

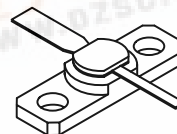
The RF Line Microwave Power Oscillator Transistor

... designed for use as power oscillators at frequencies to 3.0 GHz with typical output power of over 1.0 watt.

- Operation to 3.0 GHz
- High Output Power (1.2 W Typ @ 2.5 GHz)
- Rugged — Capable of Withstanding High Load VSWR
- High Reliability
- Hermetic Package
- Gold Metallization
- Diffused Emitter Ballast Resistors
- Common Collector Configuration
- Formerly named TRW62601
- Circuit board photomaster available upon request by contacting RF Tactical Marketing in Phoenix, AZ.

TP62601

**MICROWAVE
POWER
OSCILLATOR
TRANSISTOR**



**CASE 328A-03, STYLE 3
(GP-13)**

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--------------------------------|-----------|-------------|------|
| Collector-Emitter Voltage | V_{CEO} | 22 | Vdc |
| Collector-Base Voltage | V_{CBO} | 45 | Vdc |
| Emitter-Base Voltage | V_{EBO} | 3.5 | Vdc |
| Collector Current — Continuous | I_C | 0.5 | Adc |
| Operating Junction Temperature | T_J | 200 | °C |
| Storage Temperature Range | T_{stg} | -65 to +200 | °C |

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|--------------------------------------|-----------------|-----|------|
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 15 | °C/W |

ELECTRICAL CHARACTERISTICS

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

OFF CHARACTERISTICS

| | | | | | |
|---|---------------|-----|---|-------|------|
| Collector-Emitter Breakdown Voltage ($I_C = 20$ mA, $I_B = 0$) | $V_{(BR)CEO}$ | 22 | — | — | Vdc |
| Collector-Base Breakdown Voltage ($I_C = 1.0$ mA, $I_E = 0$) | $V_{(BR)CBO}$ | 45 | — | — | Vdc |
| Emitter-Base Breakdown Voltage ($I_E = 0.25$ mA, $I_C = 0$) | $V_{(BR)EBO}$ | 3.5 | — | — | Vdc |
| Collector-Emitter Breakdown Voltage ($I_C = 20$ mA, $R_{BE} = 10$ Ω) | $V_{(BR)CER}$ | 50 | — | — | Vdc |
| Collector Cutoff Current ($V_{CB} = 28$ V, $I_E = 0$) | I_{CBO} | — | — | 0.125 | mAdc |

ON CHARACTERISTICS

| | | | | | |
|---|----------|----|---|-----|---|
| DC Current Gain ($I_C = 100$ mA, $V_{CE} = 5.0$ V) | h_{FE} | 20 | — | 120 | — |
|---|----------|----|---|-----|---|

(continued)

ELECTRICAL CHARACTERISTICS — continued

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

DYNAMIC CHARACTERISTICS

| | | | | | |
|---|----------|---|---|-----|----|
| Output Capacitance ($V_{CE} = 28\text{ V}$, $I_E = 0$, $f = 1.0\text{ MHz}$) | C_{ob} | — | — | 5.0 | pF |
|---|----------|---|---|-----|----|

FUNCTIONAL TESTS

| | | | | | |
|--|-----------|--------------------------------|-----|---|-----|
| Oscillator Output Power ($V_{CE} = 20\text{ V}$, $f = 2.0\text{ GHz}$, $I_E = 220\text{ mA}$) | P_{out} | 1.25 | — | — | W |
| Load Mismatch ($V_{CE} = 20\text{ V}$, $I_E = 220\text{ mA}$, $P_{out} = 1.25\text{ W}$, $f = 2.0\text{ GHz}$, Load VSWR = $\infty:1$, All Phase Angles) | ψ | No Degradation in Output Power | | | |
| Cutoff Frequency ($V_{CE} = 20\text{ V}$, $I_E = 220\text{ mA}$) | f_t | — | 2.7 | — | GHz |

TYPICAL CHARACTERISTICS

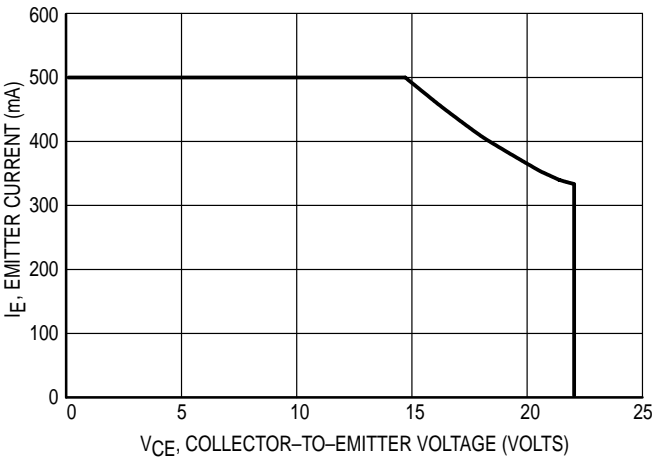


Figure 1. DC Safe Operating Area

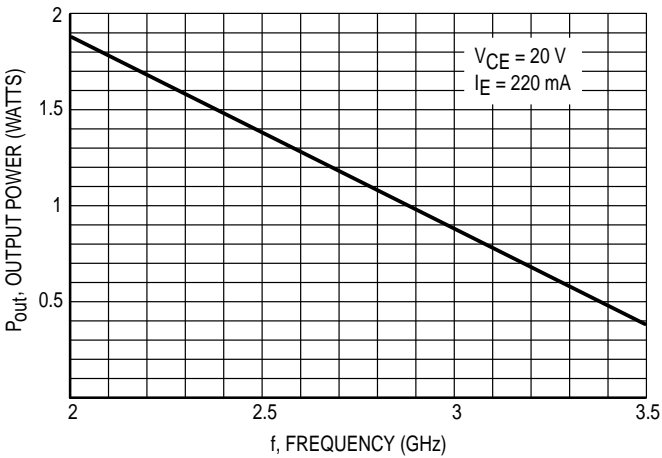


Figure 2. Output Power versus Frequency

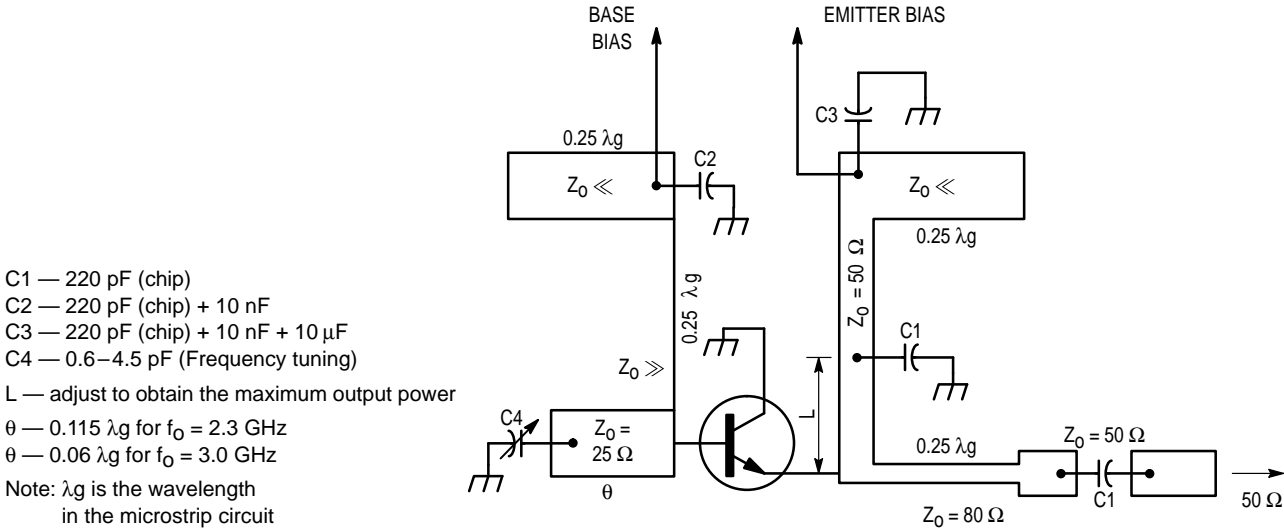


Figure 3. Test Circuit

TYPICAL CHARACTERISTICS

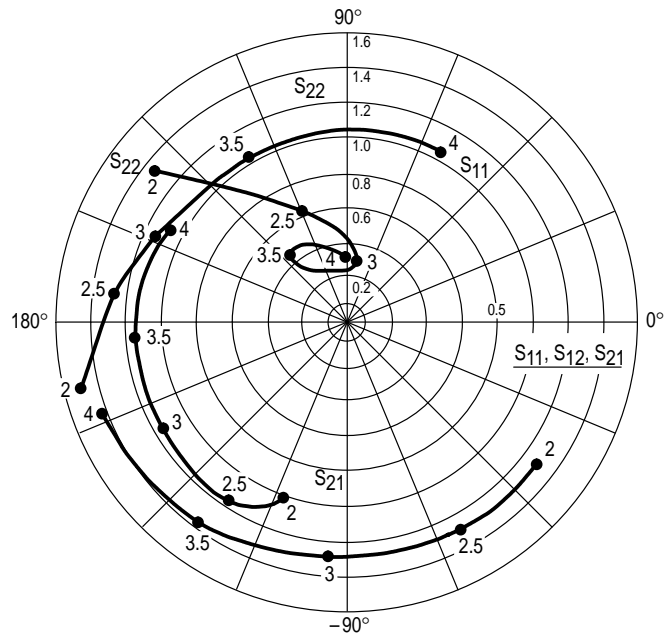
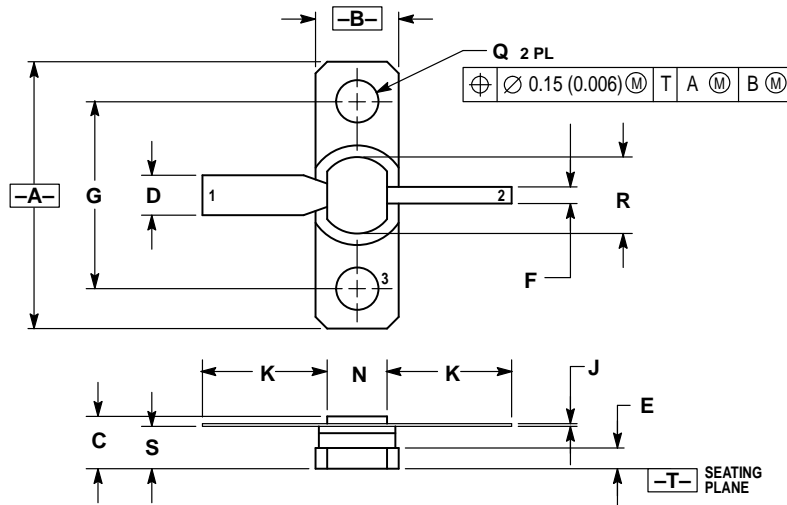


Figure 4. Small Signal S-Parameters
($V_{CE} = 20\text{ V}$, $I_E = 220\text{ mA}$)

PACKAGE DIMENSIONS




- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.

| DIM | INCHES | | MILLIMETERS | |
|-----|-----------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.795 | 0.805 | 20.20 | 20.45 |
| B | 0.245 | 0.255 | 6.23 | 6.47 |
| C | 0.145 | 0.170 | 3.69 | 4.31 |
| D | 0.115 | 0.125 | 2.93 | 3.17 |
| E | 0.055 | 0.065 | 1.40 | 1.65 |
| F | 0.045 | 0.055 | 1.15 | 1.39 |
| G | 0.562 BSC | | 14.27 BSC | |
| J | 0.003 | 0.006 | 0.08 | 0.15 |
| K | 0.260 | 0.375 | 6.60 | 9.52 |
| N | 0.175 | 0.185 | 4.45 | 4.69 |
| Q | 0.120 | 0.135 | 3.05 | 3.42 |
| R | 0.225 | 0.235 | 5.72 | 5.97 |
| S | 0.120 | 0.130 | 3.05 | 3.30 |

STYLE 3:
PIN 1: BASE
2: EMITTER
3: COLLECTOR

CASE 328A-03 ISSUE D

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