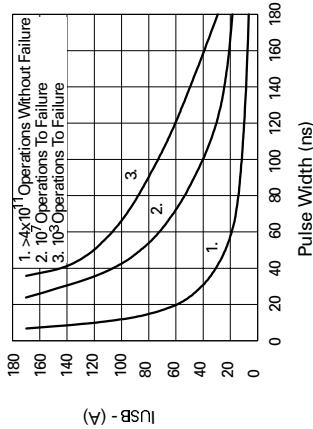
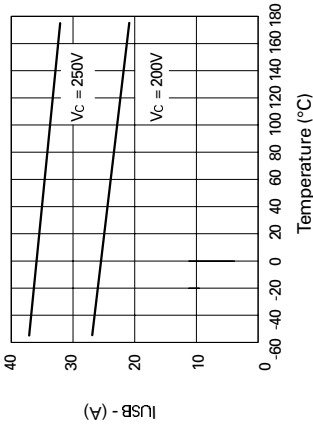


**FM415**  
**FM417**

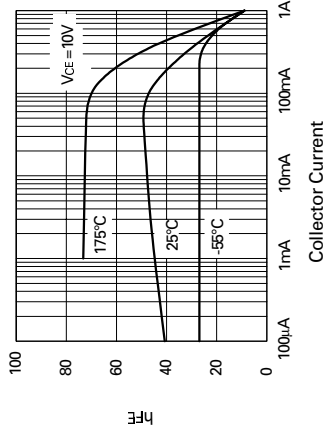
**TYPICAL CHARACTERISTICS**



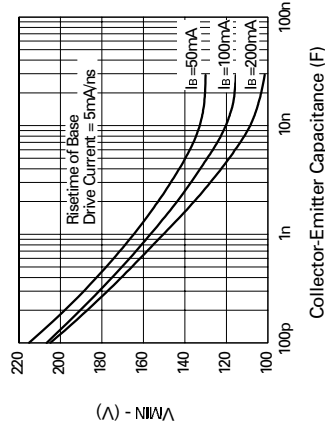
**Maximum Avalanche Current v Pulse Width**



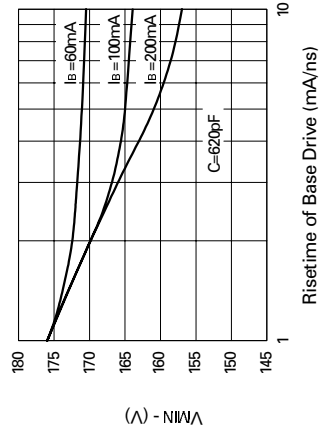
**I\_AV v Temperature for the specified conditions**



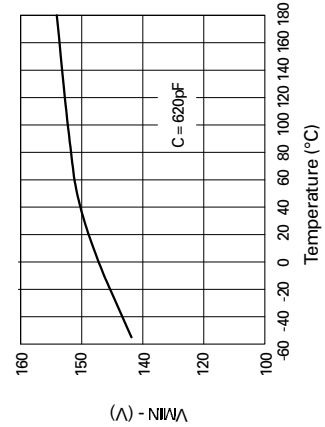
**hFE v IC**



**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**

**SOT23 NPN SILICON PLANAR AVALANCHE TRANSISTOR**

ISSUE 4 - OCTOBER 1995

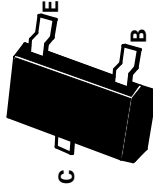
**FEATURES**

- \* 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 - FM415 - 415  
FM417 - 417



SOT23

**ABSOLUTE MAXIMUM RATINGS.**

PARAMETER	SYMBOL	FM415	FM417	UNIT
Collector-Base Voltage	V <sub>CB0</sub>	260	320	V
Collector-Emitter Voltage	V <sub>CE0</sub>	100	100	V
Emitter-Base Voltage	V <sub>EB0</sub>	6	6	V
Continuous Collector Current	I <sub>C</sub>	500	500	mA
Peak Collector Current (Pulse Width=20ns)	I <sub>CM</sub>	60	60	A
Power Dissipation	P <sub>tot</sub>	330	330	mW
Operating and Storage Temperature Range	T <sub>J</sub> ; T <sub>stg</sub>	-55 to +150		°C

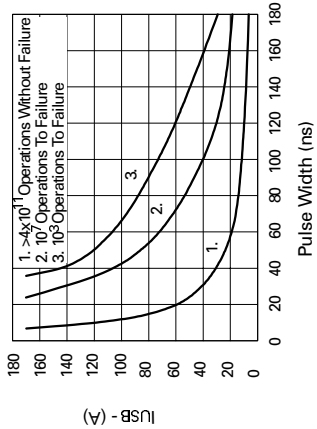
**ELECTRICAL CHARACTERISTICS (at T<sub>amb</sub> = 25°C unless otherwise stated).**

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	V <sub>(BR)CES</sub>	260			V	I <sub>C</sub> =1mA T <sub>amb</sub> F = -55 to +150°C
		320			V	I <sub>C</sub> =1mA
Collector-Emitter Breakdown Voltage	V <sub>CE0(sus)</sub>	100			V	I <sub>C</sub> =100µA
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	6			V	I <sub>E</sub> =10µA
Collector Cut-Off Current	I <sub>CBO</sub>			0.1 10	µA	V <sub>CB</sub> =180V V <sub>CE</sub> =180V T <sub>amb</sub> F = 100°C
Emitter Cut-Off Current	I <sub>EBO</sub>			0.1	µA	V <sub>EB</sub> =4V
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>			0.5	V	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA*
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>			0.9	V	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA*
Current in Second Breakdown (Pulsed)	I <sub>SB</sub>	15			A	V <sub>C</sub> =200V, C <sub>CE</sub> =620pF
		25			A	V <sub>C</sub> =250V, C <sub>CE</sub> =620pF
Static Forward Current Transfer Ratio	h <sub>FE</sub>	25				I <sub>C</sub> =10mA, V <sub>CE</sub> =10V*
Transition Frequency	f <sub>T</sub>	40			MHz	I <sub>C</sub> =10mA, V <sub>CE</sub> =20V f <sub>i</sub> =20MHz
Collector-Base Capacitance	C <sub>cb</sub>			8	pF	V <sub>CB</sub> =20V, I <sub>E</sub> =0 f <sub>i</sub> =100MHz

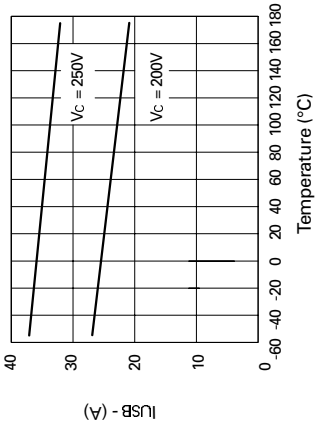
\*Measured under pulsed conditions. Pulse width=300µs. Duty cycle ≤ 2%

# FM415 FM417

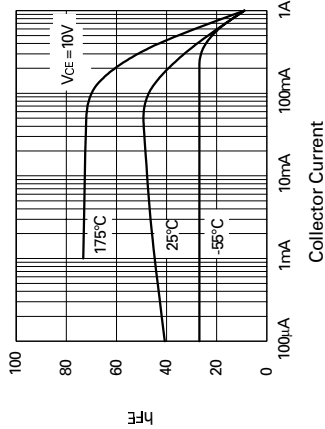
## TYPICAL CHARACTERISTICS



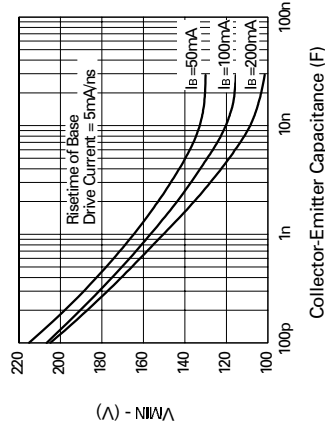
**Maximum Avalanche Current v Pulse Width**



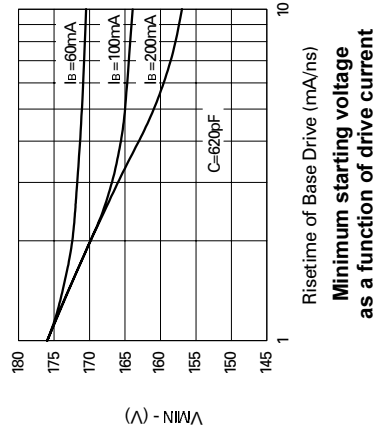
**I<sub>B</sub> v Temperature for the specified conditions**



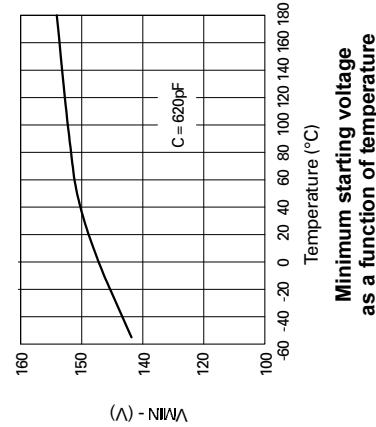
**hFE v I<sub>C</sub>**



**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**

# SOT23 NPN SILICON PLANAR AVALANCHE TRANSISTOR

ISSUE 4 - OCTOBER 1995

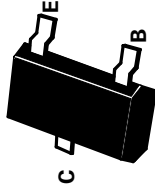
## FEATURES

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SOT23

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Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	6			V	I <sub>E</sub> =10µA
Collector Cut-Off Current	I <sub>CBO</sub>			0.1	µA	V <sub>CB</sub> =180V V <sub>CE</sub> =180V T <sub>amb</sub> F=100°C
				10	µA	
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