

MDS800

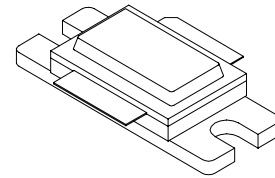
800 Watts, 50 Volts
Pulsed Avionics at 1090 MHz

GENERAL DESCRIPTION

The MDS800 is a high power COMMON BASE bipolar transistor. It is designed for pulsed systems at 1090 MHz, with the pulse width and duty required for MODE-S applications. The device has gold thin-film metalization and emitter ballasting for proven highest MTTF. The transistor includes input and output prematch for broadband capability. Low thermal resistance package reduces junction temperature, extends life.

CASE OUTLINE

**55ST-1
(Common Base)**



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @ 25°C¹ 1458 W

Maximum Voltage and Current

Collector to Base Voltage (BV_{ces}) 60 V

Emitter to Base Voltage (BV_{ebo}) 3.5 V

Collector Current (I_c) 60 A

Maximum Temperatures

Storage Temperature -65 to +200 °C

Operating Junction Temperature +200 °C

ELECTRICAL CHARACTERISTICS @ 25°C

| SYMBOL | CHARACTERISTICS | TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|------------------|--------------------------------------|----------------------------|-----|-----|-------|-------|
| P _{out} | Power Output | F = 1090 MHz | 800 | | | W |
| P _{in} | Power Input | V _{cc} = 50 Volts | | | 110 | |
| P _g | Power Gain | Burst width = 128µs | 8.6 | | | dB |
| η _c | Collector Efficiency | LTDF = 2% | 40 | | | % |
| R _L | Return Loss | | | | -12 | dB |
| P _d | Power Droop | | | 0.5 | | dB |
| VSWR | Load Mismatch Tolerance ¹ | F = 1090 MHz | | | 4.0:1 | |

FUNCTIONAL CHARACTERISTICS @ 25°C

| | | | | | | |
|------------------------------|--------------------------------|---|-----|--|------|------|
| BV _{ebo} | Emitter to Base Breakdown | I _e = 30 mA | 3.5 | | | V |
| BV _{ces} | Collector to Emitter Breakdown | I _c = 50 mA | 65 | | | V |
| h _{FE} | DC – Current Gain | V _{ce} = 5V, I _c = 1A | 20 | | | |
| θ _{jc} ¹ | Thermal Resistance | | | | 0.12 | °C/W |

NOTES: 1. At rated output power and pulse conditions
2. 128 µs burst, 0.5 µs on/0.5 µs off, 6.4 ms period

Rev. B – Dec 2005

