

SOT23 NPN SILICON PLANAR MEDIUM POWER TRANSISTOR

FMMT449

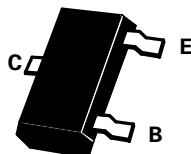
ISSUE 3 - NOVEMBER 1995

FEATURES

* Low equivalent on-resistance; $R_{CE(sat)}$ 250m Ω at 1A

COMPLEMENTARY TYPE – FMMT549

PARTMARKING DETAIL – 449



ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	2	A
Continuous Collector Current	I_C	1	A
Base Current	I_B	200	mA
Power Dissipation at $T_{amb} = 25^\circ\text{C}$	P_{tot}	500	mW
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	$^\circ\text{C}$

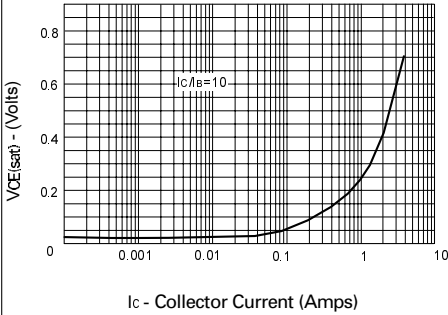
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^\circ\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	50		V	$I_C = 1\text{mA}$, $I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	30		V	$I_C = 10\text{mA}$, $I_B = 0^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5		V	$I_E = 100\mu\text{A}$, $I_C = 0$
Collector Cut-Off Current	I_{CBO}		0.1 10	μA μA	$V_{CB} = 40\text{V}$, $I_E = 0$ $V_{CB} = 40\text{V}$, $T_{amb} = 100^\circ\text{C}$
Emitter Cut-Off Current	I_{EBO}		0.1	μA	$V_{EB} = 4\text{V}$, $I_C = 0$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.5 1.0	V V	$I_C = 1\text{A}$, $I_B = 100\text{mA}^*$ $I_C = 2\text{A}$, $I_B = 200\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		1.25	V	$I_C = 1\text{A}$, $I_B = 100\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		1.0	V	$I_C = 1\text{A}$, $V_{CE} = 2\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	70 100 80 40	300		$I_C = 50\text{mA}$, $V_{CE} = 2\text{V}^*$ $I_C = 500\text{mA}$, $V_{CE} = 2\text{V}^*$ $I_C = 1\text{A}$, $V_{CE} = 2\text{V}^*$ $I_C = 2\text{A}$, $V_{CE} = 2\text{V}^*$
Transition Frequency	f_T	150		MHz	$I_C = 50\text{mA}$, $V_{CE} = 10\text{V}$ $f = 100\text{MHz}$
Output Capacitance	C_{obo}		15	pF	$V_{CB} = 10\text{V}$, $f = 1\text{MHz}$

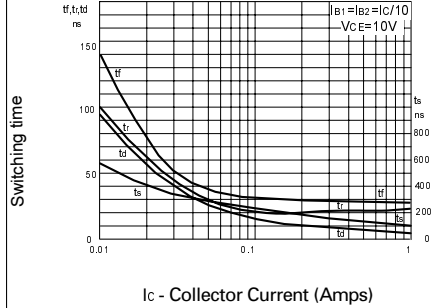
*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$

Spice parameter data is available upon request for this device

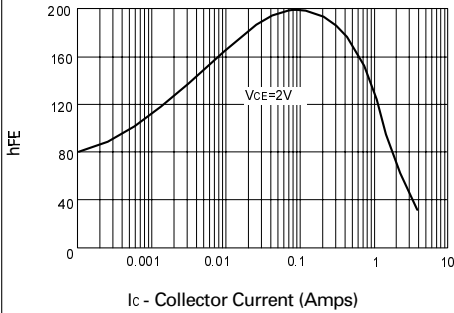
TYPICAL CHARACTERISTICS



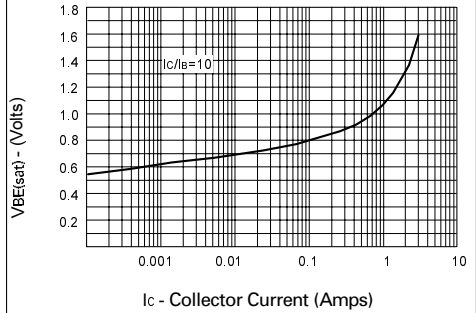
$V_{CE(sat)}$ v I_C



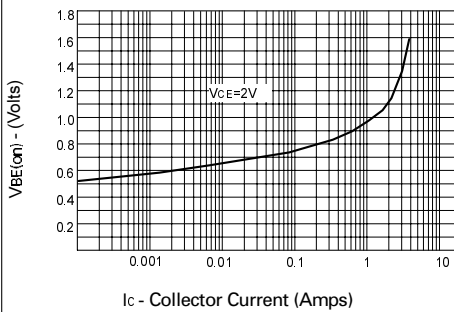
Switching Speeds



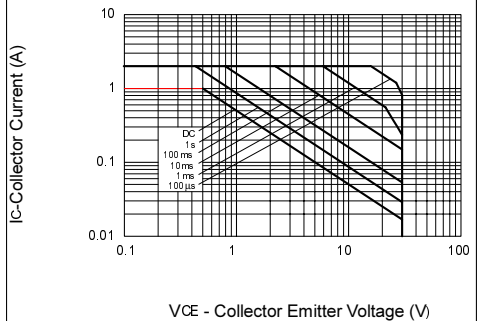
h_{FE} v I_C



$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C



Safe Operating Area