

T-33-05

PPC5001T

PQC5001T

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56E D ■ 7110826 0046422 150 ■ PHIN

## MICROWAVE POWER TRANSISTORS

NPN silicon power transistor for use in a common-collector oscillator circuits in military and professional applications.

The transistors operate in CW conditions and are recommended for applications up to 5 GHz.

### Features:

- Interdigitated structure giving a high emitter efficiency
- Diffused emitter ballasting resistors providing excellent current sharing and withstanding a high VSWR
- Gold metallization realizing a very good stability of the characteristics and excellent life-time
- Multicell geometry giving good balance of dissipated power and low thermal resistance
- 5 GHz technology

The PPC5001T is housed in a metal ceramic flange envelope (FO-102).

The PQC5001T is housed in a metal ceramic flange envelope (FO-85).

### QUICK REFERENCE DATA

Microwave performance up to  $T_{mb} = 25\text{ }^{\circ}\text{C}$  in an oscillator circuit up to 5 GHz; typical values.

mode of operation	f GHz	V <sub>CE</sub> V	I <sub>C</sub> mA	P <sub>L</sub> mW
class A; CW	5	20	200	450

### MECHANICAL DATA

PPC5001T FO-102 (see Fig. 1a)

PQC5001T FO-85 (see Fig. 1b).

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MECHANICAL DATA

Fig. 1a FO-102.

PPC5001T

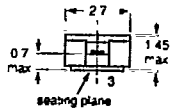
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Dimensions in mm

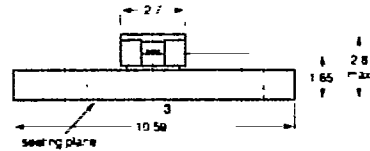
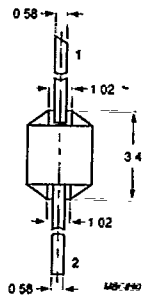
Fig. 1b FO-85.

PQC5001T

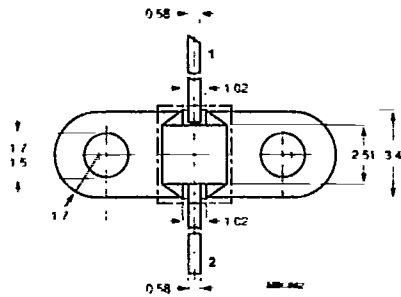
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**Pinning:**  
1 = base  
2 = emitter  
3 = collector



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1 = base  
2 = emitter  
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**RATINGS**

Limiting values in accordance with the Absolute Maximum System (IEC 134)

Collector-base voltage, open emitter	V <sub>CBO</sub>	max.	40 V
Collector-emitter voltage, R <sub>BE</sub> = 70 Ω	V <sub>CER</sub>	max.	35 V
open emitter	V <sub>CEO</sub>	max.	16 V
Emitter-base voltage, open collector	V <sub>EBO</sub>	max.	3.0 V
Collector current, DC	I <sub>C</sub>	max.	0.25 A
Total power dissipation up to T <sub>amb</sub> = 75 °C	P <sub>tot</sub>	max.	4 W
Storage temperature	T <sub>stg</sub>		-65 to +200 °C
Junction temperature	T <sub>j</sub>	max.	200 °C
Soldering temperature at 0.1 mm from the case, t <sub>sld</sub> ≤ 10 s	T <sub>sld</sub>	max.	235 °C

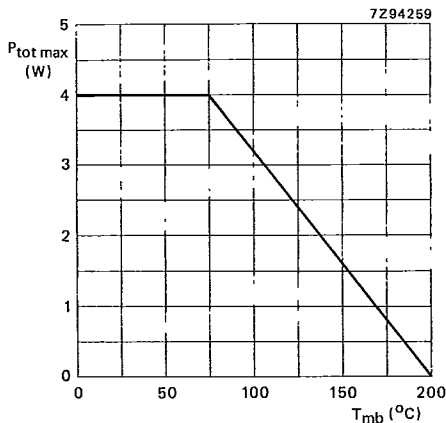


Fig. 2 Power derating curve as a function of mounting base temperature.

**THERMAL RESISTANCE (at T<sub>j</sub>=75 °C)**

From junction to mounting base R<sub>th j-mb</sub> = 24 K/W

**CHARACTERISTICS**

T<sub>mb</sub> = 25 °C unless otherwise specified

Breakdown voltages

I <sub>C</sub> = 500 μA; I <sub>E</sub> = 0	V(BR) <sub>CBO</sub>	min.	40 V
I <sub>C</sub> = 2.5 mA; R <sub>BE</sub> = 70 Ω	V(BR) <sub>CER</sub>	min.	35 V

Collector cut-off current

I <sub>E</sub> = 0; V <sub>CB</sub> = 24 V	I <sub>CBO</sub>	max.	100 μA
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Emitter cut-off current

I <sub>C</sub> = 0; V <sub>EB</sub> = 1.5 V	I <sub>EBO</sub>	max.	0.2 μA
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Collector-base capacitance at f = 1 MHz

I <sub>E</sub> = I <sub>C</sub> = 0; V <sub>CB</sub> = 18 V; V <sub>EB</sub> = 1.5 V	C <sub>cb</sub>	typ.	1.4 pF
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Emitter-base capacitance at  $f = 1 \text{ MHz}$

$I_E = I_C = 0; V_{EB} = 1 \text{ V}; V_{CB} = 10 \text{ V}$

$C_{eb}$  typ. 5.5 pF

Collector-emitter capacitance at  $f = 1 \text{ MHz}$

$I_E = I_C = 0; V_{CE} = 18 \text{ V}; V_{EB} = 1.5 \text{ V}$

$C_{ce}$  typ. 0.9 pF

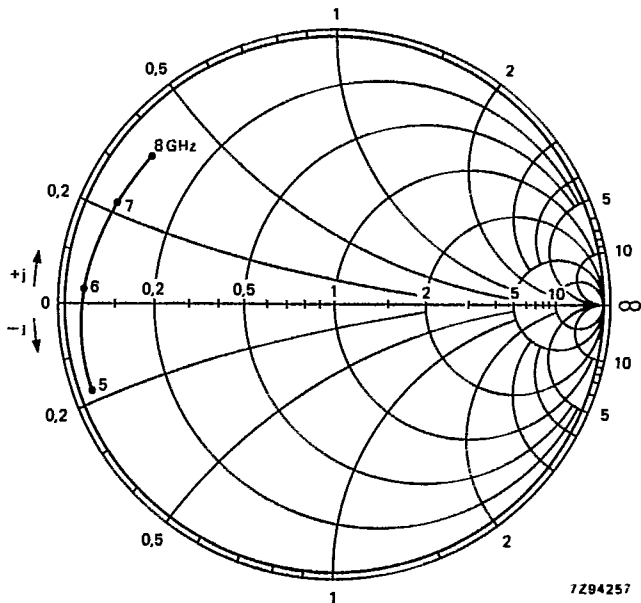


Fig. 3 Emitter reflection coefficient.

Conditions for Figs 3 and 4:

$V_{CE} = 20 \text{ V}; I_C = 200 \text{ mA};$

$Z_0 = 50 \Omega$

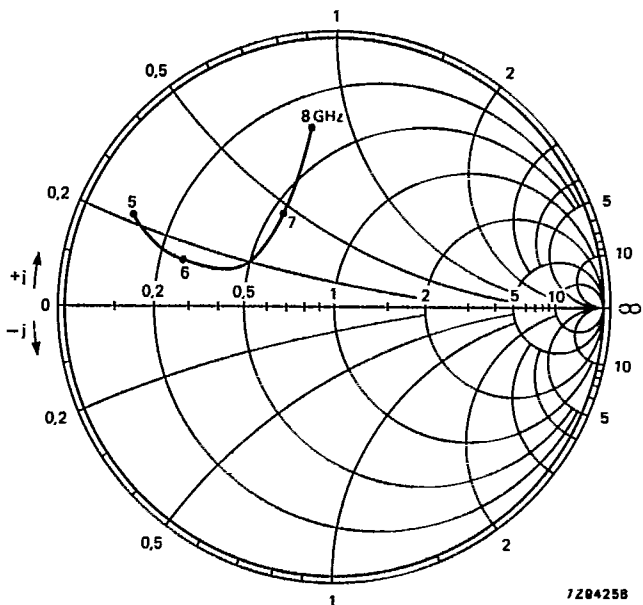


Fig. 4 Base reflection coefficient.