

SOT323 NPN SILICON PLANAR HIGH FREQUENCY TRANSISTOR

ZUMT5179

ISSUE 1- NOVEMBER 1998

FEATURES

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

PARTMARKING DETAIL - T6



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

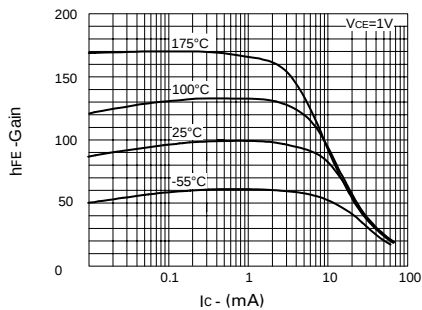
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^\circ\text{C}$ unless otherwise stated).

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	μA μA	$V_{CB} = 15\text{V}$, $I_E = 0$ $V_{CB} = 15\text{V}$, $I_E = 0$, $T_{amb} = 150^\circ\text{C}$
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	$rb'C_c$	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	$I_C = 5\text{mA}$, $V_{CE} = 6\text{V}$ $f = 200\text{MHz}$

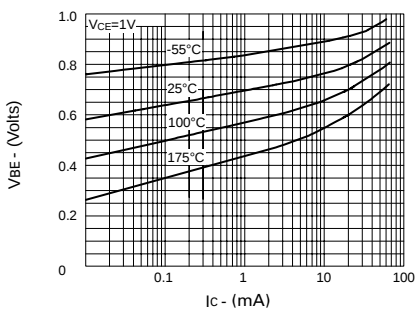
Spice parameter data is available upon request for this device

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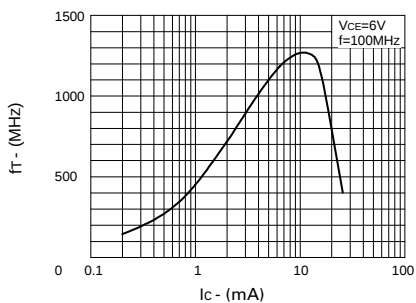
TYPICAL CHARACTERISTICS



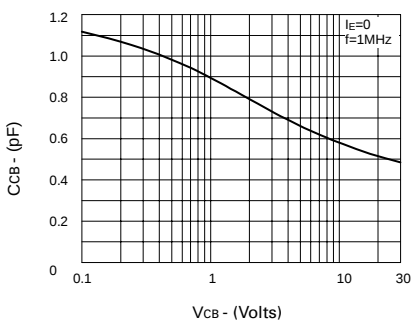
h_{FE} v I_C



$V_{BE(on)}$ v I_C



f_t v I_C



C_{CB} v V_{CB}