

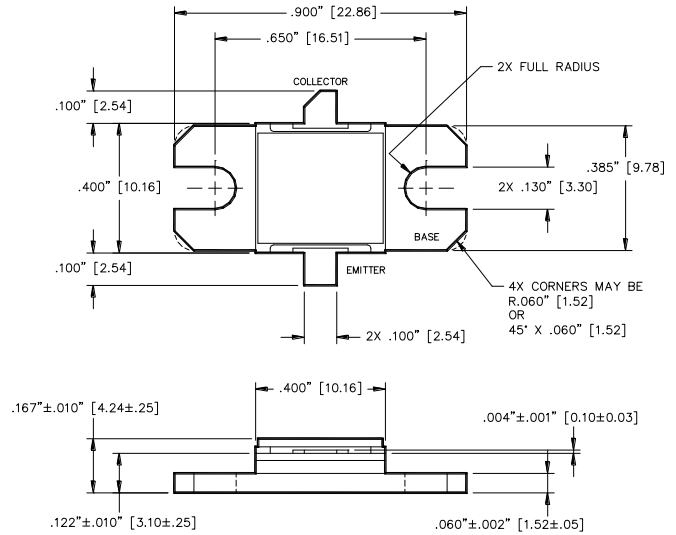
## Radar Pulsed Power Transistor 25W, 3.1-3.5 GHz, 2 $\mu$ s Pulse, 10% Duty

Rev. V1

### 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



UNLESS OTHERWISE NOTED, TOLERANCES ARE INCHES ±.005" [MILLIMETERS ±0.13MM]

### 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)  | $I_C$     | 3.0         | A     |
| Power Dissipation @ +25°C | $P_{TOT}$ | 195         | 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)

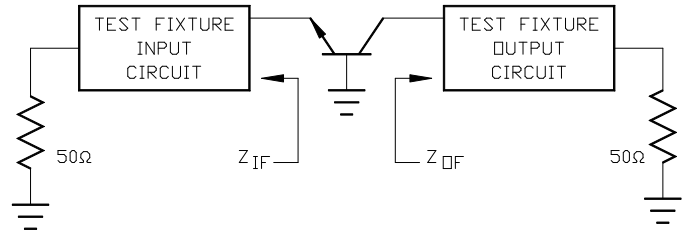
| Parameter                           | Test Conditions                                | Frequency                      | Symbol       | Min | Max | Units |
|-------------------------------------|--|--------------------------------|--------------|-----|-----|-------|
| Collector-Emitter Breakdown Voltage | $I_C = 10\text{mA}$                            |                                | $BV_{CES}$   | 65  | -   | V     |
| Collector-Emitter Leakage Current   | $V_{CE} = 40\text{V}$                          |                                | $I_{CES}$    | -   | 1.5 | mA    |
| Thermal Resistance                  | $V_{CC} = 36\text{V}$ , $P_{out} = 25\text{W}$ | $F = 3.1, 3.3, 3.5\text{ GHz}$ | $R_{TH(JC)}$ | -   | 0.9 | °C/W  |
| Output Power                        | $V_{CC} = 36\text{V}$ , $P_{out} = 25\text{W}$ | $F = 3.1, 3.3, 3.5\text{ GHz}$ | $P_{IN}$     | -   | 4.5 | W     |
| Power Gain                          | $V_{CC} = 36\text{V}$ , $P_{out} = 25\text{W}$ | $F = 3.1, 3.3, 3.5\text{ GHz}$ | $G_P$        | 7.5 | -   | dB    |
| Collector Efficiency                | $V_{CC} = 36\text{V}$ , $P_{out} = 25\text{W}$ | $F = 3.1, 3.3, 3.5\text{ GHz}$ | $\eta_C$     | 35  | -   | %     |
| Input Return Loss                   | $V_{CC} = 36\text{V}$ , $P_{out} = 25\text{W}$ | $F = 3.1, 3.3, 3.5\text{ GHz}$ | RL           | -   | -6  | dB    |
| Load Mismatch Tolerance             | $V_{CC} = 36\text{V}$ , $P_{out} = 25\text{W}$ | $F = 3.1, 3.3, 3.5\text{ GHz}$ | VSWR-T       | -   | 2:1 | -     |

## Radar Pulsed Power Transistor 25W, 3.1-3.5 GHz, 2μs Pulse, 10% Duty

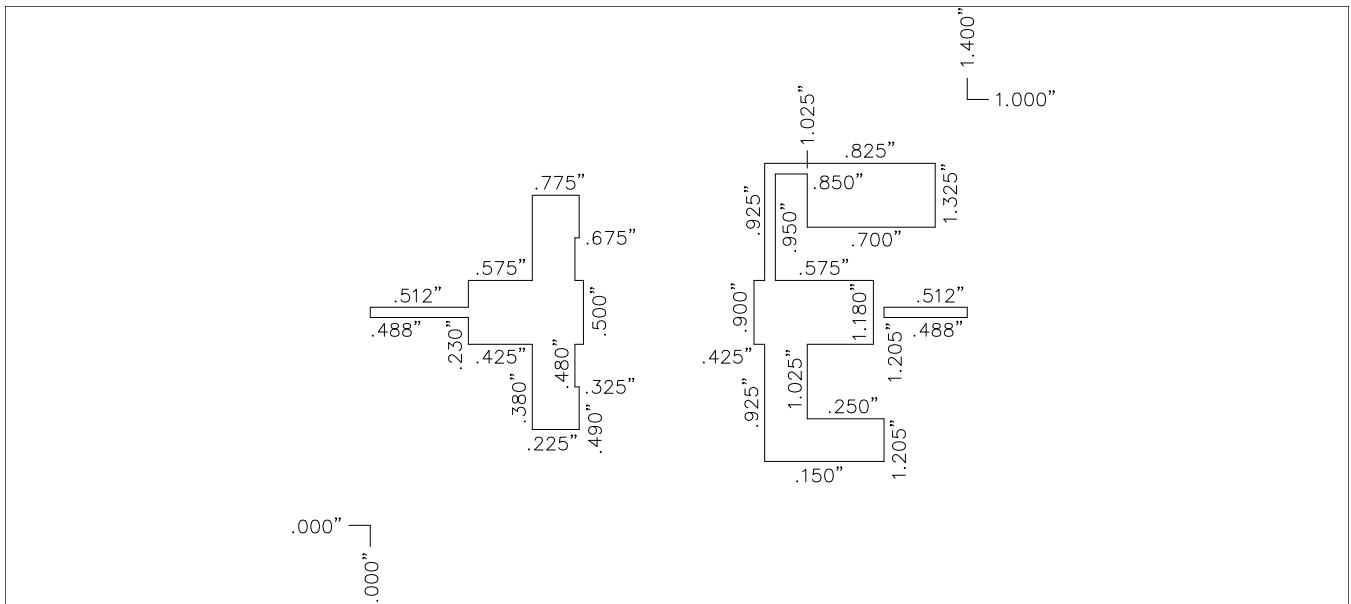
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### RF Test Fixture Impedance

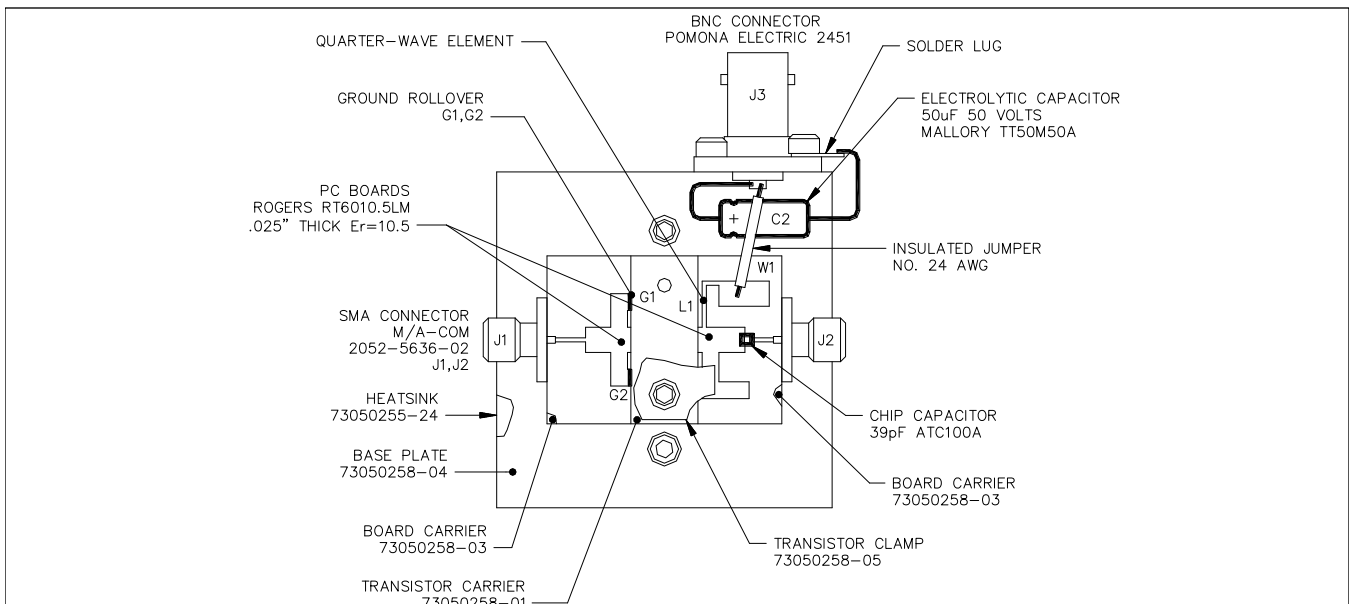
| F (GHz) | Z <sub>IF</sub> (Ω) | Z <sub>OF</sub> (Ω) |
|---------|---------------------|---------------------|
| 3.1     | 16.0 + j5.5         | 19.0 + j3.4         |
| 3.3     | 14.5 + j1.6         | 14.2 - j2.8         |
| 3.5     | 11.3 + j0.0         | 10.7 - j3.3         |



### Test Fixture Circuit Dimensions



### Test Fixture Assembly



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