

## Silicon NPN planar RF transistor

### Applications

RF-amplifier up to GHz range specially for wide band antenna amplifier.

### Features

- High power gain
- Low noise figures
- High transition frequency

### Dimensions in mm

### Absolute Maximum Ratings

| Parameters   | Symbol    | Value       | Unit             |
|--|-----------|-------------|------------------|
| Collector-base voltage                               | $V_{CBO}$ | 20          | V                |
| Collector-emitter voltage                            | $V_{CEO}$ | 15          | V                |
| Emitter-base voltage                                 | $V_{EBO}$ | 2           | V                |
| Collector current                                    | $I_C$     | 30          | mA               |
| Total power dissipation $T_{amb} = 25^\circ\text{C}$ | $P_{tot}$ | 625         | 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 | $R_{thJA}$ | 200     | K/W  |

## Electrical DC Characteristics

$T_j = 25^\circ\text{C}$ , unless otherwise specified

| Parameters / Test Conditions  | Symbol        | Min. | Typ. | Max. | Unit |
|---|---------------|------|------|------|------|
| Collector cut-off current<br>$V_{CB} = 20\text{ V}$ , $I_E = 0\text{ A}$          | $I_{CBO}$     |      |      | 50   | nA   |
| Collector-base breakdown voltage<br>$I_C = 10\ \mu\text{A}$                       | $V_{(BR)CBO}$ | 20   |      |      | V    |
| Collector-emitter breakdown voltage<br>$I_C = 2\text{ mA}$                        | $V_{(BR)CEO}$ | 15   |      |      | V    |
| Emitter-base breakdown voltage<br>$I_E = 10\ \mu\text{A}$                         | $V_{(BR)EBO}$ | 2    |      |      | V    |
| DC forward current transfer ratio<br>$I_C = 14\text{ V}$ , $V_{CE} = 10\text{ V}$ | $h_{FE}$      | 40   | 90   |      |      |

## Electrical AC Characteristics

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

| Parameters / Test Conditions  | Symbol    | Min. | Typ.       | Max. | Unit     |
|---|-----------|------|------------|------|----------|
| Transition frequency<br>$I_C = 14\text{ mA}$ , $V_{CE} = 10\text{ V}$ , $f = 500\text{ MHz}$                                      | $f_T$     |      | 6          |      | GHz      |
| Feedback capacitance<br>$I_C = 0\text{ mA}$ , $V_{CE} = 10\text{ V}$ , $f = 1\text{ MHz}$   | $C_{üre}$ |      | 0.3        |      | pF       |
| Collector-base capacitance<br>$V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$   | $C_{CBO}$ |      | 0.6        |      | pF       |
| Emitter-base capacitance<br>$V_{EB} = 0.5\text{ V}$ , $f = 1\text{ MHz}$  | $C_{EBO}$ |      | 1.1        |      | pF       |
| Noise figure<br>$V_{CE} = 10\text{ V}$ , $R_G = R_{Gopt}$ , $f = 800\text{ MHz}$ ,<br>$I_C = 14\text{ mA}$<br>$I_C = 4\text{ mA}$ | F<br>F    |      | 2.4<br>1.7 |      | dB<br>dB |
| Power gain<br>$I_C = 14\text{ mA}$ , $V_{CE} = 10\text{ V}$ , $f = 800\text{ MHz}$  | $G_{pb}$  |      | 17.5       |      | dB       |

**We reserve the right to make changes without further notice to improve technical design.**

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