

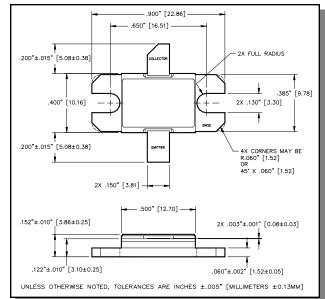
M/A-COM Products Released, 30 May 07

Radar Pulsed Power Transistor 100W, 1.1-1.3 GHz, 3µs Pulse, 30% Duty

Features

- NPN silicon microwave power transistors
- Common base configuration
- Broadband Class C operation
- High efficiency inter-digitized geometry
- · Diffused emitter ballasting resistors
- Gold metallization system
- · Internal input and output impedance matching
- Hermetic metal/ceramic package
- RoHS compliant

Outline Drawing



Absolute Maximum Ratings at 25°C

| Parameter | Symbol | Rating | Units |
|---------------------------|------------------|-------------|-------|
| Collector-Emitter Voltage | V _{CES} | 70 | V |
| Emitter-Base Voltage | V _{EBO} | 3.0 | V |
| Collector Current (Peak) | Ι _C | 9.0 | А |
| Power Dissipation @ +25°C | P _{TOT} | 350 | W |
| Storage Temperature | T _{STG} | -65 to +200 | °C |
| Junction Temperature | TJ | 200 | °C |

Electrical Specifications: $T_c = 25 \pm 5^{\circ}C$ (Room Ambient)

| Parameter | Test Conditions | Frequency | Symbol | Min | Max | Units |
|-------------------------------------|------------------------|-----------------------|---------------------|-----|-------|-------|
| Collector-Emitter Breakdown Voltage | I _C = 50mA | | BV _{CES} | 70 | - | V |
| Collector-Emitter Leakage Current | V _{CE} = 32V | | I _{CES} | - | 10 | mA |
| Thermal Resistance | Vcc = 32V, Pout = 100W | F = 1.1, 1.2, 1.3 GHz | R _{TH(JC)} | - | 0.5 | °C/W |
| Input Power | Vcc = 32V, Pout = 100W | F = 1.1, 1.2, 1.3 GHz | P _{IN} | - | 16 | W |
| Power Gain | Vcc = 32V, Pout = 100W | F = 1.1, 1.2, 1.3 GHz | G _P | 8.0 | - | dB |
| Collector Efficiency | Vcc = 32V, Pout = 100W | F = 1.1, 1.2, 1.3 GHz | η _c | 52 | - | % |
| Input Return Loss | Vcc = 32V, Pout = 100W | F = 1.1, 1.2, 1.3 GHz | RL | - | -9 | dB |
| Load Mismatch Tolerance | Vcc = 32V, Pout = 100W | F = 1.1, 1.2, 1.3 GHz | VSWR-T | - | 3:1 | - |
| Load Mismatch Stability | Vcc = 32V, Pout = 100W | F = 1.1, 1.2, 1.3 GHz | VSWR-S | - | 1.5:1 | - |

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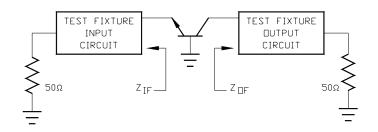
Typical RF Performance

| Freq. (GHz) | Pin (W) | Pout (W) | Gain (dB) | lc (A) | Eff (%) | RL (dB) | VSWR-S (1.5:1) | VSWR-T (3:1) |
|----------------|------------|-------------|--------------|-----------|------------|------------|-------------------|-----------------|
| 1.1 | 14.9 | 100 | 8.26 | 5.23 | 59.8 | -12.4 | S | Р |
| 1.2 | 12.8 | 100 | 8.92 | 4.79 | 65.3 | -12.1 | S | Р |
| 1.3 | 13.7 | 100 | 8.63 | 4.98 | 62.7 | -10.8 | S | Р |

RF Test Fixture Impedance

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| F (GHz) | Z _{IF} (Ω) | Z _{OF} (Ω) | | |
|---------|---------------------|---------------------|--|--|
| 1.1 | 5.8 - j3.4 | 3.0 - j1.7 | | |
| 1.2 | 5.6 - j1.8 | 3.0 - j1.5 | | |
| 1.3 | 5.9 - j0.4 | 2.8 - j1.3 | | |



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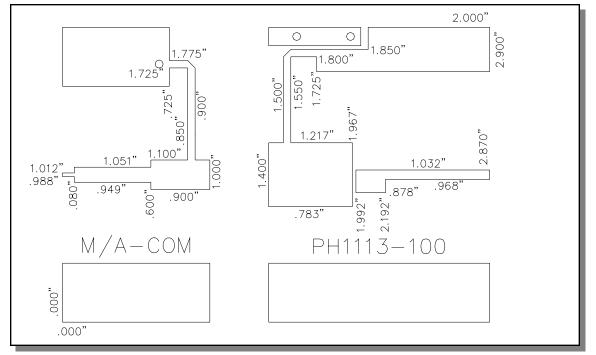
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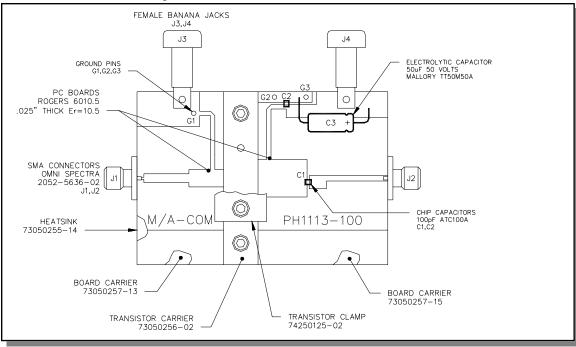
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Test Fixture Circuit Dimensions



Test Fixture Assembly



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