

Radar Pulsed Power Transistor 25W, 1.2-1.4 GHz, 150µs Pulse, 10% Duty

M/A-COM Products Released, 30 May 07

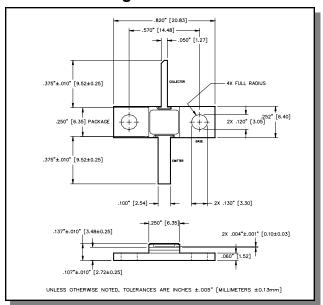
Features

- 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

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) | Ic | 2.8 | Α |
| Power Dissipation @ +25°C | P _{TOT} | 67 | W |
| Storage Temperature | T _{STG} | -65 to +200 | °C |
| Junction Temperature | T_J | 200 | °C |

Outline Drawing



Electrical Specifications: T_C = 25 ± 5°C (Room Ambient)

| Parameter | Test Conditions | Frequency | Symbol | Min | Max | Units |
|-------------------------------------|-----------------------|-----------------------|---------------------|-----|-------|-------|
| Collector-Emitter Breakdown Voltage | I _C = 25mA | | BV _{CES} | 60 | - | V |
| Collector-Emitter Leakage Current | V _{CE} = 40V | | I _{CES} | - | 2.5 | mA |
| Thermal Resistance | Vcc = 28V, Pout = 25W | F = 1.2, 1.3, 1.4 GHz | R _{TH(JC)} | - | 2.6 | °C/W |
| Output Power | Vcc = 28V, Pout = 25W | F = 1.2, 1.3, 1.4 GHz | P _{IN} | - | 2.8 | W |
| Power Gain | Vcc = 28V, Pout = 25W | F = 1.2, 1.3, 1.4 GHz | G _P | 9.5 | - | dB |
| Collector Efficiency | Vcc = 28V, Pout = 25W | F = 1.2, 1.3, 1.4 GHz | ης | 50 | - | % |
| Input Return Loss | Vcc = 28V, Pout = 25W | F = 1.2, 1.3, 1.4 GHz | RL | - | -6 | dB |
| Load Mismatch Tolerance | Vcc = 28V, Pout = 25W | F = 1.2, 1.3, 1.4 GHz | VSWR-T | - | 3:1 | - |
| Load Mismatch Stability | Vcc = 28V, Pout = 25W | F = 1.2, 1.3, 1.4 GHz | VSWR-S | - | 1.5:1 | - |

Commitment to produce in volume is not guaranteed.

- North America Tel: 800.366.2266 / Fax: 978.366.2266
- Europe Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- Asia/Pacific Tel: 81.44.844.8296 / Fax: 81.44.844.8298
 Visit www.macomtech.com for additional data sheets and product information.

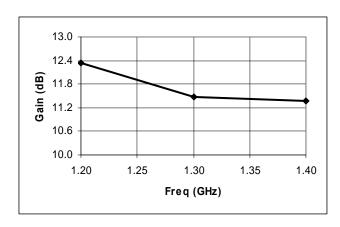


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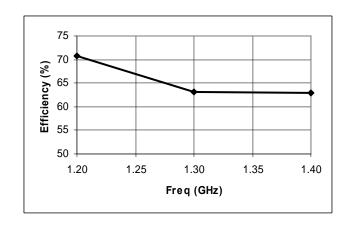
Typical RF Performance

| Freq. (GHz) | Pin (W) | Pout (W) | Gain (dB) | Ic (A) | Eff (%) | RL (dB) | VSWR-S (1.5:1) | VSWR-T (3:1) |
|----------------|------------|-------------|--------------|-----------|------------|------------|-------------------|-----------------|
| 1.2 | 1.46 | 25 | 12.34 | 1.26 | 70.7 | -16.5 | S | Р |
| 1.3 | 1.78 | 25 | 11.48 | 1.41 | 63.2 | -11.7 | S | Р |
| 1.4 | 1.83 | 25 | 11.36 | 1.42 | 62.8 | -8.2 | S | Р |

Gain vs. Frequency

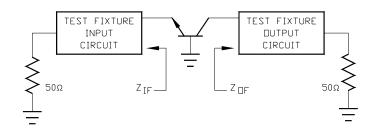


Collector Efficiency vs. Frequency



RF Test Fixture Impedance

| F (GHz) | Z _{IF} (Ω) | Z _{OF} (Ω) | | |
|---------|---------------------|---------------------|--|--|
| 1.2 | 2.1 - j4.5 | 3.7 + j0.9 | | |
| 1.3 | 2.1 - j3.9 | 3.6 + j0.4 | | |
| 1.4 | 2.2 - j3.4 | 3.0 + j0.2 | | |



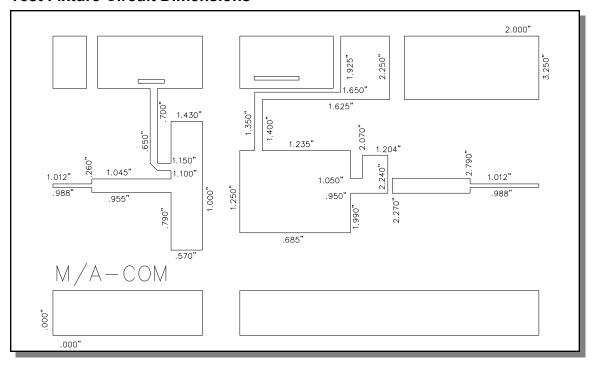
PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

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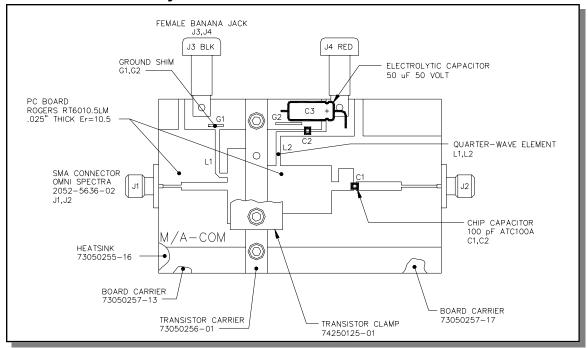


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Test Fixture Circuit Dimensions



Test Fixture Assembly



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