

ABSTRACT

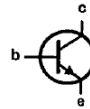
NPN silicon planar epitaxial microwave power transistor, intended for use in a common-base class-C broadband pulse power amplifier, operating in the 1.3 to 1.4 GHz frequency range. Recommended for radar applications. Diffused emitter ballasting resistors capable of withstanding a high VSWR and provides excellent current sharing.

FEATURES

- Interdigitated structure
- Diffused emitter ballasting resistors
- Gold metallization
- Multicell geometry

Pinning:
 1 = collector
 2 = emitter
 3 = base

Base is connected to the seating plane.



RATINGS

| Description | Symbol | | Value | Unit |
|---|--------------|------|-------------|------------|
| Collector-base voltage; open emitter | V_{CBO} | max. | 60 | V |
| Collector-emitter voltage; $R_{BE}=10\Omega$ | V_{CER} | max. | 60 | V |
| Collector-emitter voltage; open base | V_{CEO} | max. | 20 | V |
| Emitter-base voltage; open collector | V_{EBO} | max. | 3 | V |
| Collector current {peak}* | I_C | max. | 15 | A |
| Total power dissipation at $T_{mb}\leq 75^\circ C^*$ | P_{tot} | max. | 300 | W |
| Storage temperature range | T_{stg} | | -65 to +200 | $^\circ C$ |
| Operating junction temperature | T_j | max. | 200 | $^\circ C$ |
| Soldering temperature at 0.3mm from the case; $t_{slid} \leq 10s$ | T_{slid} | max. | 235 | $^\circ C$ |
| THERMAL RESISTANCE (at $T_j=75^\circ C$) | | | | |
| From junction to mounting base (CW) | R_{thj-mb} | max. | 1 | K/W |
| From junction to mounting base** | Z_{thj-mb} | typ. | 0.3 | K/W |
| From mounting base to heatsink (CW) | R_{thmb-h} | typ. | 0.2 | K/W |

* Maximum values under nominal pulsed microwave operating conditions.
 ** Equivalent thermal impedance under nominal pulsed microwave operating conditions ($t_{on} = 1 ms; \delta = 10\%$).

ELECTRICAL CHARACTERISTICS

$T_{mb} = 25^\circ C$ unless otherwise specified

Breakdown voltages

$I_C = 35 mA; I_E = 0$ $V_{(BR)CBO} \geq 60 V$

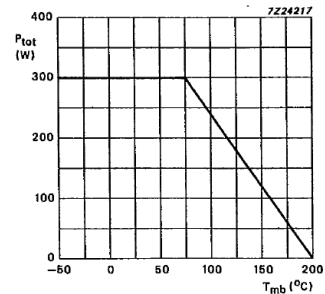
$I_C = 35 mA; I_B = 0$ $V_{(BR)CEO} \geq 20 V$

$I_C = 35 mA; R_{BE} = 10 \Omega$ $V_{(BR)CER} \geq 50 V$

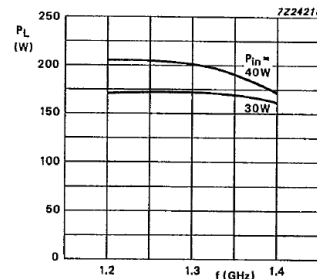
$I_C = 0; I_E = 10 mA$ $V_{(BR)EBO} \geq 3 V$

Collector cut-off current

$I_E = 0; V_{CB} = 50 V$ $I_{CBO} \leq 7 mA$



Power derating curve $t_p = 1 ms; \delta = 10\%$.



Load power as a function of frequency; $V_{CC} = 40 V; t_p = 1 ms; \delta = 10\%$; typical values.

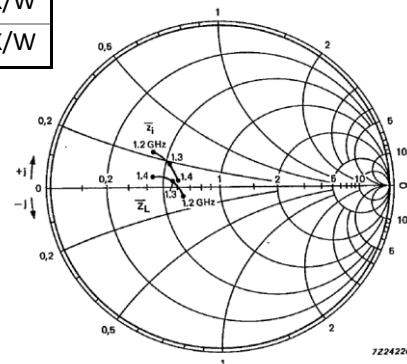


Fig. 6 Input and optimum load impedance as a function of frequency; $V_{CC} = 40 V; Z_0 = 5 \Omega$.

