

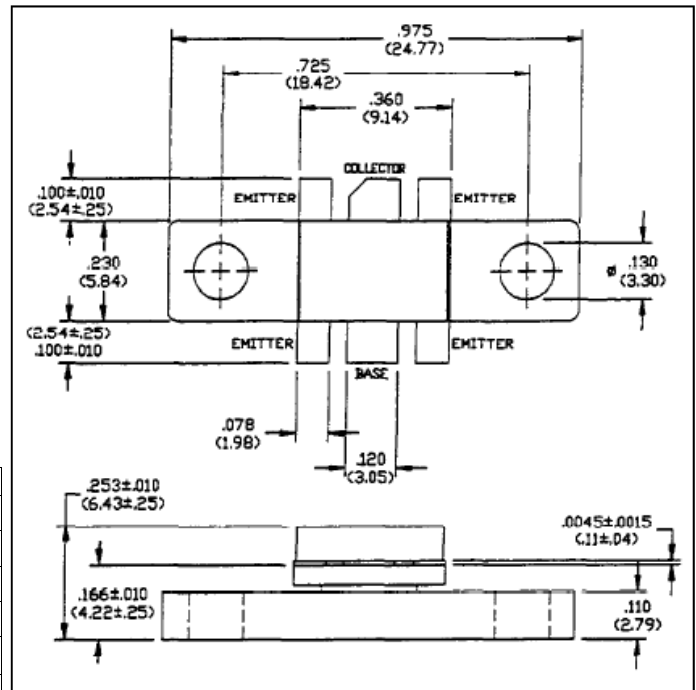
Wireless Bipolar Power Transistor 35W, 850-960MHz, 24V

M/A-COM Products
Released - Rev. 07.07

Features

- Designed for linear amplifier applications
- Class AB: -30 dBc typ. 3rd IMD at 15 W PEP
- Class AB: +53 dBc typ. 3rd order intercept point
- Common emitter configuration
- Internal input impedance matching
- Diffused emitter ballasting

Outline Drawing¹



Notes: (unless otherwise specified)
1. Tolerances are: inches ± .005" (millimeters ± 0.13mm)

ABSOLUTE MAXIMUM RATING AT 25°C

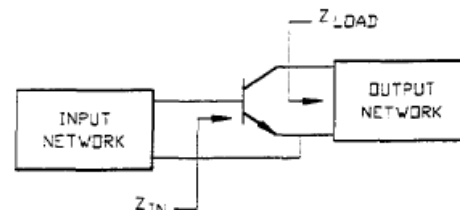
| Parameter | Symbol | Rating | Units |
|---------------------------|---------------|--------------|-------|
| Collector-Base Voltage | V_{CBO} | 60 | V |
| Collector-Emitter Voltage | V_{CES} | 60 | V |
| Emitter-Base Voltage | V_{EBO} | 3.0 | V |
| Collector Current | I_C | 1.0 | A |
| Total Power Dissipation | P_{TOT} | 116 | W |
| Junction Temperature | T_J | 200 | °C |
| Storage Temperature | T_{STG} | -55 to + 150 | °C |
| Thermal Resistance | θ_{JC} | 1.5 | °C/W |

ELECTRICAL SPECIFICATIONS AT 25°C

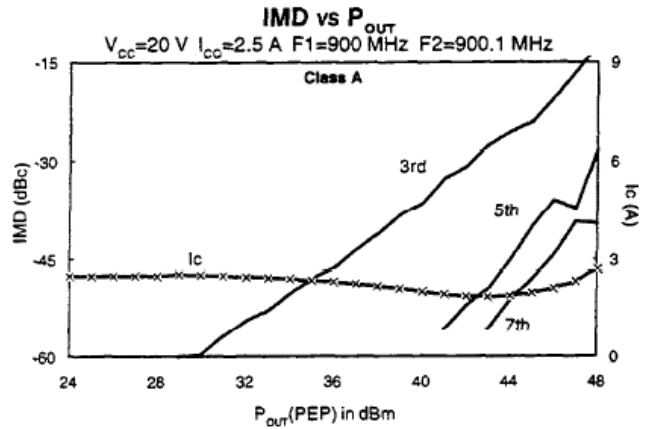
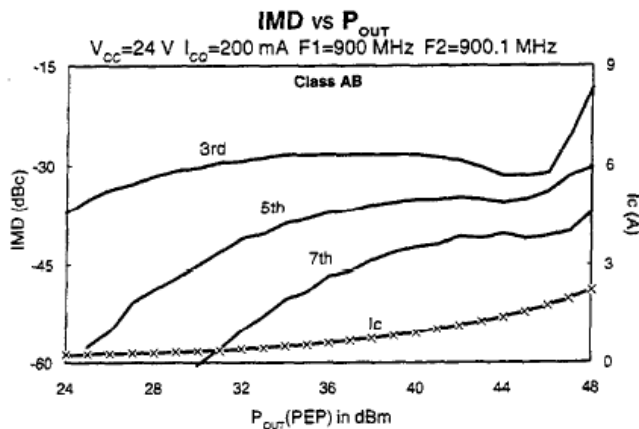
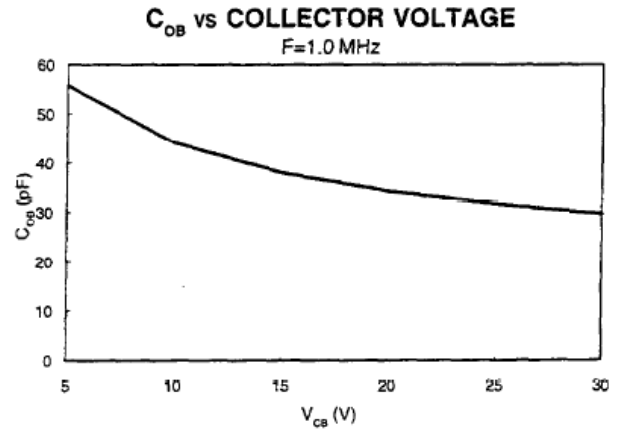
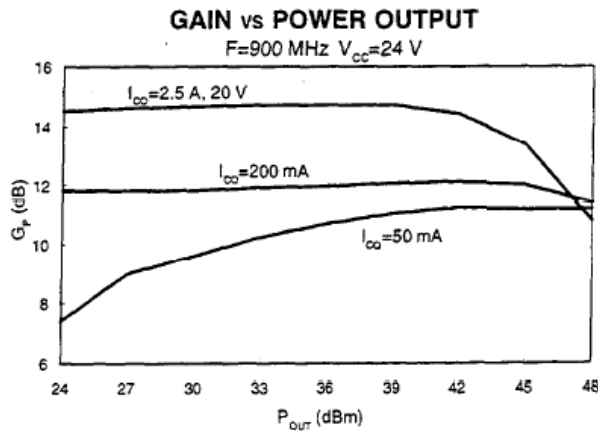
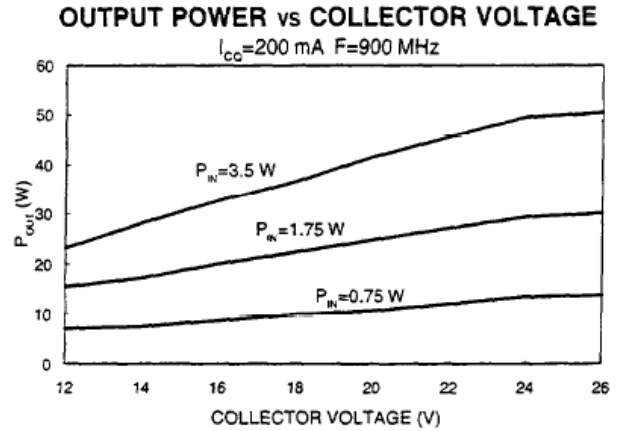
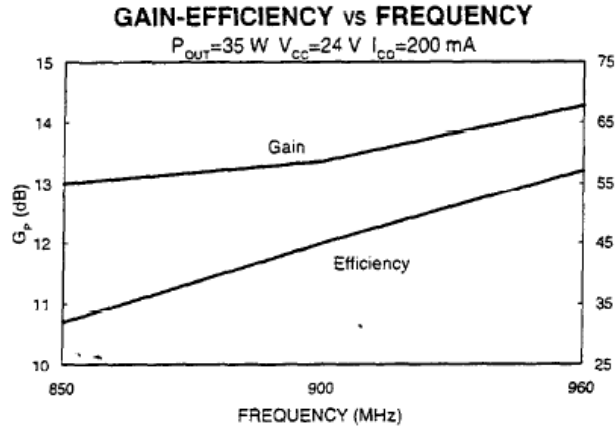
| Parameter | Symbol | Min | Max | Units | Test Conditions |
|-------------------------------------|------------------|-----|-------|-------|-----------------------------------------------------------------------------------------------------------------|
| Collector-Emitter Breakdown Voltage | BV_{CES} | 60 | - | V | $I_C = 20\text{mA}$ |
| Collector-Emitter Leakage Current | I_{CES} | - | 2.0 | mA | $V_{CE} = 24.0\text{V}$ |
| Collector-Emitter Breakdown Voltage | BV_{CEO} | 24 | - | V | $I_C = 40\text{mA}$ |
| Emitter-Base Breakdown Voltage | BV_{EBO} | 3.0 | - | V | $I_B = 20\text{mA}$ |
| DC Forward Current Gain | h_{FE} | 15 | 120 | - | $V_{CE} = 5.0\text{V}, I_C = 1.0\text{A}$ |
| Power Gain | G_p | 10 | - | dB | $V_{CC} = 24\text{V}, I_{CQ} = 200\text{mA}, P_{out} = 35\text{W}, F = 900\text{MHz}, \Delta F = 100\text{kHz}$ |
| Collector Efficiency | η_C | 55 | - | % | $V_{CC} = 24\text{V}, I_{CQ} = 200\text{mA}, P_{out} = 35\text{W}, F = 900\text{MHz}, \Delta F = 100\text{kHz}$ |
| Input Return Loss | RL | 10 | - | db | $V_{CC} = 24\text{V}, I_{CQ} = 200\text{mA}, P_{out} = 35\text{W}, F = 900\text{MHz}, \Delta F = 100\text{kHz}$ |
| Load Mismatch Tolerance | VSWR-T | - | 3.0:1 | - | $V_{CC} = 24\text{V}, I_{CQ} = 200\text{mA}, P_{out} = 35\text{W}, F = 900\text{MHz}, \Delta F = 100\text{kHz}$ |
| 3rd Order IMD | IMD ₃ | - | -30 | dBc | $V_{CC} = 24\text{V}, I_{CQ} = 200\text{mA}, P_{out} = 35\text{W}, F = 900\text{MHz}, \Delta F = 100\text{kHz}$ |

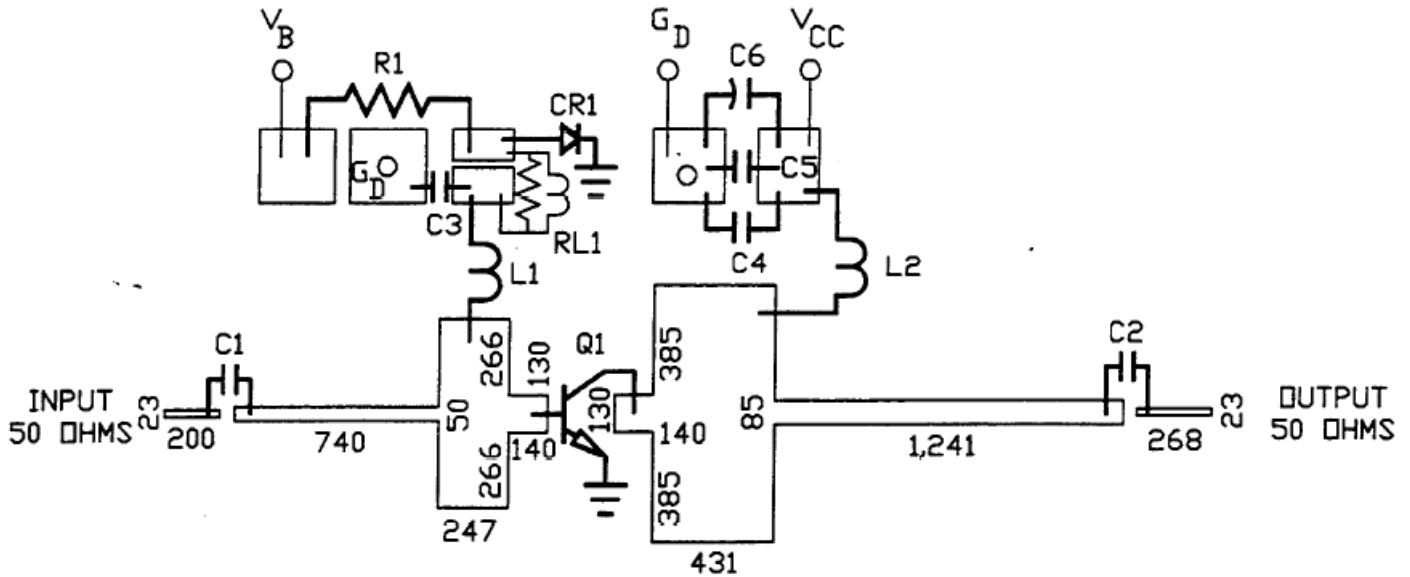
TYPICAL OPTIMUM DEVICE IMPEDANCES

| F (MHz) | $Z_{IN} (\Omega)$ | $Z_{LOAD} (\Omega)$ |
|---------|-------------------|---------------------|
| 800 | 1.0-j3.7 | 2.1 - j0.9 |
| 850 | 1.3 - j4.0 | 1.6 - j0.7 |
| 900 | 1.9 - j4.3 | 1.6 - j0.4 |
| 960 | 3.0 - j2.7 | 1.7 - j0.1 |



ABSOLUTE MAXIMUM RATING AT 25°C





ARTWORK DIMENSIONS IN MILS

PARTS LIST

| | | | | | | |
|------------|----|----|----|---------------|--------------|------------------|
| C1 | C2 | C3 | C4 | 100 pF | ATC | SIZE B |
| C5 | | | | 5000 pF | | |
| C6 | | | | 50 uF | 50 VOLTS | |
| CR1 | | | | 1N4245 | DIODE | |
| L1 | L2 | | | 10T/NO. | 20 AWG DN | 1/8" DIAMETER |
| Q1 | | | | PH0810-35 | | |
| R1 | | | | 5 OHMS | 1/4 WATT | |
| RL1 | | | | 10T/NO. | 22 AWG DN | 3.1 OHM 1/4 WATT |
| BOARD TYPE | | | | ROGERS 6010.5 | .025" THICK, | $E_R = 10.5$ |