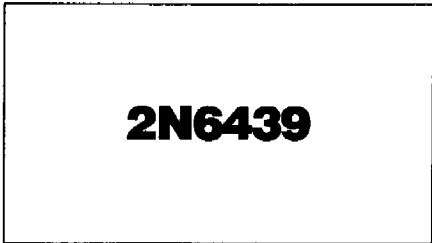


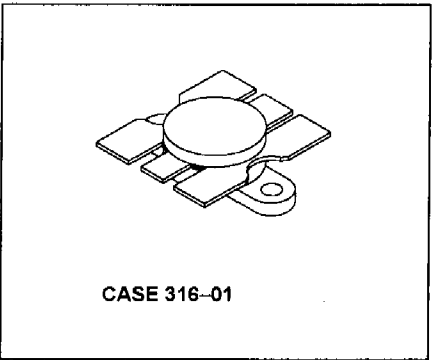
The RF Line
NPN Silicon
RF Power Transistor

... designed primarily for wideband large-signal output amplifier stages in the 225 to 400 MHz frequency range.

- Guaranteed Performance in 225 to 400 MHz Broadband Amplifier @ 28 Vdc
Output Power = 60 Watts over 225 to 400 MHz Band
Minimum Gain = 7.8 dB @ 400 MHz
- Built-In Matching Network for Broadband Operation Using Double Match Technique
- 100% Tested for Load Mismatch at all Phase Angles with 30:1 VSWR
- Gold Metallization System for High Reliability Applications



60 W, 225 to 400 MHz
CONTROLLED "Q"
BROADBAND RF POWER
TRANSISTOR
NPN SILICON



MAXIMUM RATINGS*

| Rating | Symbol | Value | Unit |
|---|------------------|-------------|---------------|
| Collector-Emitter Voltage | V _{CEO} | 33 | Vdc |
| Collector-Base Voltage | V _{CBO} | 60 | Vdc |
| Emitter-Base Voltage | V _{EBO} | 4.0 | Vdc |
| Total Device Dissipation @ T _C = 25°C (1) Derate above 25°C | P _D | 146 0.83 | Watts W/°C |
| Storage Temperature Range | T _{stg} | -65 to +200 | °C |

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|--------------------------------------|------------------|-----|------|
| Thermal Resistance, Junction to Case | R _{θJC} | 1.2 | °C/W |

ELECTRICAL CHARACTERISTICS* (T_C = 25°C unless otherwise noted.)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|----------------|--------|-----|-----|-----|------|
|----------------|--------|-----|-----|-----|------|

OFF CHARACTERISTICS

| | | | | | |
|---|----------------------|-----|---|-----|------------------|
| Collector-Emitter Breakdown Voltage (I _C = 50 mA _{dc} , I _B = 0) | V _{(BR)CEO} | 33 | — | — | Vdc |
| Collector-Emitter Breakdown Voltage (I _C = 50 mA _{dc} , V _{BE} = 0) | V _{(BR)CES} | 60 | — | — | Vdc |
| Emitter-Base Breakdown Voltage (I _E = 5.0 mA _{dc} , I _C = 0) | V _{(BR)EBO} | 4.0 | — | — | Vdc |
| Collector Cutoff Current (V _{CB} = 30 Vdc, I _E = 0) | I _{CBO} | — | — | 2.0 | mA _{dc} |

NOTE:

1. These devices are designed for RF operation. The total device dissipation rating applies only when the devices are operated as RF amplifiers.

* Indicates JEDEC Registered Data.

(continued)

ELECTRICAL CHARACTERISTICS* — continued ($T_C = 25^\circ\text{C}$ unless otherwise noted.)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|----------------|--------|-----|-----|-----|------|
|----------------|--------|-----|-----|-----|------|

ON CHARACTERISTICS

| | | | | | |
|---|----------|----|---|-----|---|
| DC Current Gain ($I_C = 1.0 \text{ Adc}$, $V_{CE} = 5.0 \text{ Vdc}$) | h_{FE} | 10 | — | 100 | — |
|---|----------|----|---|-----|---|

DYNAMIC CHARACTERISTICS

| | | | | | |
|---|----------|---|----|----|----|
| Output Capacitance ($V_{CB} = 28 \text{ Vdc}$, $I_E = 0$, $f = 1.0 \text{ MHz}$) | C_{ob} | — | 67 | 75 | pF |
|---|----------|---|----|----|----|

BROADBAND FUNCTIONAL TESTS (Figure 6)

| | | | | | |
|---|----------|--------------------------------|-----|---|----|
| Common-Emitter Amplifier Power Gain ($V_{CC} = 28 \text{ Vdc}$, $P_{out} = 60 \text{ W}$, $f = 225\text{--}400 \text{ MHz}$) | G_{PE} | 7.8 | 8.5 | — | dB |
| Electrical Ruggedness ($P_{out} = 60 \text{ W}$, $V_{CC} = 28 \text{ Vdc}$, $f = 400 \text{ MHz}$, VSWR 30:1 all phase angles) | ψ | No Degradation in Output Power | | | — |

NARROW BAND FUNCTIONAL TESTS (Figure 1)

| | | | | | |
|---|----------|-----|----|---|----|
| Common-Emitter Amplifier Power Gain ($V_{CC} = 28 \text{ Vdc}$, $P_{out} = 60 \text{ W}$, $f = 400 \text{ MHz}$) | G_{PE} | 7.8 | 10 | — | dB |
| Collector Efficiency ($V_{CC} = 28 \text{ Vdc}$, $P_{out} = 60 \text{ W}$, $f = 400 \text{ MHz}$) | η | 55 | — | — | % |

* Indicates JEDEC Registered Data.

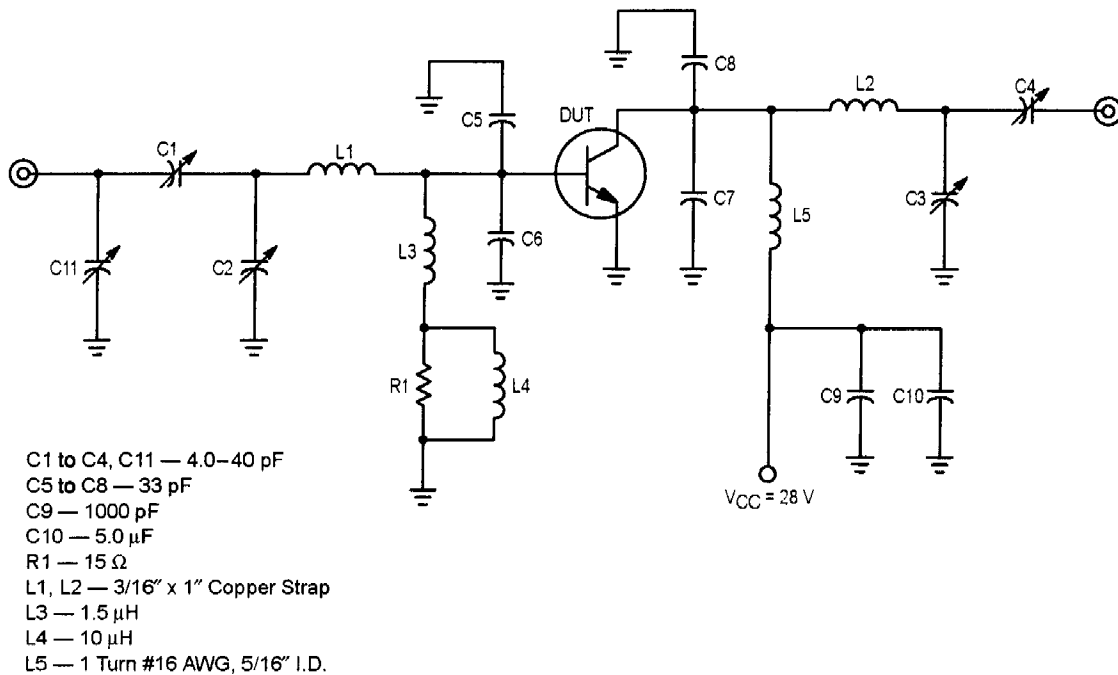


Figure 1. 400 MHz Test Amplifier (Narrow Band)