

SOT23 NPN SILICON PLANAR MEDIUM POWER DARLINGTON TRANSISTORS

ISSUE 3 – AUGUST 1996

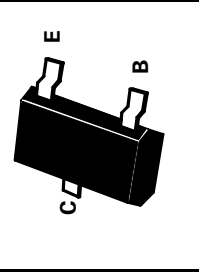
FEATURES

- * 60 Volt V_{CE0}
- * Gain of 10K at $I_C=0.5$ Amp

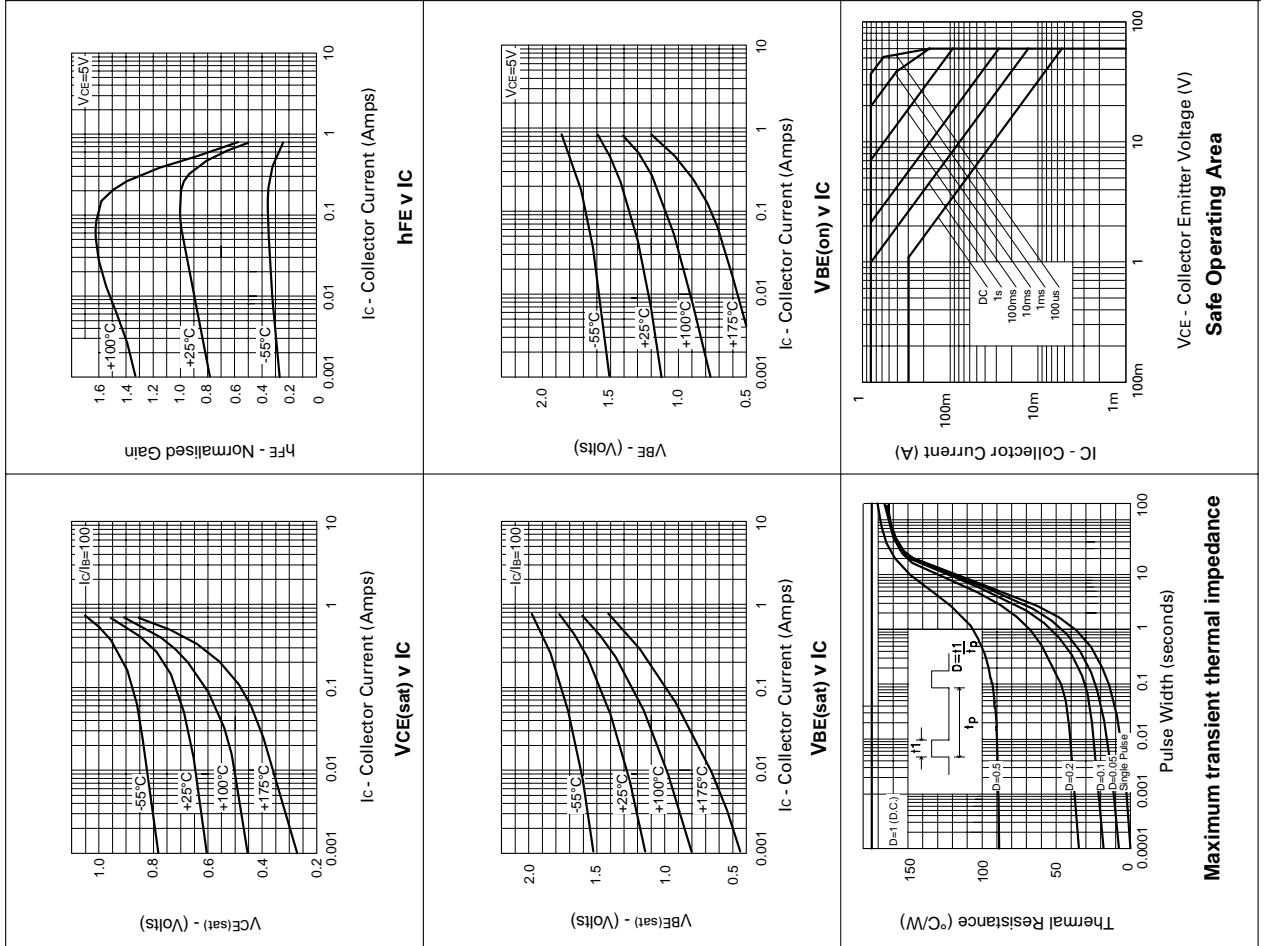
PARTMARKING DETAILS – FMMT38A – 4J
 FMMT38B – 5J
 FMMT38C – 7J

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	10	V
Peak Pulse Current	I_{CM}	800	mA
Continuous Collector Current	I_C	300	mA
Power Dissipation at $T_{amb}=25^{\circ}C$	P_{tot}	330	mW
Operating and Storage Temperature Range	T_j, T_{stg}	-55 to +150	$^{\circ}C$



TYPICAL CHARACTERISTICS



ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}C$).

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	80		V	$I_C=10\mu A, I_E=0$
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	60		V	$I_C=10mA, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	10		V	$I_E=10\mu A, I_C=0$
Collector Cut-Off Current	I_{CBO}		100	nA	$V_{CB}=60V, I_E=0$
Emitter Cut-Off Current	I_{EBO}		100	nA	$V_{EB}=8V, I_C=0$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		1.25	V	$I_C=800mA, I_B=8mA^*$
Base-Emitter Turn-on Voltage	$V_{BE(on)}$		1.8	V	$I_C=800mA, V_{CE}=5V^*$
Static Forward Current Transfer Ratio	FMMT38A h_{FE}	500			$I_C=100mA, V_{CE}=5V^*$
	FMMT38B	1000			$I_C=500mA, V_{CE}=5V^*$
	FMMT38B	2000			$I_C=100mA, V_{CE}=5V^*$
	FMMT38C	4000			$I_C=500mA, V_{CE}=5V^*$
	FMMT38C	5000			$I_C=100mA, V_{CE}=5V^*$
	FMMT38C	10000			$I_C=500mA, V_{CE}=5V^*$

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%
 Spice parameter data is available upon request for this device

FMMT38A
 FMMT38B
 FMMT38C

Maximum transient thermal impedance

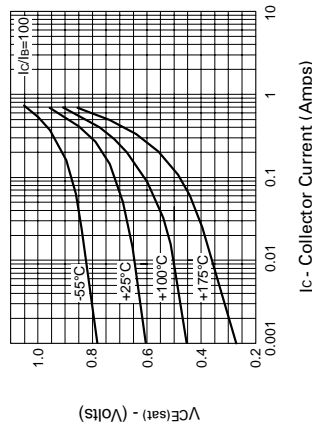
Safe Operating Area

FMMT38A
FMMT38B
FMMT38C

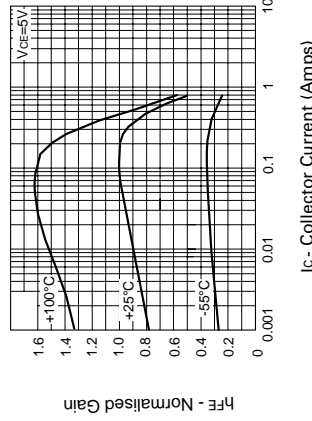
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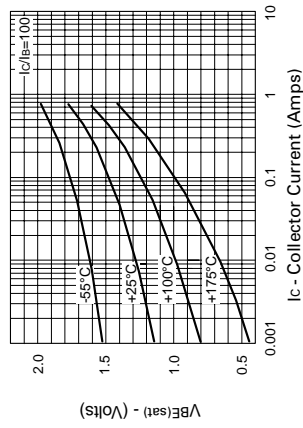
TYPICAL CHARACTERISTICS



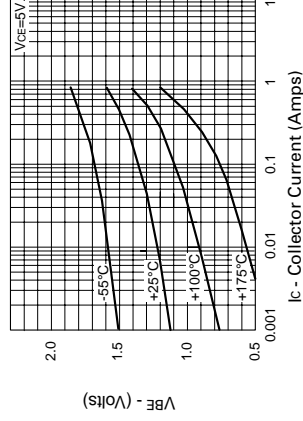
VCE(sat) v IC



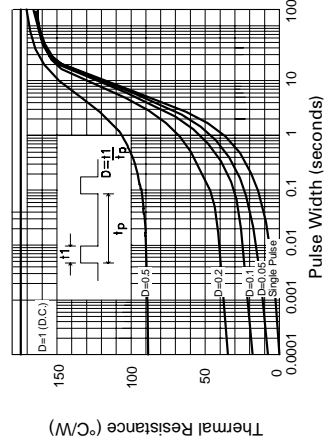
hFE v IC



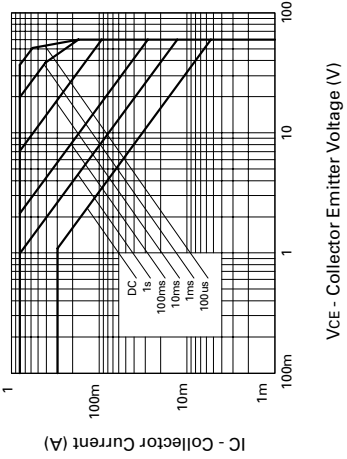
VBE(sat) v IC



VBE(on) v IC



Maximum transient thermal impedance

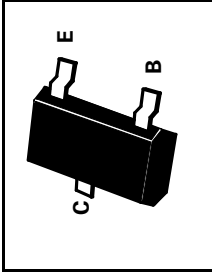


Safe Operating Area

FEATURES

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Collector-Emitter Sustaining Voltage	$V_{CE0(sus)}$	60		V	$I_C=10\text{mA}, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	10		V	$I_E=10\mu\text{A}, I_C=0$
Collector Cut-Off Current	I_{CBO}		100	nA	$V_{CB}=60\text{V}, I_E=0$
Emitter Cut-Off Current	I_{EBO}		100	nA	$V_{EB}=8\text{V}, I_C=0$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		1.25	V	$I_C=800\text{mA}, I_B=8\text{mA}^*$
Base-Emitter Turn-on Voltage	$V_{BE(on)}$		1.8	V	$I_C=800\text{mA}, V_{CE}=5\text{V}^*$
Static Forward Current Transfer Ratio	FMMT38A h_{FE}	500			$I_C=100\text{mA}, V_{CE}=5\text{V}^*$
	FMMT38B	1000			$I_C=500\text{mA}, V_{CE}=5\text{V}^*$
	FMMT38C	2000			$I_C=100\text{mA}, V_{CE}=5\text{V}^*$
		4000			$I_C=500\text{mA}, V_{CE}=5\text{V}^*$
		5000			$I_C=100\text{mA}, V_{CE}=5\text{V}^*$
		10000			$I_C=500\text{mA}, V_{CE}=5\text{V}^*$

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