



ITC1100

1000 WATT, 50V, Pulsed Avionics 1030 MHz

GENERAL DESCRIPTION

The **ITC1100** is a common base bipolar transistor. It is designed for pulsed interrogator systems in the frequency band of 1030 MHz. The device has gold thin-film metallization for proven high MTTF. The transistor includes input returns for improved output rise time. Low thermal resistance package reduces junction temperature which extends the life time of the product.

ABSOLUTE MAXIMUM RATINGS

Power Dissipation

Device Dissipation¹ @25°C (P_d) 3400 W
Thermal Resistance¹ (θ_{JC}) .08°C/W

Voltage and Current

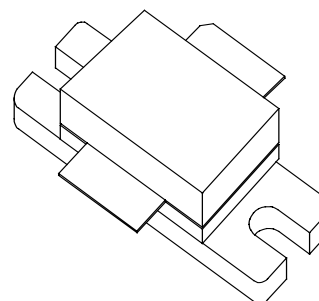
Collector-Base Voltage 65V
Emitter-Base Voltage 3.5V
Collector Current¹ 80A

Temperatures

Storage Temperature -40 to +150°C
Operating Junction Temperature¹ +200°C

CASE OUTLINE

55SW, Style 1 Common Base



ELECTRICAL CHARACTERISTICS @ 25°C

| SYMBOL | CHARACTERISTICS | TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|--------------|--------------------------------------|---------------------|-----|-----|-----|---------|
| BV_{EBO}^2 | Emitter-Base Breakdown(open) | $I_E=50mA$ | 3.5 | | | V |
| BV_{CES} | Collector-Emitter Breakdown(shorted) | $I_C=30mA$ | 65 | | | V |
| BV_{CEO}^2 | Collector-Emitter Breakdown (open) | $I_C=30mA$ | 30 | | | V |
| h_{FE}^2 | DC Current Gain | $I_C=5A, V_{CE}=5V$ | 20 | | 100 | β |

FUNCTIONAL CHARACTERISTICS @ 25°C

| | | | | | | |
|-----------|--|---|--------------|------|-----|----------|
| G_{PB} | Common Base Power Gain | $V_{CC}=50V, F=1030MHz,$ $P_{out}=1000W$ Peak Min, $PW=1\mu S, DF=1\%$ | 10 | 10.5 | | dB |
| η_c | Collector Efficiency | $V_{CC}=50V, F=1030MHz,$ $P_{out}=1000W$ Peak Min, $PW=1\mu S, DF=1\%$ | 45 | 50 | | % |
| t_r | Rise Time | $V_{CC}=50V, F=1030MHz,$ $P_{out}=1000W$ Peak Min, $PW=1\mu S, DF=1\%$ | | 50 | 80 | nS |
| VSWR | Output Load Mismatch | $V_{CC}=50V, F=1030MHz,$ $P_{out}=1000W$ Peak Min, $PW=1\mu S, DF=1\%$ | | | 4:1 | Ψ |
| Z_{in} | Series Input Impedance (Circuit source impedance @ test cond.) | $V_{CC}=50V, F=1030MHz,$ $P_{out}=1000W$ Peak Min, $PW=1\mu S, DF=1\%$ | 0.89 – j2.3 | | | Ω |
| Z_{out} | Series Output Impedance (Circuit load impedance @ test cond.) | $V_{CC}=50V, F=1030MHz,$ $P_{out}=1000W$ Peak Min, $PW=1\mu S, DF=1\%$ | 0.54 - j2.64 | | | Ω |

¹ At rated output power and pulse conditions

² Not measurable due to EB Returns

