

# NPN SILICON PLANAR HIGH FREQUENCY TRANSISTOR

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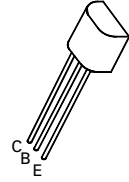
**MPS5179**

## FEATURES

- \* HIGH  $f_T=900\text{MHz}$  MIN
- \* MAX CAPACITANCE=1pF
- \* LOW NOISE 5dB

## APPLICATIONS

- \* CORDLESS TELEPHONES
- \* KEYLESS ENTRY SYSTEMS
- \* WIDEBAND INSTRUMENTATION AMPLIFIERS
- \* TELEMETRY
- \* WIRELESS LANS
- \* REMOTE METERING
- \* TAGGING



**E-Line  
TO92 Compatible**

## 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	$P_{tot}$	500	mW
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +200	°C

Note: Spice model available

 **ZETEX**

# MPS5179

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	20			V	$I_C = 1\mu\text{A}, I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	12			V	$I_C = 3\text{mA}, I_B = 0$
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	$\mu\text{A}$ $\mu\text{A}$	$V_{CB} = 15\text{V}, I_E = 0$ $V_{CB} = 15\text{V}, I_E = 0,$ $T_{amb} = 150^{\circ}\text{C}$
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	$I_C = 10\text{mA}, I_B = 1\text{mA}$
Static Forward Current Transfer Ratio	$h_{FE}$	25		250		$I_C = 3\text{mA}, V_{CE} = 1\text{V}$
Transition Frequency	$f_T$	900		2000	MHz	$I_C = 5\text{mA}, V_{CE} = 6\text{V},$ $f = 100\text{MHz}$
Collector-Base Capacitance	$C_{cb}$			1.0	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	$rb'C_c$	3.0		14	ps	$I_E = 2\text{mA}, V_{CE} = 6\text{V},$ $f = 31.9\text{MHz}$
Noise Figure	NF			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	$I_C = 5\text{mA}, V_{CE} = 6\text{V}$ $f = 200\text{MHz}$

## TYPICAL CHARACTERISTICS

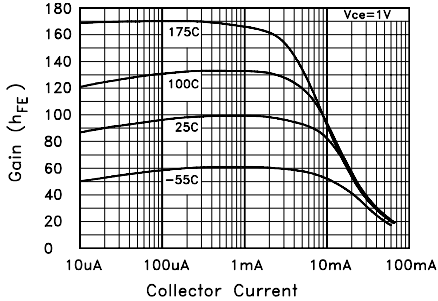


Fig.1  $h_{FE}$  vs  $I_C$

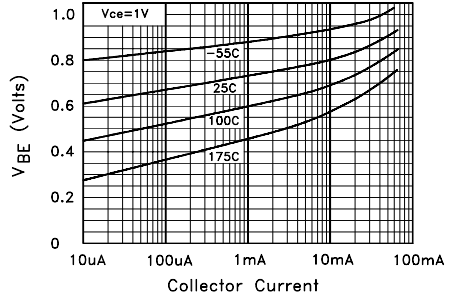


Fig.2  $V_{BE(ON)}$  vs  $I_C$

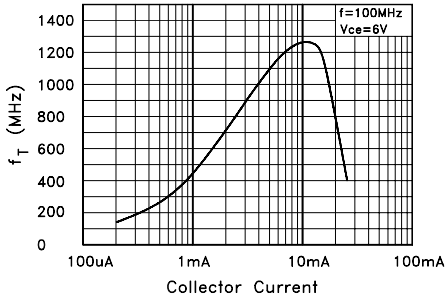


Fig.3  $f_T$  vs  $I_C$

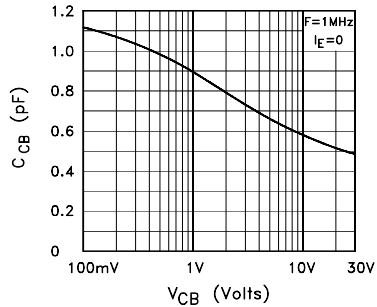


Fig.4  $C_{CB}$  vs  $V_{CB}$

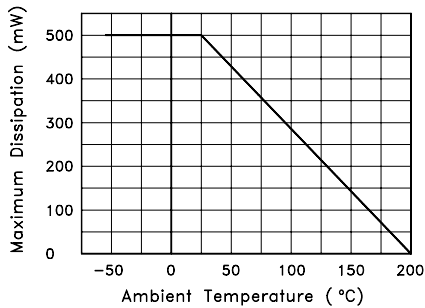


Fig.5 Derating Curve