

Silicon NPN Planar RF Transistor

Electrostatic sensitive device.
Observe precautions for handling.

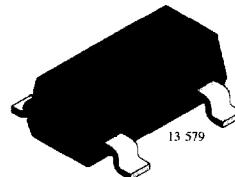
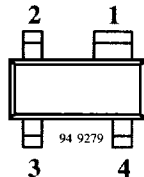


Applications

For low-noise and high-gain broadband amplifiers at collector currents from 0.5 mA to 12 mA.

Features

- Low noise figure
- High power gain



Marking: 18

Plastic case (SOT 143)

1 = Collector; 2 = Emitter; 3 = Base; 4 = Emitter

Absolute Maximum Ratings

Parameters	Symbol	Value	Unit
Collector-base voltage	V_{CB0}	15	V
Collector-emitter voltage	V_{CEO}	10	V
Emitter-base voltage	V_{EBO}	2	V
Collector current	I_C	20	mA
Base current	I_B	2	mA
Total power dissipation $T_{amb} \leq 78^\circ\text{C}$	P_{tot}	160	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-65 to +150	$^\circ\text{C}$

Maximum Thermal Resistance

Parameters	Symbol	Maximum	Unit
Junction ambient on glass fibre printed board (25 x 20 x 1.5) mm ³ plated with 35 μm Cu	R_{thJA}	450	K/W

Electrical DC Characteristics

$T_{amb} = 25^{\circ}\text{C}$

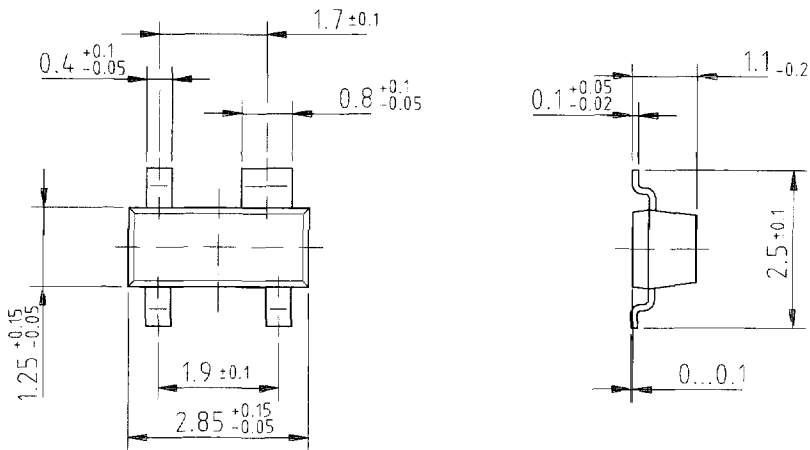
Parameters / Test Conditions	Symbol	Min.	Typ.	Max.	Unit
Collector emitter cut-off current $V_{CE} = 15\text{ V}, V_{BE} = 0$	I_{CES}			100	μA
Collector-base cut-off current $V_{CB} = 10\text{ V}, I_E = 0$	I_{CBO}			100	nA
Emitter-base cut-off current $V_{EB} = 1\text{ V}, I_C = 0$	I_{EBO}			1	μA
Collector-emitter breakdown voltage $I_C = 1\text{ mA}, I_B = 0$	$V_{(BR)CEO}$	10			V
Collector-emitter saturation voltage $I_C = 15\text{ mA}, I_B = 1.5\text{ mA}$	V_{CEsat}		0.1	0.4	V
DC forward current transfer ratio $V_{CE} = 6\text{ V}, I_C = 5\text{ mA}$ $V_{CE} = 6\text{ V}, I_C = 10\text{ mA}$	h_{FE} h_{FE}	50	100 100	150	

Electrical AC Characteristics

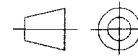
$T_{amb} = 25^{\circ}\text{C}$

Parameters / Test Conditions	Symbol	Min.	Typ.	Max.	Unit
Transition frequency $V_{CE} = 3\text{ V}, I_C = 6\text{ mA}, f = 500\text{ MHz}$ $V_{CE} = 8\text{ V}, I_C = 10\text{ mA}, f = 500\text{ MHz}$	f_T f_T		6.8 8.0		GHz GHz
Collector-base capacitance $V_{CB} = 10\text{ V}, f = 1\text{ MHz}$	C_{cb}		0.3		pF
Collector-emitter capacitance $V_{CE} = 10\text{ V}, f = 1\text{ MHz}$	C_{ce}		0.2		pF
Emitter-base capacitance $V_{EB} = 0.5\text{ V}, f = 1\text{ MHz}$	C_{eb}		0.45		pF
Noise figure $V_{CE} = 5\text{ V}, I_C = 3\text{ mA}, Z_S = Z_{opt}$ $f = 900\text{ MHz}$ $f = 1.75\text{ MHz}$	F F		1.5 2.2		dB dB
Power gain $V_{CE} = 8\text{ V}, I_C = 8\text{ mA}, Z_S = 50\ \Omega, Z_L = Z_{Lopt}$ $f = 900\text{ MHz}$ $f = 1.75\text{ GHz}$	G_{pe} G_{pe}		16.5 13.5		dB dB
Transducer gain $I_C = 8\text{ mA}, V_{CE} = 8\text{ V}, Z_0 = 50\ \Omega, f = 900\text{ MHz}$	$ S_{21e} ^2$		16		dB

Dimensions in mm



96 12240



technical drawings
according to DIN
specifications