

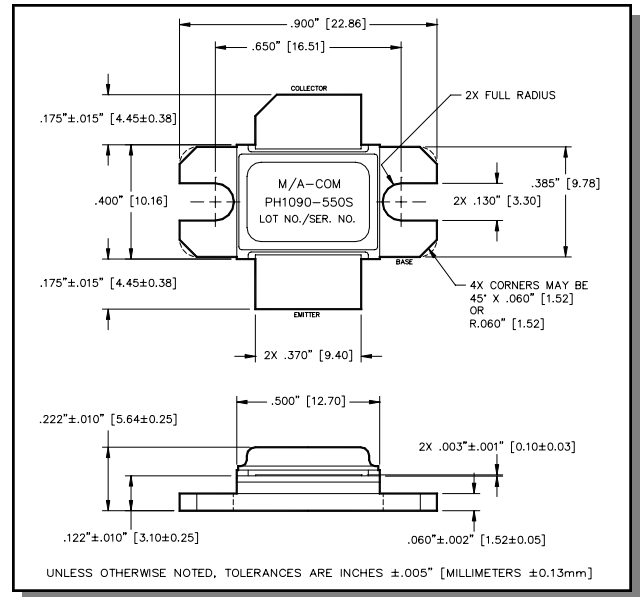
## Avionics Pulsed Power Transistor 550W, 1090 MHz, 10μs Pulse, 1% Duty

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 | $V_{CES}$ | 80          | V     |
| Emitter-Base Voltage      | $V_{EBO}$ | 3.0         | V     |
| Collector Current (Peak)  | $I_C$     | 28          | A     |
| Power Dissipation @ +25°C | $P_{TOT}$ | 3.5         | kW    |
| 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 | $I_C = 250\text{mA}$                            |                       | $BV_{CES}$   | 80  | -     | V     |
| Collector-Emitter Leakage Current   | $V_{CE} = 50\text{V}$                           |                       | $I_{CES}$    | -   | 25    | mA    |
| Thermal Resistance                  | $V_{CC} = 50\text{V}$ , $P_{out} = 550\text{W}$ | $F = 1090\text{ MHz}$ | $R_{TH(JC)}$ | -   | 0.05  | °C/W  |
| Input Power                         | $V_{CC} = 50\text{V}$ , $P_{out} = 550\text{W}$ | $F = 1090\text{ MHz}$ | $P_{IN}$     | -   | 100   | W     |
| Power Gain                          | $V_{CC} = 50\text{V}$ , $P_{out} = 550\text{W}$ | $F = 1090\text{ MHz}$ | $G_P$        | 7.4 | -     | dB    |
| Collector Efficiency                | $V_{CC} = 50\text{V}$ , $P_{out} = 550\text{W}$ | $F = 1090\text{ MHz}$ | $\eta_C$     | 50  | -     | %     |
| Input Return Loss                   | $V_{CC} = 50\text{V}$ , $P_{out} = 550\text{W}$ | $F = 1090\text{ MHz}$ | RL           | -   | -9    | dB    |
| Load Mismatch Tolerance             | $V_{CC} = 50\text{V}$ , $P_{out} = 550\text{W}$ | $F = 1090\text{ MHz}$ | VSWR-T       | -   | 10:1  | -     |
| Load Mismatch Stability             | $V_{CC} = 50\text{V}$ , $P_{out} = 550\text{W}$ | $F = 1090\text{ MHz}$ | VSWR-S       | -   | 1.5:1 | -     |

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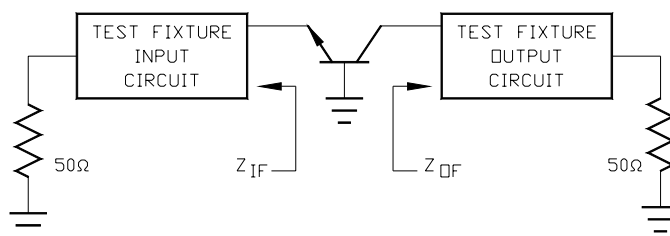
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## Typical RF Performance

| Freq. (MHz) | Pin (W) | Pout (W) | Gain (dB) | Ic (A) | Eff (%) | RL (dB) | VSWR-S (1.5:1) | VSWR-T (10:1) |
|-------------|---------|----------|-----------|--------|---------|---------|----------------|---------------|
| 1090        | 86      | 550      | 8.06      | 19.6   | 56.1    | -27.7   | S              | P             |

## RF Test Fixture Impedance

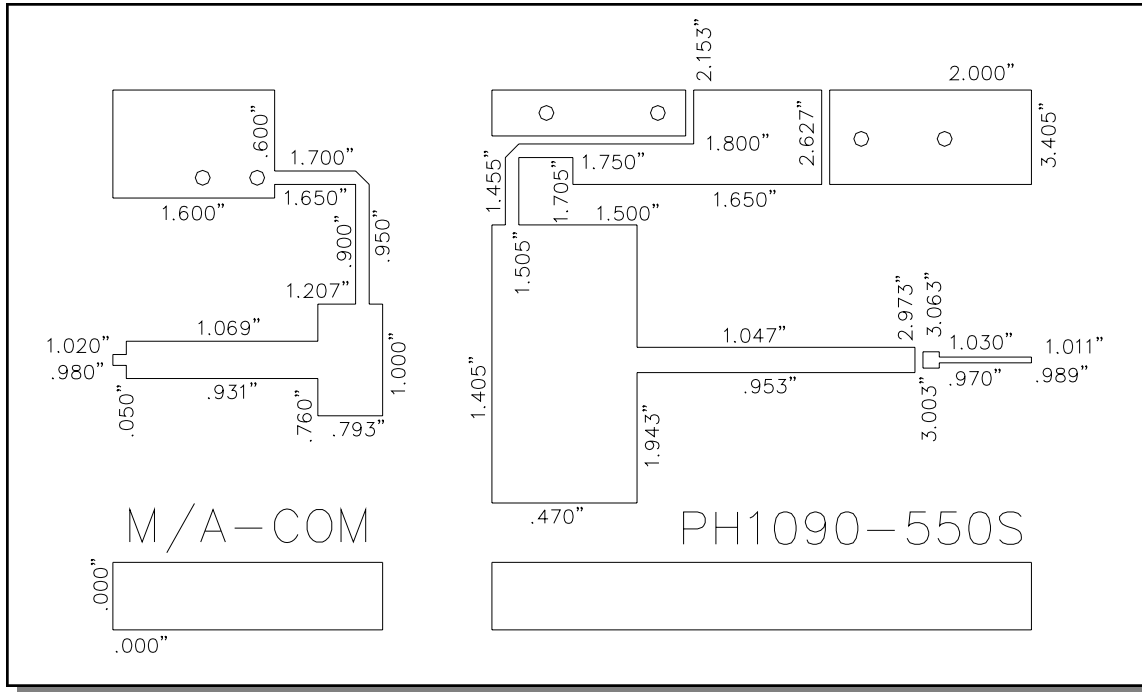
| F (MHz) | Z <sub>IF</sub> (Ω) | Z <sub>OF</sub> (Ω) |
|---------|---------------------|---------------------|
| 1030    | 4.0 - j3.5          | 1.0 - j0.9          |
| 1090    | 3.6 - j2.7          | 1.1 - j1.9          |



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## Test Fixture Circuit Dimensions



## Test Fixture Assembly

