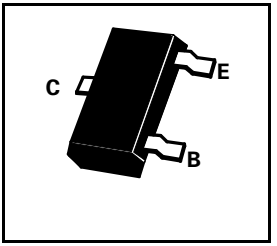
SuperSOT
SOT23 PNP SILICON POWER (SWITCHING) TRANSISTORS

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

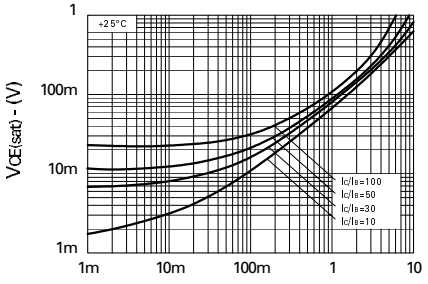
FMMT717

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

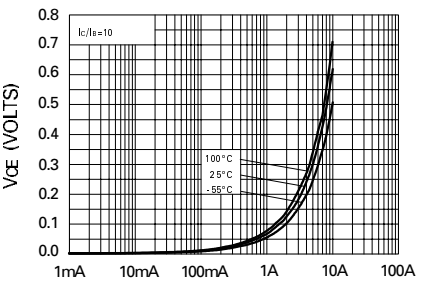
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-12	-35		V	I_C=-100μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-12	-25		V	I_C=-10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5	-8.5		V	I_E=-100μA
Collector Cut-Off Current	I_{CBO}			-100	nA	V_{CB}=-10V
Emitter Cut-Off Current	I_{EBO}			-100	nA	V_{EB}=-4V
Collector Emitter Cut-Off Current	I_{CES}			-100	nA	V_{CES}=-10V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-10 -100 -110 -180	-17 -140 -170 -220	mV mV mV mV	I_C=-0.1A, I_B=-10mA* I_C=-1A, I_B=-10mA* I_C=-1.5A, I_B=-50mA* I_C=-2.5A, I_B=-50mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-0.9	-1.0	V	I_C=-2.5A, I_B=-50mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-0.8	-1.0	V	I_C=-2.5A, V_{CE}=-2V*
Static Forward Current Transfer Ratio	h_{FE}	300 300 180 60 45	475 450 275 100 70			I_C=-10mA, V_{CE}=-2V* I_C=-100mA, V_{CE}=-2V* I_C=-2.5A, V_{CE}=-2V* I_C=-8A, V_{CE}=-2V* I_C=-10A, V_{CE}=-2V*
Transition Frequency	f_T	80	110		MHz	I_C=-50mA, V_{CE}=-10V f=100MHz
Output Capacitance	C_{obo}		21	30	pF	V_{CB}=-10V, f=1MHz
Turn-On Time	$t_{(on)}$		70		ns	V_{CC}=-6V, I_C=-2A I_{B1}=I_{B2}=50mA
Turn-Off Time	$t_{(off)}$		130		ns	

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

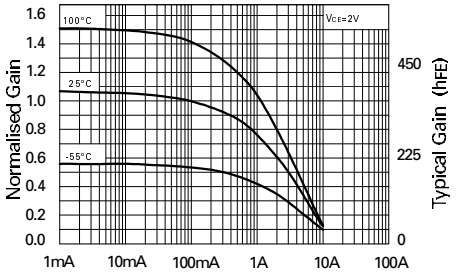
TYPICAL CHARACTERISTICS



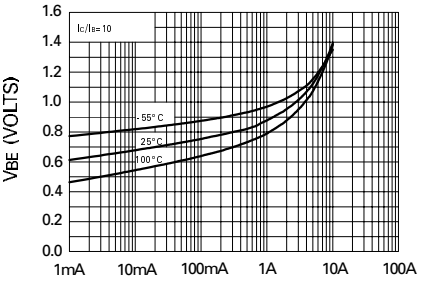
VCE(SAT) vs IC



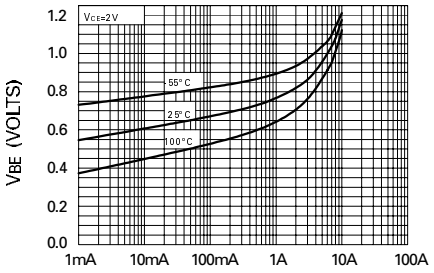
VCE(SAT) vs IC



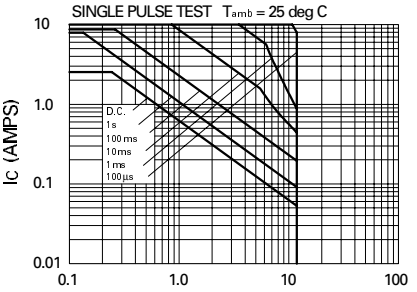
hFE vs IC



VBE(SAT) vs IC

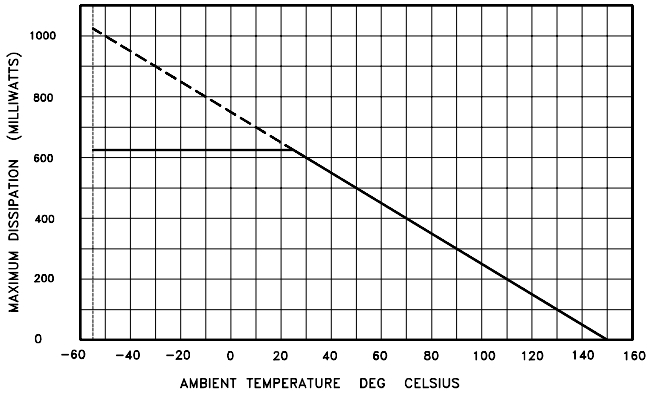


VBE(ON) vs IC

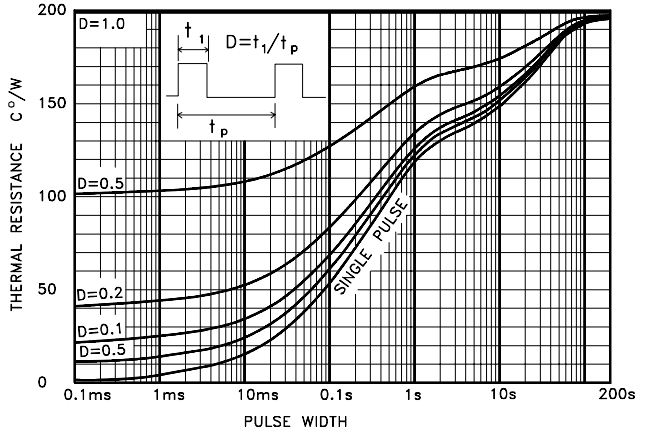


Safe Operating Area

THERMAL CHARACTERISTICS AND DERATING INFORMATION



DERATING CURVE



MAXIMUM TRANSIENT THERMAL RESISTANCE

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