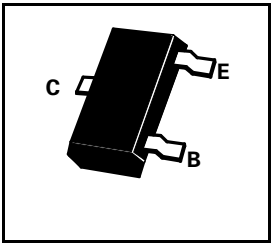
SuperSOT
SOT23 PNP SILICON POWER (SWITCHING) TRANSISTORS

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%

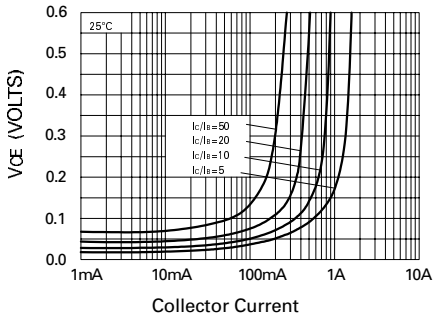
Spice parameter data is available upon request for these devices

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

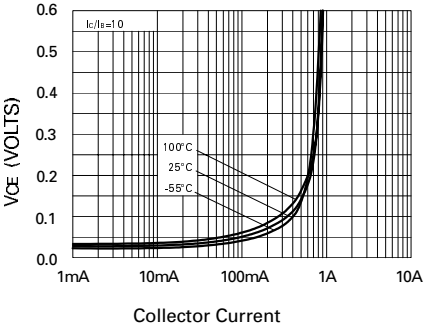
PARAMETER	SYMBOL	FMMT722			FMMT723			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-70	-150		-100	-200		V	I_C=-100μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-70	-125		-100	-160		V	I_C=-10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5	-8.8		-5	-8.8		V	I_E=-100μA
Collector Cut-Off Current	I_{CBO}			-100				nA	V_{CB}=-60V
							-100	nA	V_{CB}=-80V
Emitter Cut-Off Current	I_{EBO}			-100			-100	nA	V_{EB}=-4V
Collector Emitter Cut-Off Current	I_{CES}			-100				nA	V_{CES}=-60V
							-100	nA	V_{CES}=-80V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-35	-50		-50	-80	mV	I_C=-0.1A, I_B=-10mA*
			-135	-200				mV	I_C=-0.5A, I_B=-20mA*
						-125	-200	mV	I_C=-0.5A, I_B=-50mA*
			-140	-220				mV	I_C=-1A, I_B=-100mA*
						-210	-330	mV	I_C=-1A, I_B=-150mA*
			-175	-260				mV	I_C=-1.5A, I_B=-200mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-0.94	-1.05		-0.89	-1.0	V	I_C=-1A, I_B=-150mA*
									I_C=-1.5A, I_B=-200mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-0.78	-1.0		-0.71	-1.0	V	I_C=-1A, V_{CE}=-10V*
									I_C=-1.5A, V_{CE}=-5V*
Static Forward Current Transfer Ratio	h_{FE}	300	470		300	475			I_C=-10mA, V_{CE}=-5V*
		300	450						I_C=-10mA, V_{CE}=-10V*
					300	450			I_C=-0.1A, V_{CE}=-5V*
					250	375			I_C=-0.1A, V_{CE}=-10V*
		175	275						I_C=-0.5A, V_{CE}=-10V*
						250			I_C=-1A, V_{CE}=-5V*
		40	60						I_C=-1A, V_{CE}=-10V*
						30			I_C=-1.5A, V_{CE}=-5V*
			10						I_C=-1.5A, V_{CE}=-10V*
									I_C=-3A, V_{CE}=-5V*
Transition Frequency	f_T	150	200		150	200		MHz	I_C=-50mA, V_{CE}=-10V f=100MHz
Output Capacitance	C_{obo}		14	20		13	20	pF	V_{CB}=-10V, f=1MHz
Turn-On Time	$t_{(on)}$		40			50		ns	V_{CC}=-50V, I_C=-0.5A I_{B1}=I_{B2}=-50mA
Turn-Off Time	$t_{(off)}$		700			760		ns	

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

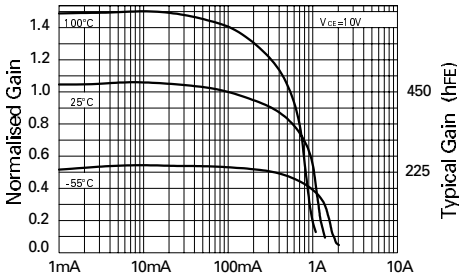
TYPICAL CHARACTERISTICS



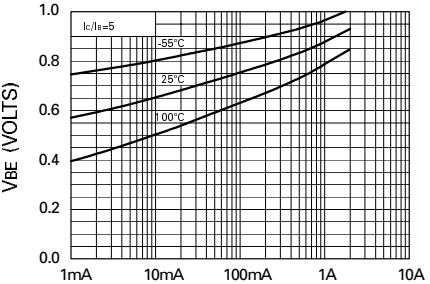
$V_{CE(SAT)}$ vs I_C



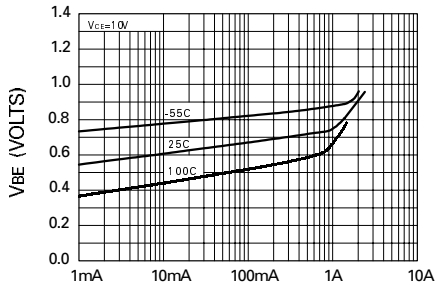
$V_{CE(SAT)}$ vs I_C



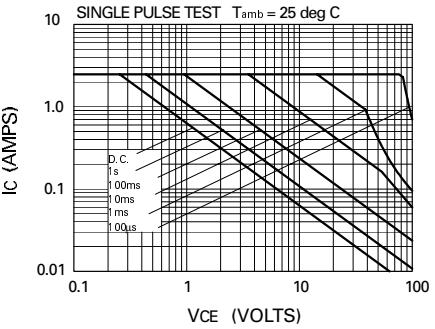
h_{FE} vs I_C



$V_{BE(SAT)}$ vs I_C

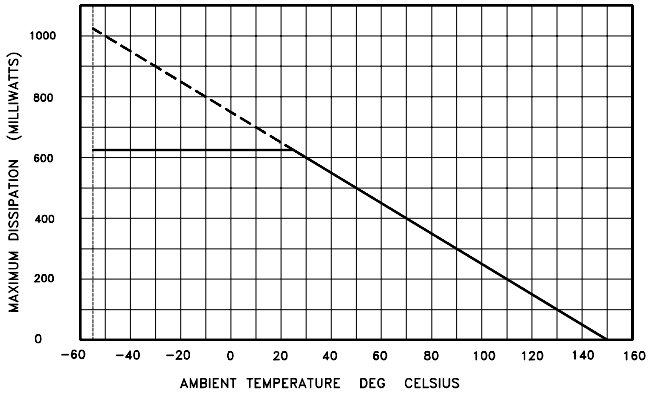


$V_{BE(ON)}$ vs I_C

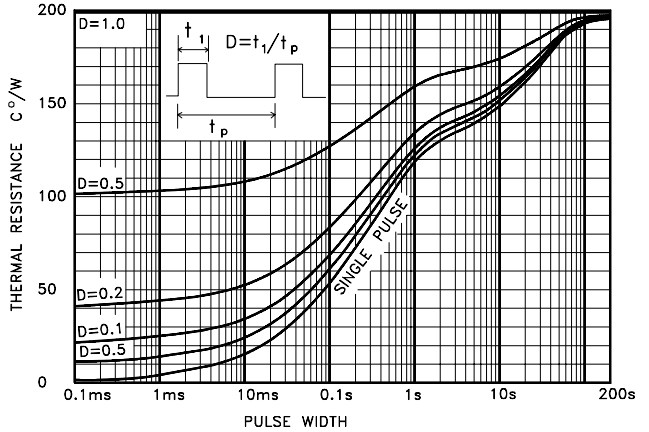


Safe Operating Area

THERMAL CHARACTERISTICS AND DERATING INFORMATION



DERATING CURVE



MAXIMUM TRANSIENT THERMAL RESISTANCE

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