

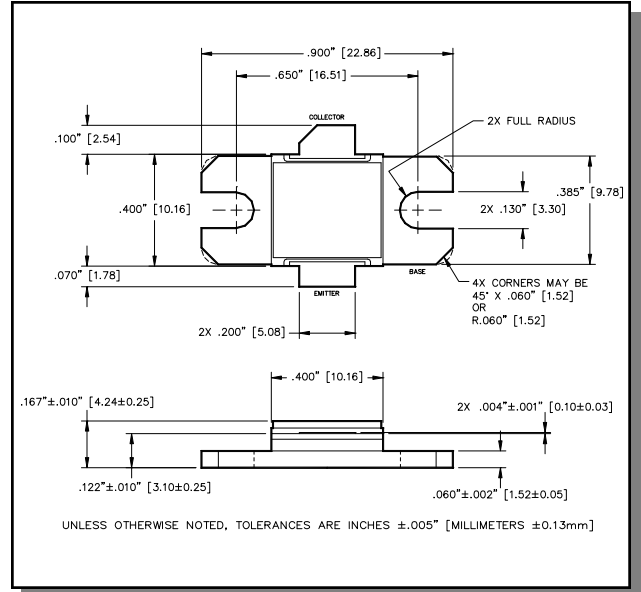
**Radar Pulsed Power Transistor**  
**90W, 3.1-3.5 GHz, 2μs Pulse, 10% Duty**

**M/A-COM Products**  
**Released, 10 Aug 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

## Outline Drawing



## Absolute Maximum Ratings at 25°C

| Parameter                 | Symbol    | Rating      | Units |
|---------------------------|-----------|-------------|-------|
| Collector-Emitter Voltage | $V_{CES}$ | 65          | V     |
| Emitter-Base Voltage      | $V_{EBO}$ | 3.0         | V     |
| Collector Current (Peak)  | $I_C$     | 10.7        | A     |
| Power Dissipation @ +25°C | $P_{TOT}$ | 580         | W     |
| Storage Temperature       | $T_{STG}$ | -65 to +200 | °C    |
| Junction Temperature      | $T_J$     | 200         | °C    |

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

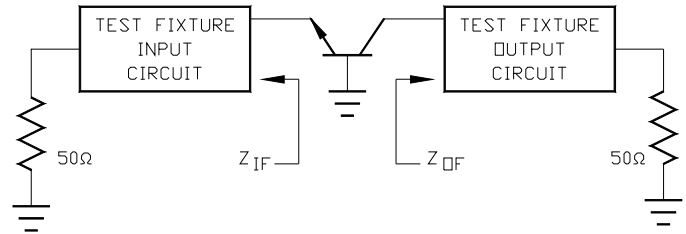
| Parameter                           | Test Conditions                                | Frequency                      | Symbol       | Min | Max | Units |
|-------------------------------------|------------------------------------------------|--------------------------------|--------------|-----|-----|-------|
| Collector-Emitter Breakdown Voltage | $I_C = 40\text{mA}$                            |                                | $BV_{CES}$   | 65  | -   | V     |
| Collector-Emitter Leakage Current   | $V_{CE} = 40\text{V}$                          |                                | $I_{CES}$    | -   | 7.5 | mA    |
| Thermal Resistance                  | $V_{CC} = 36\text{V}$ , $P_{out} = 90\text{W}$ | $F = 3.1, 3.3, 3.5\text{ GHz}$ | $R_{TH(JC)}$ | -   | 0.3 | °C/W  |
| Output Power                        | $V_{CC} = 36\text{V}$ , $P_{out} = 90\text{W}$ | $F = 3.1, 3.3, 3.5\text{ GHz}$ | $P_{IN}$     | -   | 16  | W     |
| Power Gain                          | $V_{CC} = 36\text{V}$ , $P_{out} = 90\text{W}$ | $F = 3.1, 3.3, 3.5\text{ GHz}$ | $G_P$        | 7.5 | -   | dB    |
| Collector Efficiency                | $V_{CC} = 36\text{V}$ , $P_{out} = 90\text{W}$ | $F = 3.1, 3.3, 3.5\text{ GHz}$ | $\eta_C$     | 35  | -   | %     |
| Input Return Loss                   | $V_{CC} = 36\text{V}$ , $P_{out} = 90\text{W}$ | $F = 3.1, 3.3, 3.5\text{ GHz}$ | RL           | -   | -6  | dB    |
| Load Mismatch Tolerance             | $V_{CC} = 36\text{V}$ , $P_{out} = 90\text{W}$ | $F = 3.1, 3.3, 3.5\text{ GHz}$ | VSWR-T       | -   | 2:1 | -     |

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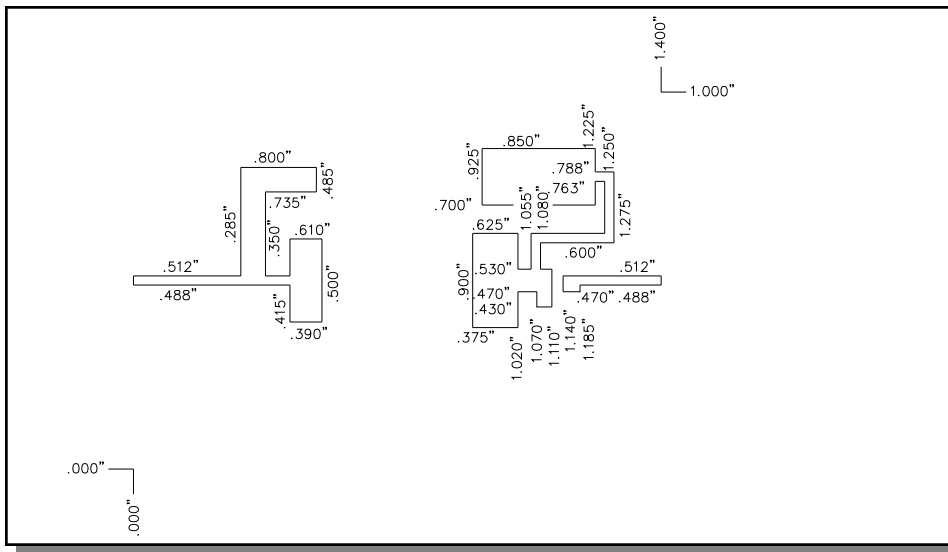
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### RF Test Fixture Impedance

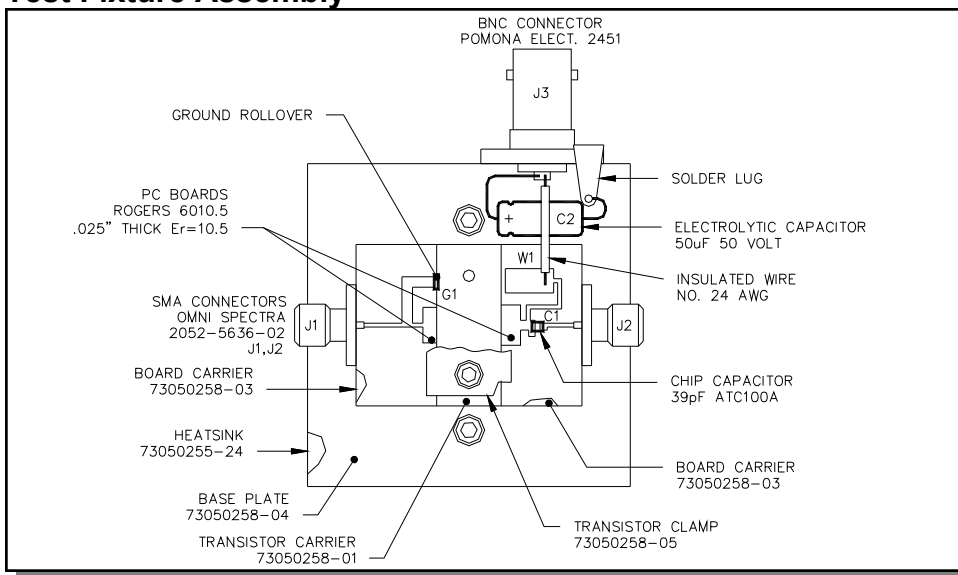
| F (GHz) | Z <sub>IF</sub> (Ω) | Z <sub>OF</sub> (Ω) |
|---------|---------------------|---------------------|
| 3.1     | 8.9 - j11.2         | 5.2 - j11.0         |
| 3.3     | 8.7 - j8.6          | 4.2 - j8.8          |
| 3.5     | 8.6 - j6.0          | 4.7 - j7.0          |



### Test Fixture Circuit Dimensions



### Test Fixture Assembly



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