# 2N 5179

SILICON PLANAR NPN

VHF/UHF AMPLIFIER

The 2N 5179 is a silicon planar epitaxial NPN transistor in Jedec TO-72 metal case, intended for low-noise tuned-amplifier and converter applications up to 500 MHz.

ABSOLUTE MAXIMUM RATINGS

V_{CBO}	Collector-base voltage ($I_E = 0$)	20	V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	12	V
V_{EBO}	Emitter-base voltage ($I_C = 0$)	2.5	V
I_C	Collector current	50	mA
P_{tot}	Total power dissipation at $T_{amb} \leqslant 25°C$	200	mW
	at $T_{case} \leqslant 25°C$	300	mW
T_{stg}, T_j	Storage and junction temperature	-65 to 200	°C

MECHANICAL DATA

Dimensions in mm
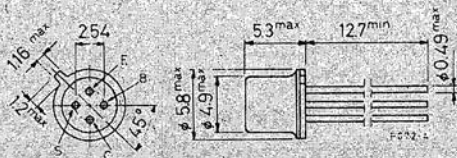
(sim. to TO-72)

THERMAL DATA

$R_{th\ j\text{-case}}$	Thermal resistance junction–case	max	583	°C/W
$R_{th\ j\text{-amb}}$	Thermal resistance junction–ambient	max	875	°C/W

ELECTRICAL CHARACTERISTICS ($T_{amb} = 25°C$ unless otherwise specified)

	Parameter	Test conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector cutoff current ($I_E = 0$)	$V_{CB} = 15V$ $V_{CB} = 15V$	$T_{amb} = 150°C$			20 1	nA μA
$V_{(BR)CBO}$	Collector-base breakdown voltage ($I_E = 0$)	$I_C = 1\ \mu A$		20			V
$V_{CEO(sus)}$	Collector-emitter sustaining voltage ($I_B = 0$)	$I_C = 3\ mA$		12			V
$V_{(BR)EBO}$	Emitter-base breakdown voltage ($I_C = 0$)	$I_E = 10\ \mu A$		2.5			V
$V_{CE(sat)}$	Collector-emitter saturation voltage	$I_C = 10\ mA$	$I_B = 1\ mA$			0.4	V
$V_{BE(sat)}$	Base-emitter saturation voltage	$I_C = 10\ mA$	$I_B = 1\ mA$			1	V
h_{FE}	DC current gain	$I_C = 3\ mA$	$V_{CE} = 1V$	25	70	250	–
h_{fe}	Small signal current gain	$I_C = 2\ mA$ $f = 1\ kHz$	$V_{CE} = 6V$	25	90	300	–
f_T	Transition frequency	$I_C = 5\ mA$ $f = 100\ MHz$	$V_{CE} = 6V$	0.9	1.4	2	GHz
$-C_{re}$	Reverse capacitance	$I_C = 0$ $f = 1\ MHz$	$V_{CE} = 6V$		0.7	1	pF
NF	Noise figure	$I_C = 1.5\ mA$ $f = 200\ MHz$	$V_{CE} = 6V$ $R_g = 125\ \Omega$		3	4.5	dB
G_{pe}	Power gain (neutralized)	$I_C = 5\ mA$ $f = 200\ MHz$	$V_{CE} = 12V$ $R_g = 50\ \Omega$	15	21		dB
P_o	Oscillator power output	$I_C = 12\ mA$ $f = 500\ MHz$	$V_{CB} = 10V$	20			mW
$r_{bb'}C_{b'c}$	Feedback time constant	$I_C = 2\ mA$ $f = 31.9\ MHz$	$V_{CB} = 6V$	3	7	14	ps