



# Radar Pulsed Power Transistor, 110 Watts, 2.25-2.55 GHz, 100 $\mu$ S Pulse, 10% Duty

8/21/02

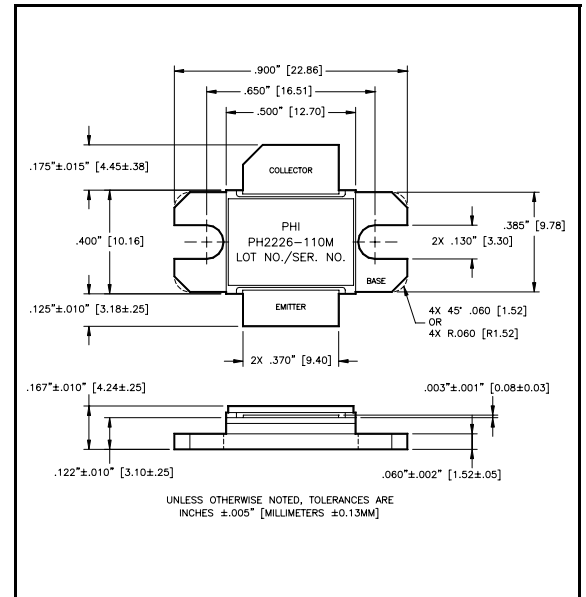
Rev. 3

PH2226-110M

## Features

- NPN Silicon Microwave Power Transistor
- Common Base Configuration
- Broadband Class C Operation
- Diffused Emitter Ballasting Resistors
- Gold Metalization System
- Internal Input and Output Impedance Matching
- Hermetic Metal/Ceramic Package

## Outline Drawing



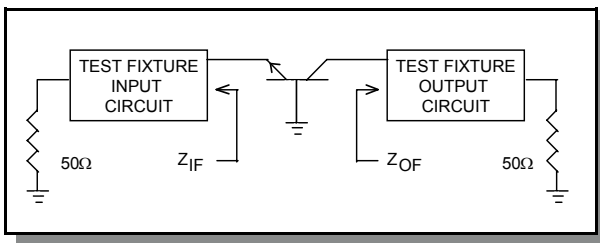
## Absolute Maximum Ratings at 25 $^{\circ}$ C

| Parameter                                  | Symbol    | Rating      | Units        |
|--|-----------|-------------|--------------|
| Collector-Emitter Voltage                  | $V_{CES}$ | 63          | V            |
| Emitter-Base Voltage                       | $V_{EBO}$ | 3.0         | V            |
| Collector Current (Peak)                   | $I_C$     | 15          | A            |
| Total Power Dissipation @ +45 $^{\circ}$ C | $P_{TOT}$ | 583         | W            |
| Storage Temperature                        | $T_{STG}$ | -65 to +200 | $^{\circ}$ C |
| Junction Temperature                       | $T_J$     | 200         | $^{\circ}$ C |

## Electrical Characteristics at 25 $^{\circ}$ C

| Parameter                           | Symbol       | Min. | Max.  | Units          | Test Conditions   |
|-------------------------------------|--------------|------|-------|----------------|---|
| Collector-Emitter Breakdown Voltage | $BV_{CES}$   | 63   | -     | V              | $I_C=40$ mA   |
| Collector-Emitter Leakage Current   | $I_{CES}$    | -    | 7.5   | mA             | $V_{CE}=36$ V   |
| Thermal Resistance                  | $R_{TH(JC)}$ | -    | 0.3   | $^{\circ}$ C/W | $V_{CC}=36$ V, $P_{IN} = 20$ W, Freq= 2.25 and 2.55 GHz |
| Output Power                        | $P_O$        | 110  | -     | W              | $V_{CC}=36$ V, $P_{IN} = 20$ W, Freq= 2.25 and 2.55 GHz |
| Power Gain                          | $G_P$        | 7.4  | -     | dB             | $V_{CC}=36$ V, $P_{IN} = 20$ W, Freq= 2.25 and 2.55 GHz |
| Collector Efficiency                | $\eta$       | 40   | -     | %              | $V_{CC}=36$ V, $P_{IN} = 20$ W, Freq= 2.25 and 2.55 GHz |
| Input Return Loss                   | RL           | 9    | -     | dB             | $V_{CC}=36$ V, $P_{IN} = 20$ W, Freq= 2.25 and 2.55 GHz |
| Load Mismatch Tolerance             | VSWR-T       | -    | 3:1   | -              | $V_{CC}=36$ V, $P_{IN} = 20$ W, Freq= 2.25 and 2.55 GHz |
| Load Mismatch Stability             | VSWR-S       | -    | 1.5:1 | -              | $V_{CC}=36$ V, $P_{IN} = 20$ W, Freq= 2.25 and 2.55 GHz |

### Broadband Test Fixture Impedances



| F (GHz) | Z <sub>IF</sub> (Ω) | Z <sub>OF</sub> (Ω) |
|---------|---------------------|---------------------|
| 2.25    | 2.8 -j3.4           | 4.1 -j2.9           |
| 2.40    | 2.9 -j3.0           | 3.8 -j2.9           |
| 2.55    | 3.1 -j2.6           | 3.3 -j2.7           |

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