

# SOT23 NPN SILICON PLANAR RF TRANSISTOR

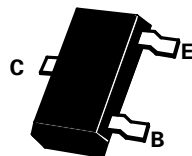
## FMMTH10

ISSUE 2 – NOVEMBER 1995

### FEATURES

- \* High  $f_T=650\text{MHz}$
- \* Maximum capacitance 0.7pF
- \* Low noise < 5dB at 500MHz

PARTMARKING DETAIL – 3EZ



SOT23

### ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Emitter Voltage	$V_{CES}$	30	V
Collector-Emitter Voltage	$V_{CEO}$	25	V
Emitter-Base Voltage	$V_{EBO}$	3	V
Continuous Collector Current	$I_C$	25	mA
Peak Pulse Current	$I_{CM}$	50	mA
Power Dissipation at $T_{amb}=25^\circ\text{C}$	$P_{tot}$	330	mW
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	$^\circ\text{C}$

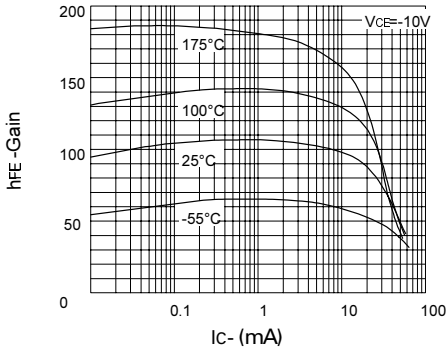
### ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^\circ\text{C}$ )

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	30		V	$I_C=100\mu\text{A}, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	25		V	$I_C=1\text{mA}, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	3		V	$I_E=10\mu\text{A}, I_C=0$
Collector Cut-Off Current	$I_{CBO}$		100	nA	$V_{CB}=25\text{V}, I_E=0$
Emitter Cut-Off Current	$I_{EBO}$		100	nA	$V_{EB}=2\text{V}, I_C=0$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.5	V	$I_C=4\text{mA}, I_B=0.4\text{mA}$
Common Base Feedback Capacitance	$C_{rb}$	Typ. 0.45	0.65	pF	$V_{CB}=10\text{V}, I_E=0$ $f=1\text{MHz}$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.95	V	$I_C=4\text{mA}, V_{CE}=10\text{V}$
Static Forward Current Transfer Ratio	$h_{FE}$	60			$I_C=4\text{mA}, V_{CE}=10\text{V}^*$
Transition Frequency	$f_T$	650		MHz	$I_C=4\text{mA}, V_{CE}=10\text{V}, f=100\text{MHz}$
Collector Base Capacitance	$C_{cb}$		0.7	pF	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$
Collector Base Time Constant	$\tau_b C_c$		9	ps	$I_C=4\text{mA}, V_{CB}=10\text{V}, f=31.8\text{MHz}$
Noise Figure	$N_f$	Typ. 3	5	dB	$I_C=2\text{mA}, V_{CE}=5\text{V}$ $f=500\text{MHz}$ ,

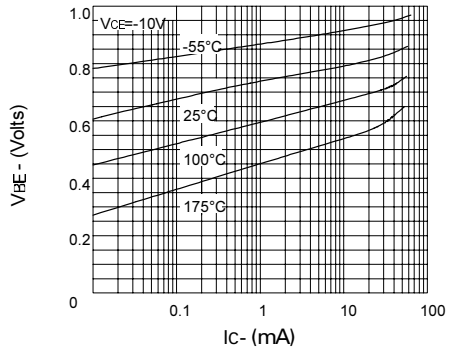
\*Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$   
Spice parameter data is available upon request for this device

# FMMTH10

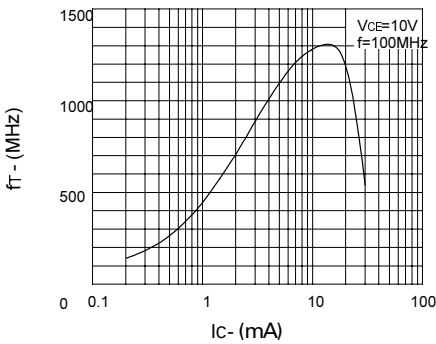
## TYPICAL CHARACTERISTICS



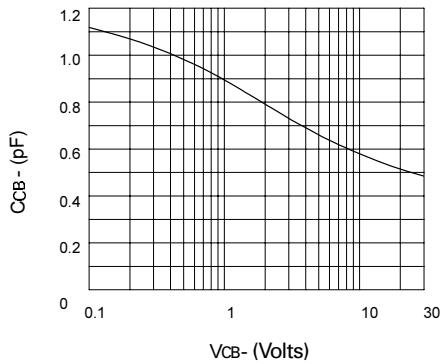
**hFE v  $I_C$**



**$V_{BE(on)}$  v  $I_C$**



**$f_T$  v  $I_C$**



**$C_{CB}$  v  $V_{CB}$**



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