

SOT23 NPN SILICON PLANAR HIGH PERFORMANCE TRANSISTOR

FMMT451

ISSUE 3 - OCTOBER 1995

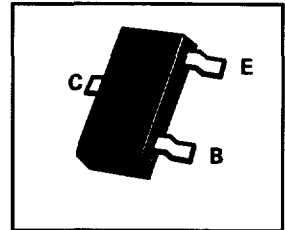


FEATURES

- * Low equivalent on-resistance; $R_{CE(sat)}$ 400mΩ at 1A
- * 1 Amp continuous current
- * $P_{tot} = 500$ mW

COMPLEMENTARY TYPE – FMMT551

PARTMARKING DETAIL – 451



ABSOLUTE MAXIMUM RATINGS.

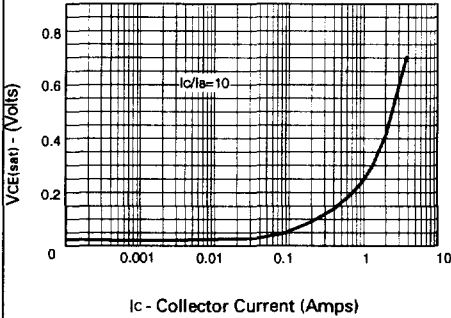
PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	2	A
Continuous Collector Current	I_C	1	A
Base Current	I_B	200	mA
Power Dissipation at $T_{amb}=25^\circ\text{C}$	P_{tot}	500	mW
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	$^\circ\text{C}$

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

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	80		V	$I_C = 100\mu\text{A}$
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	60		V	$I_C = 10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5		V	$I_E = 100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}		0.1	μA	$V_{CB} = 60\text{V}$
Emitter Cut-Off Current	I_{EBO}		0.1	μA	$V_{EB} = 4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.35	V	$I_C = 150\text{mA}$, $I_B = 15\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		1.1	V	$I_C = 150\text{mA}$, $I_B = 15\text{mA}^*$
Static Forward Current Transfer Ratio	h_{FE}	50 10	150		$I_C = 150\text{mA}$, $V_{CE} = 10\text{V}^*$ $I_C = 1\text{A}$, $V_{CE} = 10\text{V}^*$
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	$V_{CB} = 10\text{V}$, $f = 1\text{MHz}$

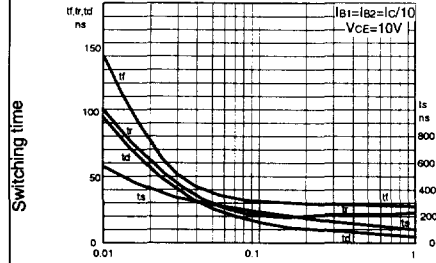
*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$

TYPICAL CHARACTERISTICS



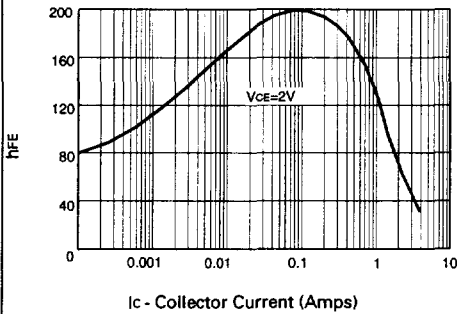
I_C - Collector Current (Amps)

$V_{CE(sat)}$ v I_C



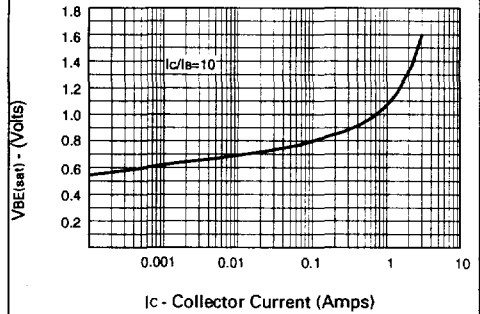
I_C - Collector Current (Amps)

Switching Speeds



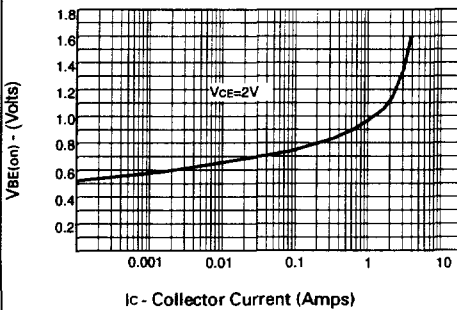
I_C - Collector Current (Amps)

h_{FE} v I_C



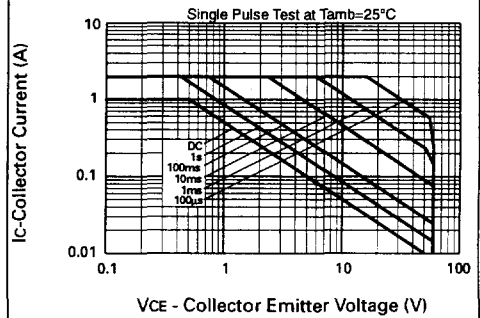
I_C - Collector Current (Amps)

$V_{BE(sat)}$ v I_C



I_C - Collector Current (Amps)

$V_{BE(on)}$ v I_C



V_{CE} - Collector Emitter Voltage (V)

Safe Operating Area