

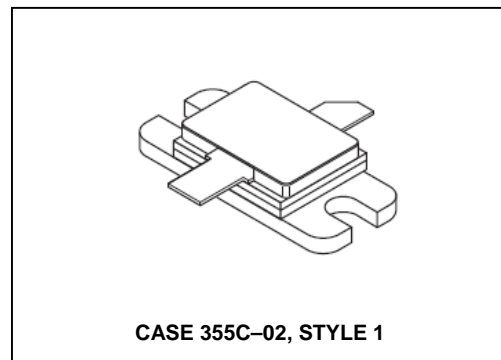
Microwave Long Pulse Power Silicon NPN Transistor 120W (peak), 960–1215MHz

M/A-COM Products
Released - Rev. 07.07

Product Image

Designed for 960–1215 MHz long pulse common base amplifier applications such as JTIDS and Mode S transmitters.

- Guaranteed performance @ 1.215 GHz, 36 Vdc
Output power = 120 W Peak
Gain = 7.6 dB min., 8.5 dB (typ.)
- 100% tested for load mismatch at all phase angles with 3:1 VSWR
- Hermetically sealed industry standard package
- Silicon nitride passivated
- Gold metalized, emitter ballasted for long life and resistance to metal migration
- Internal input and output matching for broadband operation



MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|---|-----------|-------------|------------------------------------|
| Collector–Emitter Voltage | V_{CES} | 55 | Vdc |
| Collector–Base Voltage | V_{CBO} | 55 | Vdc |
| Emitter–Base Voltage | V_{EBO} | 3.5 | Vdc |
| Collector Current — Peak (1) | I_C | 15 | Adc |
| Total Device Dissipation @ $T_C = 25^\circ\text{C}$ (1), (2) Derate above 25°C | P_D | 380 2.17 | Watts $\text{W}/^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | –65 to +200 | $^\circ\text{C}$ |
| Junction Temperature | T_J | 200 | |

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|--|-----------------|------|---------------------------|
| Thermal Resistance, Junction to Case (3) | $R_{\theta JC}$ | 0.46 | $^\circ\text{C}/\text{W}$ |

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

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

OFF CHARACTERISTICS

| | | | | | |
|--|---------------|-----|---|----|------|
| Collector–Emitter Breakdown Voltage ($I_C = 60 \text{ mAdc}$, $V_{BE} = 0$) | $V_{(BR)CES}$ | 55 | — | — | Vdc |
| Collector–Base Breakdown Voltage ($I_C = 60 \text{ mAdc}$, $I_E = 0$) | $V_{(BR)CBO}$ | 55 | — | — | Vdc |
| Emitter–Base Breakdown Voltage ($I_E = 10 \text{ mAdc}$, $I_C = 0$) | $V_{(BR)EBO}$ | 3.5 | — | — | Vdc |
| Collector Cutoff Current ($V_{CB} = 36 \text{ Vdc}$, $I_E = 0$) | I_{CBO} | — | — | 25 | mAdc |

NOTES:

1. Under pulse RF operating conditions.
2. These devices are designed for RF operation. The total device dissipation rating applies only when the device is operated as RF amplifiers.
3. Thermal Resistance is determined under specified RF operating conditions by infrared measurement techniques.

(continued)

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

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

ON CHARACTERISTICS

| | | | | | |
|--|----------|----|---|---|---|
| DC Current Gain ($I_C = 5.0 \text{ Adc}$, $V_{CE} = 5.0 \text{ Vdc}$) | h_{FE} | 20 | — | — | — |
|--|----------|----|---|---|---|

FUNCTIONAL TESTS (7.0 μs Pulses @ 54% duty cycle for 3.4 ms; then off for 4.5 ms; overall duty cycle = 23%)

| | | | | | |
|--|----------|--------------------------------|-----|---|----|
| Common-Base Amplifier Power Gain ($V_{CC} = 36 \text{ Vdc}$, $P_{out} = 120 \text{ W Peak}$, $f = 1215 \text{ MHz}$) | G_{PB} | 7.6 | 8.5 | — | dB |
| Collector Efficiency ($V_{CC} = 36 \text{ Vdc}$, $P_{out} = 120 \text{ W Peak}$, $f = 1215 \text{ MHz}$) | η | 50 | 55 | — | % |
| Load Mismatch ($V_{CC} = 36 \text{ Vdc}$, $P_{out} = 120 \text{ W Peak}$, $f = 1215 \text{ MHz}$, VSWR = 3:1 All Phase Angles) | Ψ | No Degradation in Output Power | | | |

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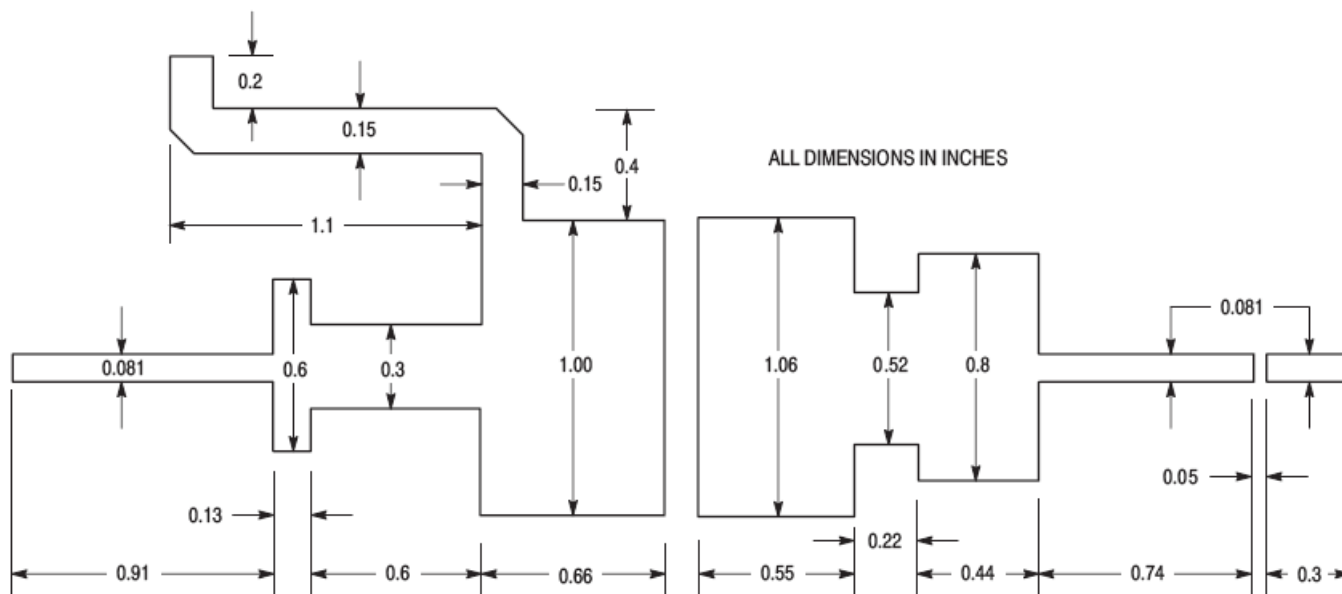
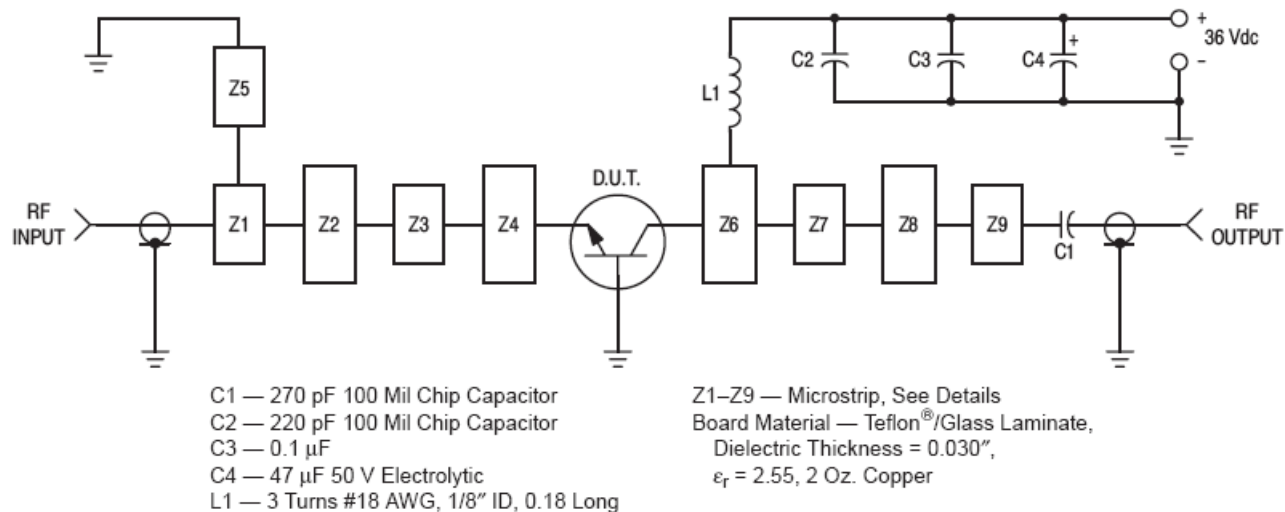


Figure 1. Test Circuit

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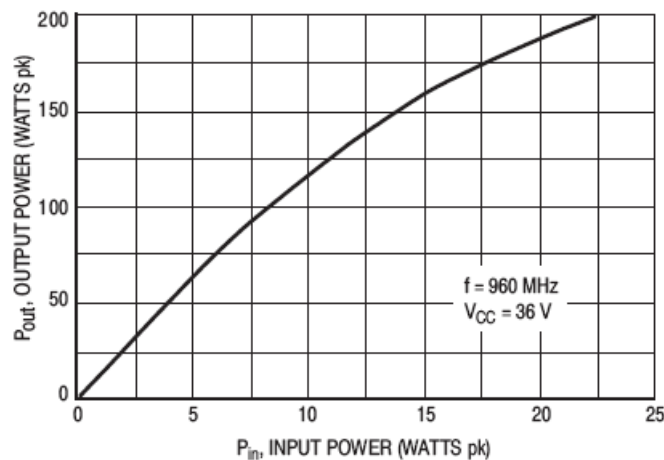


Figure 2. Output Power versus Input Power

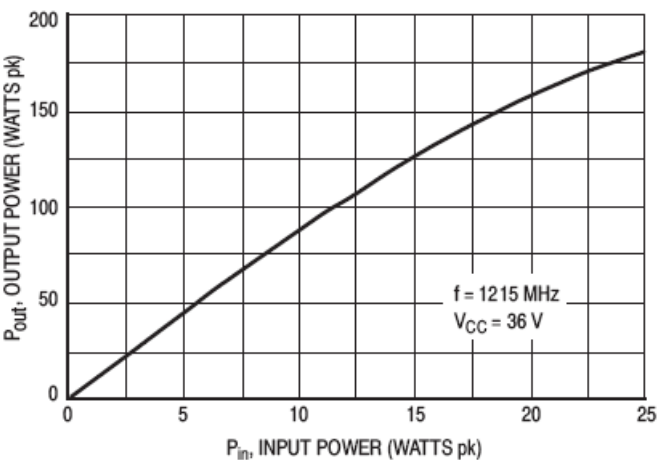


Figure 3. Output Power versus Input Power

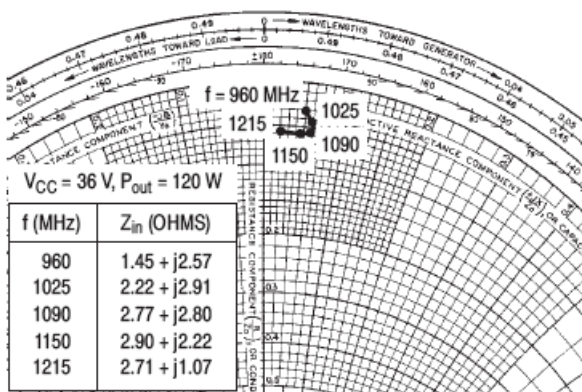
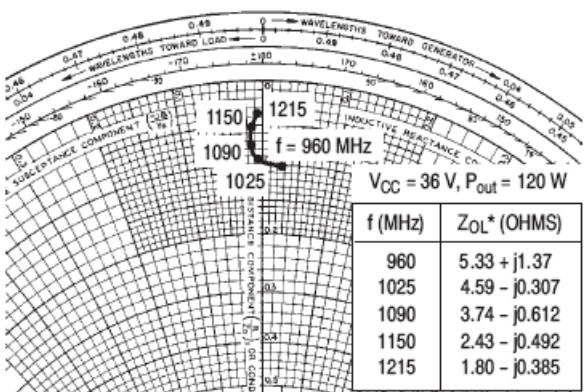


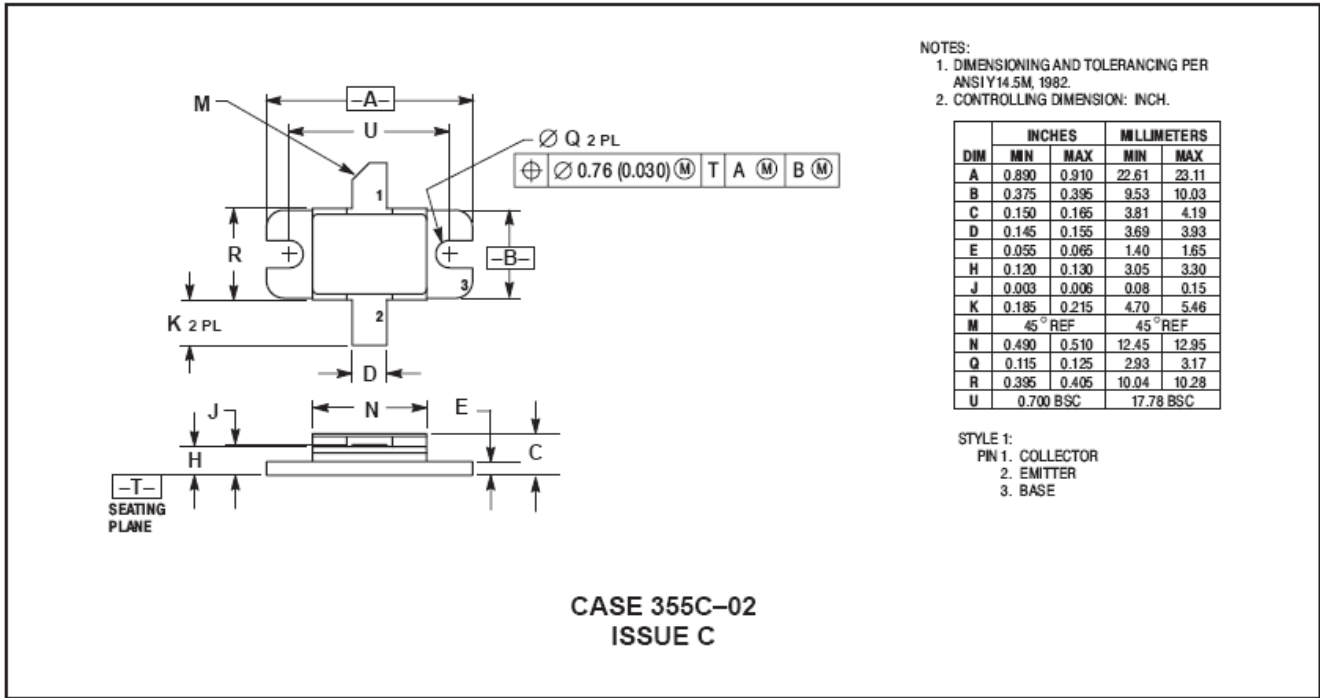
Figure 4. Series Equivalent Input Impedances



Z_{OL}^* = Conjugate of the optimum load impedance into which the device operates at a given output power, voltage and frequency.

Figure 5. Series Equivalent Output Impedance

PACKAGE DIMENSIONS



AMEYA360

Components Supply Platform

Authorized Distribution Brand :



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