SOT23 NPN SILICON PLANAR AVALANCHE TRANSISTOR

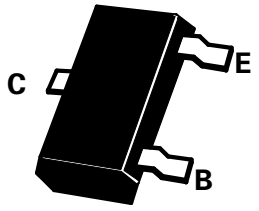
FMMT415
FMMT417

ISSUE 4 - OCTOBER 1995 ✪

FEATURES
* Specifically designed for Avalanche mode operation
* 60A Peak Avalanche Current (Pulse width=20ns)

APPLICATIONS
* Laser LED drivers
* Fast edge generation
* High speed pulse generators

PARTMARKING DETAIL – FMMT415 – 415
FMMT417 – 417



SOT23

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	FMMT415	FMMT417	UNIT
Collector-Base Voltage	V_{CBO}	260	320	V
Collector-Emitter Voltage	V_{CEO}	100	100	V
Emitter-Base Voltage	V_{EBO}	6		V
Continuous Collector Current	I_C	500		mA
Peak Collector Current (Pulse Width=20ns)	I_{CM}	60		A
Power Dissipation	P_{tot}	330		mW
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +150		°C

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

PARAMETER		SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	FMMT415	$V_{(BR)CES}$	260			V	I_C=1mA T_{amb}= -55 to +150°C
	FMMT417		320			V	I_C=1mA
Collector-Emitter Breakdown Voltage		$V_{CEO(sus)}$	100			V	I_C=100µA
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	6			V	I_E=10µA
Collector Cut-Off Current		I_{CBO}			0.1 10	µA µA	V_{CB}=180V V_{CB}=180V, T_{amb}=100°C
Emitter Cut-Off Current		I_{EBO}			0.1	µA	V_{EB}=4V
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$			0.5	V	I_C=10mA, I_B=1mA*
Base-Emitter Saturation Voltage		$V_{BE(sat)}$			0.9	V	I_C=10mA, I_B=1mA*
Current in Second Breakdown (Pulsed)		I_{SB}	15 25			A A	V_C=200V, C_{CE}=620pF V_C=250V, C_{CE}=620pF
Static Forward Current Transfer Ratio		h_{FE}	25				I_C=10mA, V_{CE}=10V*
Transition Frequency		f_T	40			MHz	I_C=10mA, V_{CE}=20V f=20MHz
Collector-Base Capacitance		C_{cb}			8	pF	V_{CB}=20V, I_E=0 f=100MHz

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

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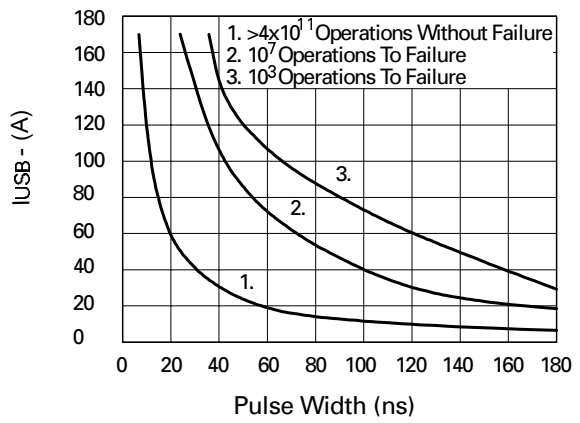
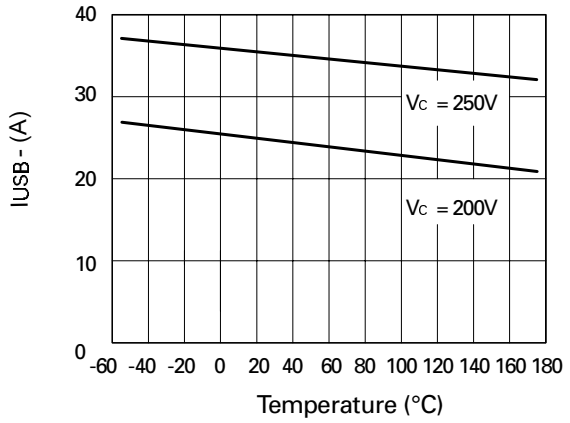
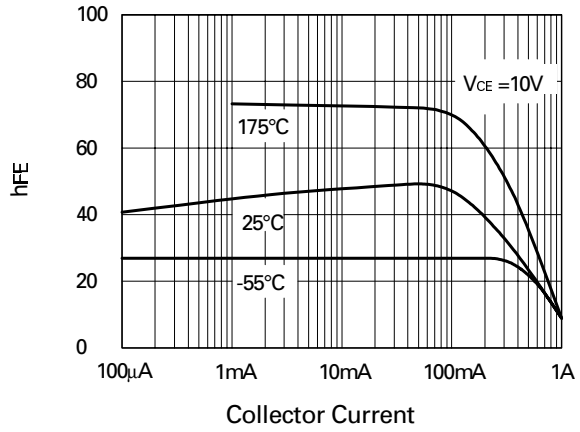
TYPICAL CHARACTERISTICS



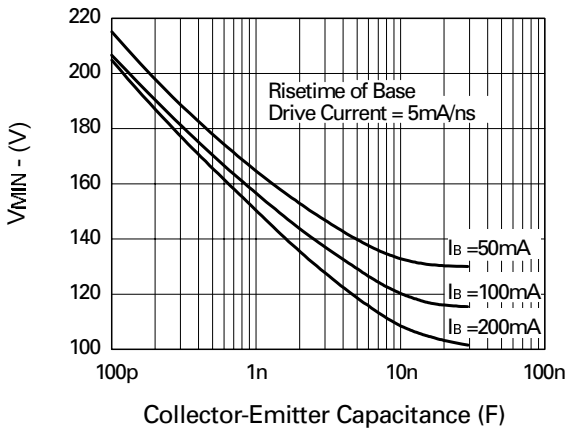
Maximum Avalanche Current v Pulse Width



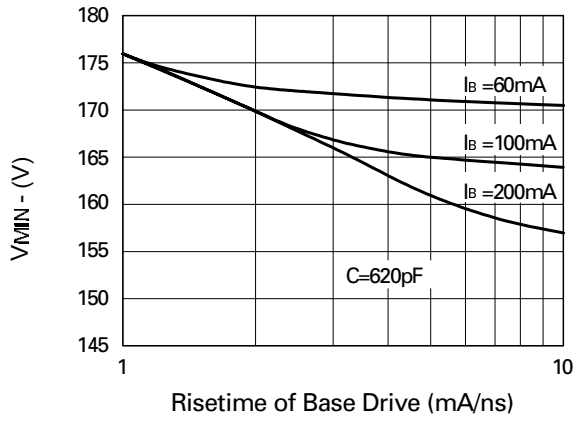
IUSB v Temperature for the specified conditions



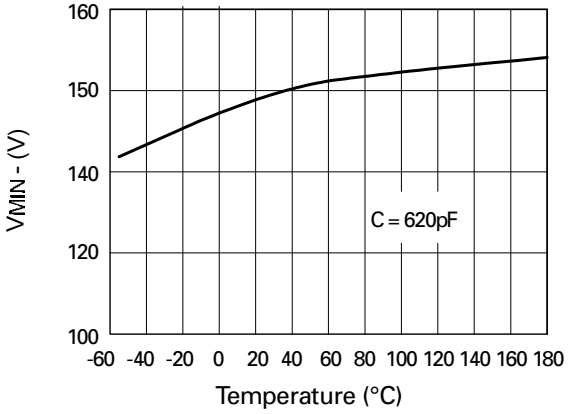
hFE v IC



Minimum starting voltage as a function of capacitance



Minimum starting voltage as a function of drive current



Minimum starting voltage as a function of temperature

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