

## Silicon NPN Planar RF Transistor

Electrostatic sensitive device.  
Observe precautions for handling.

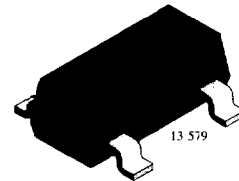
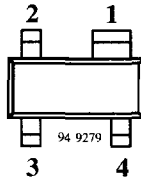


### Applications

For low-noise and high-gain broadband amplifiers at collector currents from 0.2 mA to 8 mA.

### Features

- Low power applications
- Low noise figure
- High transition frequency



Marking: 28  
Plastic case (SOT 143)  
1 = Collector; 2 = Emitter; 3 = Base; 4 = Emitter

### Absolute Maximum Ratings

Parameters	Symbol	Value	Unit
Collector-base voltage	$V_{CBO}$	15	V
Collector-emitter voltage	$V_{CEO}$	8	V
Emitter-base voltage	$V_{EBO}$	2	V
Collector current	$I_C$	10	mA
Total power dissipation $T_{amb} \leq 114^\circ\text{C}$	$P_{tot}$	80	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 <sup>3</sup> plated with 35 $\mu\text{m}$ Cu	$R_{thJA}$	450	K/W

## Electrical DC Characteristics

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

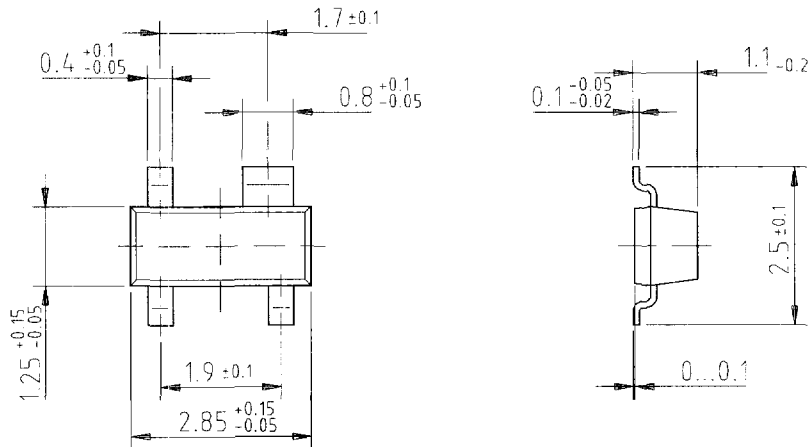
Parameters / Test Conditions	Symbol	Min.	Typ.	Max.	Unit
Collector-emitter cut-off current $V_{CE} = 15\text{ V}, V_{BE} = 0$	$I_{CES}$			100	$\mu\text{A}$
Collector-base cut-off current $V_{CB} = 10\text{ V}, I_E = 0$	$I_{CBO}$			100	nA
Emitter-base cut-off current $V_{EB} = 1\text{ V}, I_C = 0$	$I_{EBO}$			1	$\mu\text{A}$
Collector-emitter breakdown voltage $I_C = 1\text{ mA}, I_B = 0$	$V_{(BR)CEO}$	8			V
Collector-emitter saturation voltage $I_C = 5\text{ mA}, I_B = 0.5\text{ mA}$	$V_{CEsat}$		0.1	0.4	V
DC forward current transfer ratio $V_{CE} = 1\text{ V}, I_C = 0.25\text{ mA}$ $V_{CE} = 1\text{ V}, I_C = 3\text{ mA}$	$h_{FE}$ $h_{FE}$	50 50	90 100	150	

## Electrical AC Characteristics

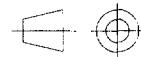
$T_{amb} = 25^{\circ}\text{C}$

Parameters / Test Conditions	Symbol	Min.	Typ.	Max.	Unit
Transition frequency $V_{CE} = 1\text{ V}, I_C = 3\text{ mA}, f = 500\text{ MHz}$ $V_{CE} = 5\text{ V}, I_C = 6\text{ mA}, f = 500\text{ MHz}$	$f_T$ $f_T$		5 7		GHz GHz
Collector-base capacitance $V_{CB} = 10\text{ V}, f = 1\text{ MHz}$	$C_{cb}$		0.3		pF
Collector-emitter capacitance $V_{CE} = 8\text{ V}, f = 1\text{ MHz}$	$C_{ce}$		0.15		pF
Emitter-base capacitance $V_{EB} = 0.5\text{ V}, f = 1\text{ MHz}$	$C_{eb}$		0.3		pF
Noise figure $V_{CE} = 1\text{ V}, I_C = 3\text{ mA}, Z_S = Z_{Sopt}$ $f = 900\text{ MHz}$ $f = 1.75\text{ GHz}$	F F		1.6 2.4		dB dB
Power gain $f = 900\text{ MHz}, Z_S = 50\ \Omega, Z_L = Z_{Lopt}$ $I_C = 3\text{ mA}, V_{CE} = 1\text{ V}$ $I_C = 6\text{ mA}, V_{CE} = 5\text{ V}$	$G_{pe}$ $G_{pe}$		16 19		dB dB
Transducer gain $V_{CE} = 5\text{ V}, I_C = 6\text{ mA}, f = 1\text{ GHz}, Z_o = 50\ \Omega$	$ S_{21e} ^2$		15		dB

**Dimensions in mm**



96 12240



technical drawings  
according to DIN  
specifications

