



Linear Power Transistor, 40W 850 - 1450 MHz

PH0814-40

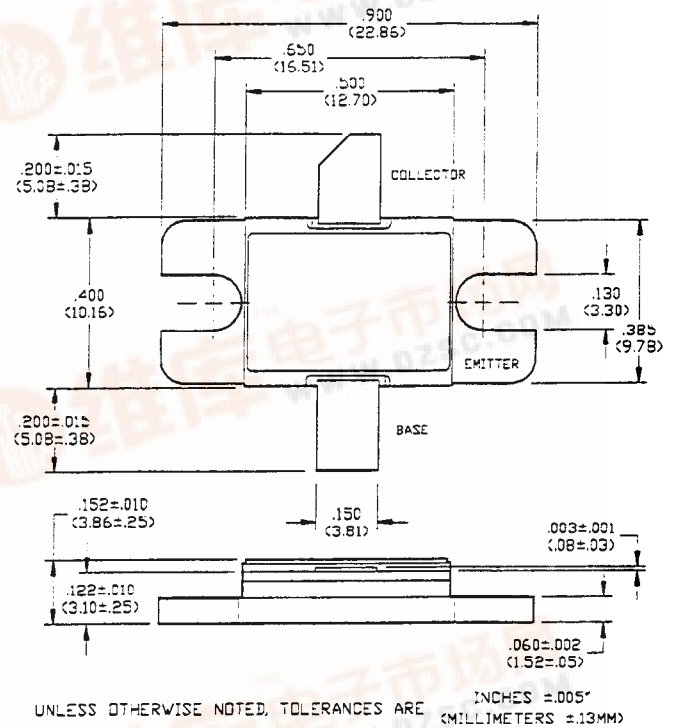
V2.00

Features

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

Absolute Maximum Ratings at 25°C

| Parameter | Symbol | Rating | Units |
|---------------------------|---------------|-------------|-------|
| Collector-Base Voltage | V_{CBO} | 56 | V |
| Collector-Emitter Voltage | V_{CES} | 56 | V |
| Emitter-Base Voltage | V_{EBO} | 3.0 | V |
| Collector Current (Peak) | I_C | 5.6 | A |
| Total Power Dissipation | P_{TOT} | 175 | W |
| Junction Temperature | T_J | 200 | °C |
| Storage Temperature | T_{STG} | -55 to +200 | °C |
| Thermal Resistance | θ_{JC} | 1.0 | °C/W |

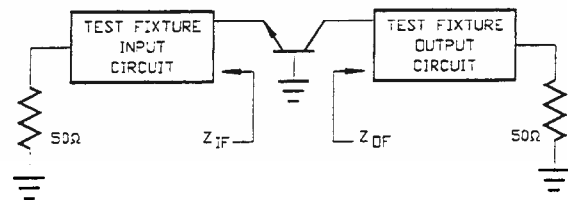


Electrical Characteristics at 25°C

| Parameter | Symbol | Min | Max | Units | Test Conditions |
|-------------------------------------|------------|-----|-------|-------|---|
| Collector-Emitter Breakdown Voltage | BV_{CES} | 56 | - | V | $I_C=50\text{ mA}$ |
| Collector-Emitter Leakage Current | I_{CES} | - | 5.0 | mA | $V_{CE}=28\text{ V}$ |
| Collector-Base Breakdown Voltage | BV_{CBO} | 56 | - | V | $I_C=50\text{ mA}$ |
| Emitter-Base Breakdown Voltage | BV_{EBO} | 3.0 | - | V | $I_B=10\text{ mA}$ |
| DC Forward Current Gain | h_{FE} | 15 | 100 | - | $V_{CE}=5.0\text{ V}, I_C=0.5\text{ A}$ |
| Input Power | P_{IN} | 5.5 | 8.8 | W | $V_{CC}=28\text{ V}, I_{CO}=12\text{ mA}, P_{OUT}=42\text{ W}, F=1450\text{ MHz}$ |
| Collector Current | I_C | - | 3.75 | A | $V_{CC}=28\text{ V}, I_{CO}=12\text{ mA}, P_{OUT}=42\text{ W}, F=1450\text{ MHz}$ |
| Input Return Loss | RL | 10 | - | dB | $V_{CC}=28\text{ V}, I_{CO}=12\text{ mA}, P_{OUT}=42\text{ W}, F=1450\text{ MHz}$ |
| Saturated Output Power | P_{SAT} | 50 | - | W | $V_{CC}=28\text{ V}, I_{CO}=12\text{ mA}, F=1450\text{ MHz}$ |
| Load Mismatch Tolerance | VSWR-T | - | 3:1 | - | $V_{CC}=28\text{ V}, I_{CO}=12\text{ mA}, P_{OUT}=42\text{ W}, F=1450\text{ MHz}$ |
| Load Mismatch Tolerance | VSWR-T | - | 1.5:1 | - | $V_{CC}=28\text{ V}, I_{CO}=12\text{ mA}, P_{OUT}=42\text{ W}, F=850\text{ MHz}$ |

Typical Optimum Device Impedances

| F(MHz) | $Z_{in}(\Omega)$ | $Z_{out}(\Omega)$ |
|--------|------------------|-------------------|
| 850 | 2.0 - j3.6 | 3.0 - j4.9 |
| 950 | 2.4 - j2.5 | 2.3 - j3.1 |
| 1050 | 3.1 - j1.8 | 2.0 - j2.0 |
| 1150 | 3.5 - j1.9 | 1.8 - j1.4 |
| 1250 | 3.3 - j2.4 | 1.7 - j0.9 |
| 1350 | 2.5 - j2.4 | 1.4 - j0.5 |
| 1450 | 1.7 - j1.8 | 1.2 - j0.1 |



Specifications Subject to Change Without Notice.

M/A-COM, Inc.