

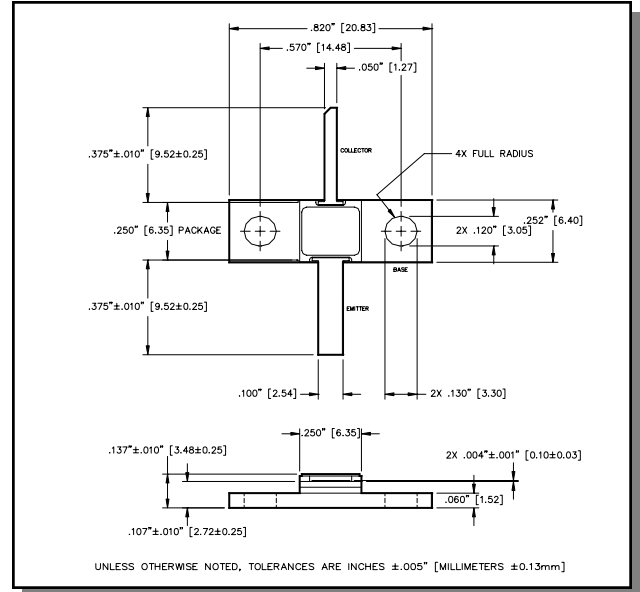
**Radar Pulsed Power Transistor**  
**30W, 1.2-1.4 GHz, 1ms Pulse, 10% Duty**

**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

## Outline Drawing



## Absolute Maximum Ratings at 25°C

| Parameter                 | Symbol    | Rating      | Units |
|---------------------------|-----------|-------------|-------|
| Collector-Emitter Voltage | $V_{CES}$ | 56          | V     |
| Emitter-Base Voltage      | $V_{EBO}$ | 3.0         | V     |
| Collector Current (Peak)  | $I_C$     | 3.0         | A     |
| Power Dissipation @ +25°C | $P_{TOT}$ | 115         | 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 | $I_C = 60\text{mA}$                            |                       | $BV_{CES}$   | 56  | -     | V     |
| Collector-Emitter Leakage Current   | $V_{CE} = 28\text{V}$                          |                       | $I_{CES}$    | -   | 3.0   | mA    |
| Thermal Resistance                  | $V_{CC} = 28\text{V}$ , $P_{out} = 30\text{W}$ | F = 1.2, 1.3, 1.4 GHz | $R_{TH(JC)}$ | -   | 1.5   | °C/W  |
| Output Power                        | $V_{CC} = 28\text{V}$ , $P_{out} = 30\text{W}$ | F = 1.2, 1.3, 1.4 GHz | $P_{IN}$     | -   | 4.9   | W     |
| Power Gain                          | $V_{CC} = 28\text{V}$ , $P_{out} = 30\text{W}$ | F = 1.2, 1.3, 1.4 GHz | $G_P$        | 7.8 | -     | dB    |
| Collector Efficiency                | $V_{CC} = 28\text{V}$ , $P_{out} = 30\text{W}$ | F = 1.2, 1.3, 1.4 GHz | $\eta_C$     | 50  | -     | %     |
| Input Return Loss                   | $V_{CC} = 28\text{V}$ , $P_{out} = 30\text{W}$ | F = 1.2, 1.3, 1.4 GHz | RL           | -   | -10   | dB    |
| Load Mismatch Tolerance             | $V_{CC} = 28\text{V}$ , $P_{out} = 30\text{W}$ | F = 1.2, 1.3, 1.4 GHz | VSWR-T       | -   | 3:1   | -     |
| Load Mismatch Stability             | $V_{CC} = 28\text{V}$ , $P_{out} = 30\text{W}$ | F = 1.2, 1.3, 1.4 GHz | VSWR-S       | -   | 1.5:1 | -     |

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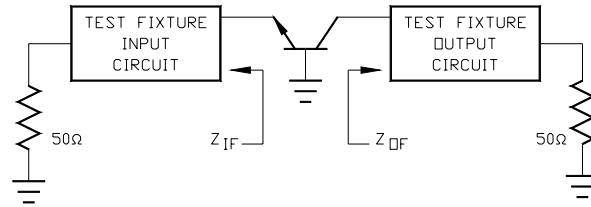
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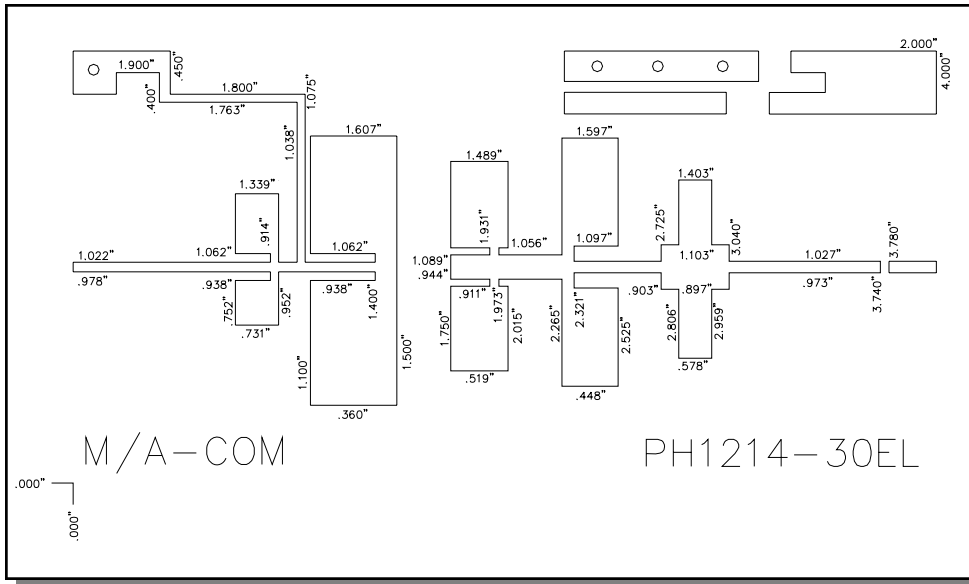
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## RF Test Fixture Impedance

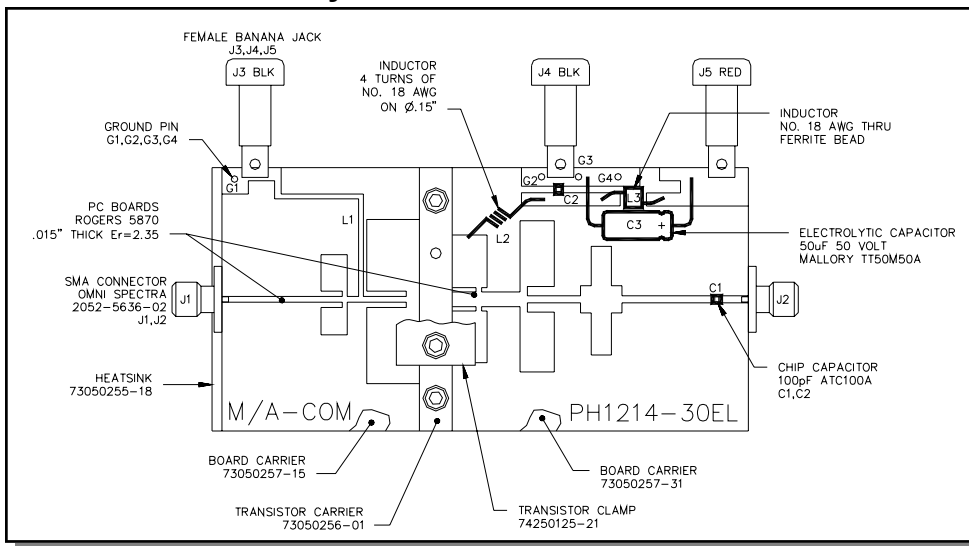
| F (GHz) | Z <sub>IF</sub> (Ω) | Z <sub>OF</sub> (Ω) |
|---------|---------------------|---------------------|
| 1.2     | 2.5 - j3.5          | 10.5 + j2.0         |
| 1.3     | 2.7 - j2.7          | 6.3 + j2.0          |
| 1.4     | 3.5 - j3.5          | 5.3 + j1.5          |



## Test Fixture Circuit Dimensions



## Test Fixture Assembly



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