0	V V	I_C=-1.5A, I_B=-50mA* I_C=-1.5A, I_B=-75mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.81	-1.0		 -0.80	 -1.0	V V	I_C=-2A, V_{CE}=-2V* I_C=-1.5A, V_{CE}=-2V*
Static Forward Current Transfer Ratio	h_{FE}	300 300 150 35 15	475 450 230 70 30		300 300 180 60 12	480 450 290 130 22			I_C=-10mA, V_{CE}=-2V* I_C=-0.1A, V_{CE}=-2V* I_C=-1A, V_{CE}=-2V* I_C=-1.5A, V_{CE}=-2V* I_C=-2A, V_{CE}=-2V* I_C=-3A, V_{CE}=-2V* I_C=-4A, V_{CE}=-2V* I_C=-6A, V_{CE}=-2V*
Transition Frequency	f_T	150	180		150	190		MHz	I_C=-50mA, V_{CE}=-10V f=100MHz
Output Capacitance	C_{obo}		21	30		19	25	pF	V_{CB}=-10V, f=1MHz
Turn-On Time	$t_{(on)}$		40					ns	V_{CC}=-10V, I_C=-1A I_{B1}=I_{B2}=-20mA
Turn-Off Time	$t_{(off)}$		670					ns	
Turn-On Time	$t_{(on)}$					40		ns	V_{CC}=-15V, I_C=-0.75A I_{B1}=I_{B2}=-15mA
Turn-Off Time	$t_{(off)}$					435		ns	

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%

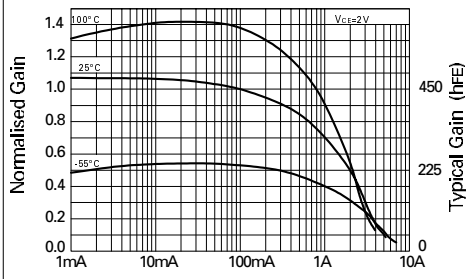
TYPICAL CHARACTERISTICS



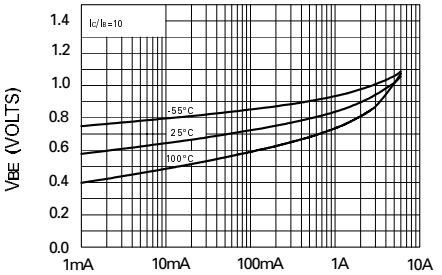
VCE(SAT) v IC



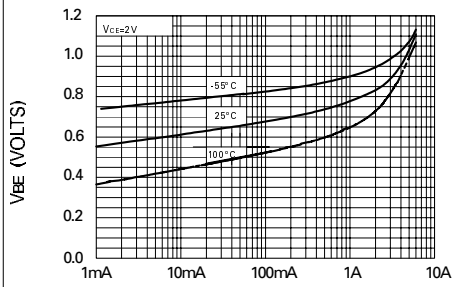
VCE(SAT) vs IC



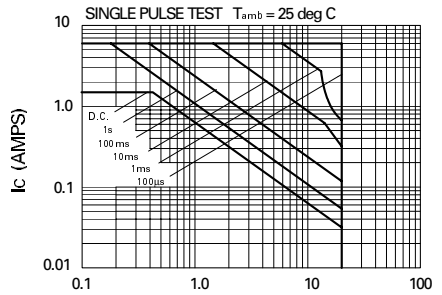
hFE vs IC



VBE(SAT) vs IC

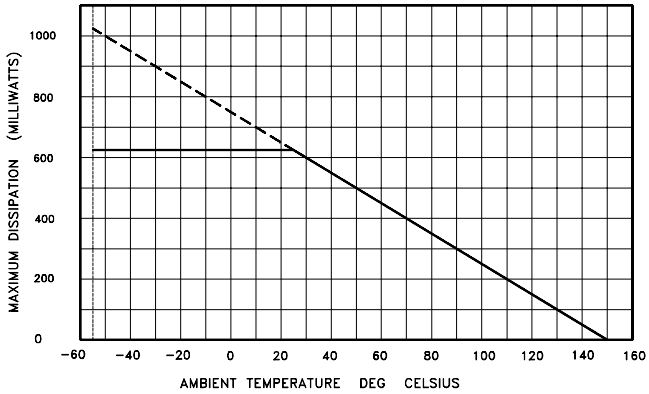


VBE(ON) vs IC

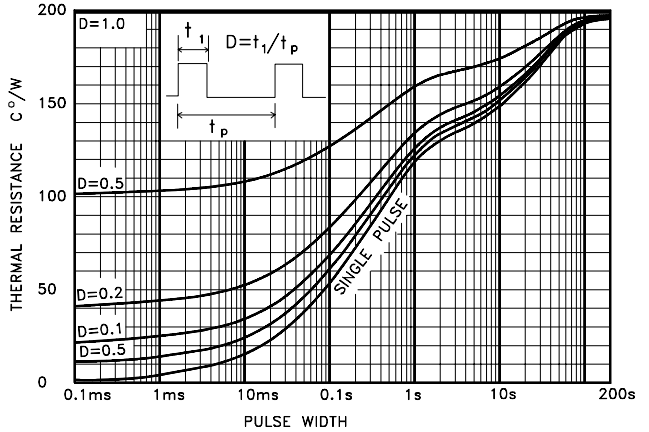


Safe Operating Area

THERMAL CHARACTERISTICS AND DERATING INFORMATION



DERATING CURVE



MAXIMUM TRANSIENT THERMAL RESISTANCE

* Reference above figures, Devices were mounted on a 15mmx15mm ceramic substrate