

# SOT23 NPN SILICON PLANAR HIGH FREQUENCY TRANSISTOR

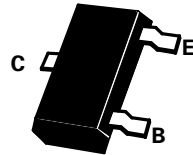
## FMMT5179

ISSUE 3 - JANUARY 1996

### FEATURES

- \* High  $f_T=900\text{MHz}$  Min
- \* Max capacitance=1pF
- \* Low noise 4.5dB

PARTMARKING DETAIL - 179



SOT23

### ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	20	V
Collector-Emitter Voltage	$V_{CEO}$	12	V
Emitter-Base Voltage	$V_{EBO}$	2.5	V
Continuous Collector Current	$I_C$	50	mA
Power Dissipation	$P_{tot}$	330	mW
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	°C

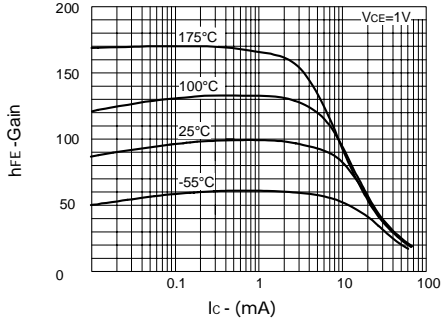
### ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^\circ\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	CONDITIONS.
Collector-Emitter Sustaining Voltage	$V_{CEO(SUS)}$	12		V	$I_C=3\text{mA}, I_B=0$
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	20		V	$I_C=1\mu\text{A}, I_E=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	2.5		V	$I_E=10\mu\text{A}, I_C=0$
Collector Cut-Off Current	$I_{CBO}$		0.02 1.0	$\mu\text{A}$ $\mu\text{A}$	$V_{CB}=15\text{V}, I_E=0$ $V_{CB}=15\text{V}, I_E=0, T_{amb}=150^\circ\text{C}$
Static Forward Current Transfer Ratio	$h_{FE}$	25	250		$I_C=3\text{mA}, V_{CE}=1\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.4	V	$I_C=10\text{mA}, I_B=1\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		1.0	V	$I_C=10\text{mA}, I_B=1\text{mA}$
Transition Frequency	$f_T$	900	2000	MHz	$I_C=5\text{mA}, V_{CE}=6\text{V}, f=100\text{MHz}$
Collector-Base Capacitance	$C_{cb}$		1	pF	$I_E=0, V_{CB}=10\text{V}, f=1\text{MHz}$
Small Signal Current Gain	$h_{fe}$	25	300		$I_C=2\text{mA}, V_{CE}=6\text{V}, f=1\text{KHz}$
Collector Base Time Constant	$r_b'C_c$	3	14	ps	$I_E=2\text{mA}, V_{CB}=6\text{V}, f=31.9\text{MHz}$
Noise Figure	$N_F$		4.5	dB	$I_C=1.5\text{mA}, V_{CE}=6\text{V}$ $R_S=50\Omega, f=200\text{MHz}$
Common-Emitter Amplifier Power Gain	$G_{pe}$	15		dB	$I_C=5\text{mA}, V_{CE}=6\text{V}$ $f=200\text{MHz}$

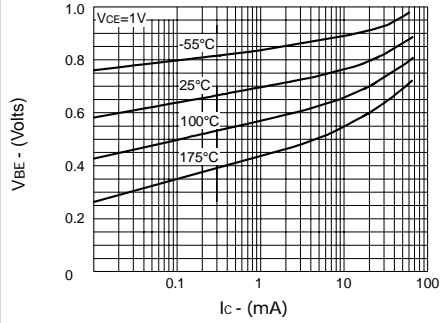
Spice parameter data is available upon request for this device

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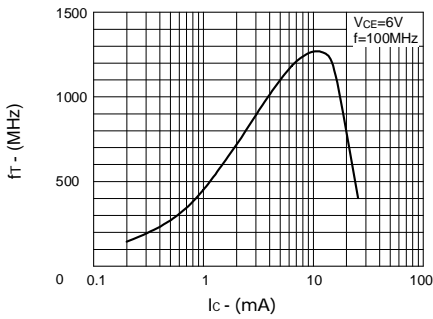
## TYPICAL CHARACTERISTICS



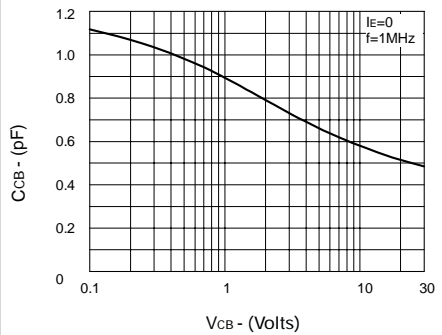
**$h_{FE}$  v  $I_C$**



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



**$f_T$  v  $I_C$**



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