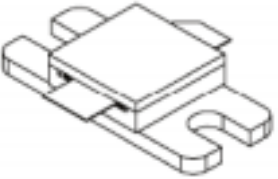




3134-65M

65Watts, 34 Volts, 200us, 10%
Radar 3100-3400 MHz

| | |
|--|--|
| <p>GENERAL DESCRIPTION</p> <p>The 3134-65M is an internally matched, COMMON BASE bipolar transistor capable of providing 65Watts of pulsed RF output power at 200us pulse width, 10% duty factor across the 3100 to 3400 MHz band. This ceramic sealed transistor is specifically designed for S-band radar applications. It utilizes gold metallization and emitter ballasting to provide high reliability and supreme ruggedness.</p> | <p>CASE OUTLINE Common Base</p>  |
| <p>ABSOLUTE MAXIMUM RATINGS</p> <p>Maximum Voltage and Current</p> <p>Collector to Base Voltage (BV_{ces}) 65 V Emitter to Base Voltage (BV_{ebo}) 3.0 V Peak Collector Current (I_c) 7 A</p> <p>Maximum Temperatures</p> <p>Storage Temperature -65 to +200 °C Operating Junction Temperature +200 °C</p> | |

ELECTRICAL CHARACTERISTICS @ 25°C

| SYMBOL | CHARACTERISTICS | TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|-----------|-------------------------|--------------------------|-----|-----|-------|-------|
| P_{out} | Power Output | F=3100-3400 MHz | 65 | 70 | | W |
| P_g | Power Gain | Pulse Width = 200us | 8.0 | 8.5 | | dB |
| η_c | Collector Efficiency | Duty Factor = 10 % | 45 | | | % |
| R_l | Return Loss | Power Input = 10.3W | -7 | | | dB |
| VSWR-S | Load Mismatch Stability | $V_{cc} = +34V$ | | | 1.5:1 | |
| VSWR-T | Load Mismatch Tolerance | F = 3100, 3300, 3400 MHz | | | 2.0:1 | |

FUNCTIONAL CHARACTERISTICS @ 25°C

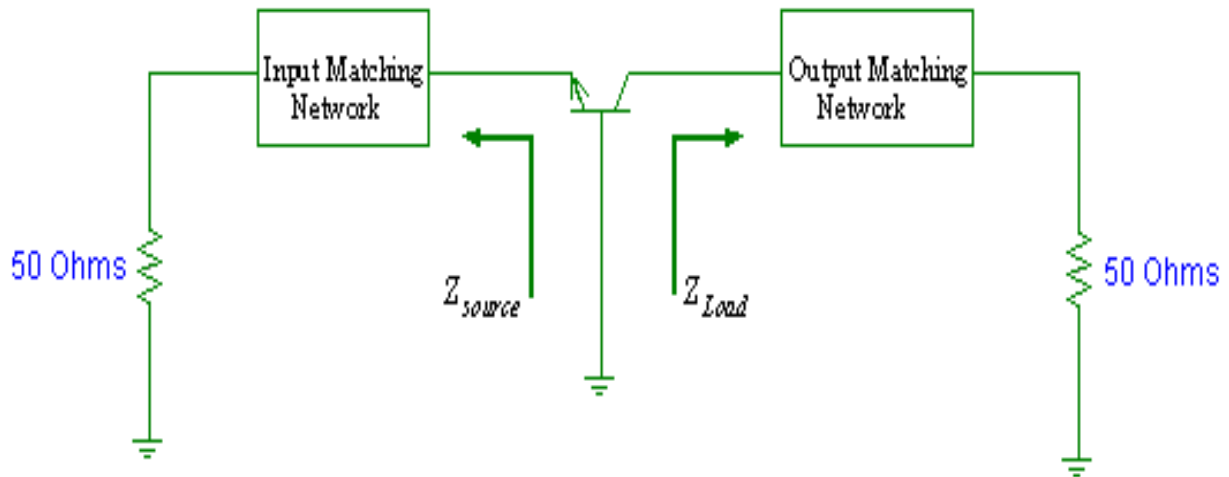
| | | | | | | |
|-----------------|--------------------------------|-----------------------|----|--|-----|------|
| I_{ces} | Collector to Emitter Leakage | $V_{ce}=36V$ | | | 5 | mA |
| BV_{ces} | Collector to Emitter Breakdown | $I_c = 30 \text{ mA}$ | 65 | | | V |
| θ_{jc}^1 | Thermal Resistance | | | | 0.5 | °C/W |

Typical Test Data:

| Frequency | P_{in} (W) | P_{out} (W) | I_c (A) | RL (dB) | η_c (%) | G (dB) |
|-----------|--------------|---------------|-----------|---------|--------------|--------|
| 3100 MHz | 10 | 72 | 0.49 | -10 | 44 | 8.6 |
| 3200 MHz | 10 | 78 | 0.51 | -18 | 45 | 8.9 |
| 3300 MHz | 10 | 77 | 0.47 | -19 | 48 | 8.8 |
| 3400 MHz | 10 | 72 | 0.43 | -18 | 49 | 8.5 |



3134-65M

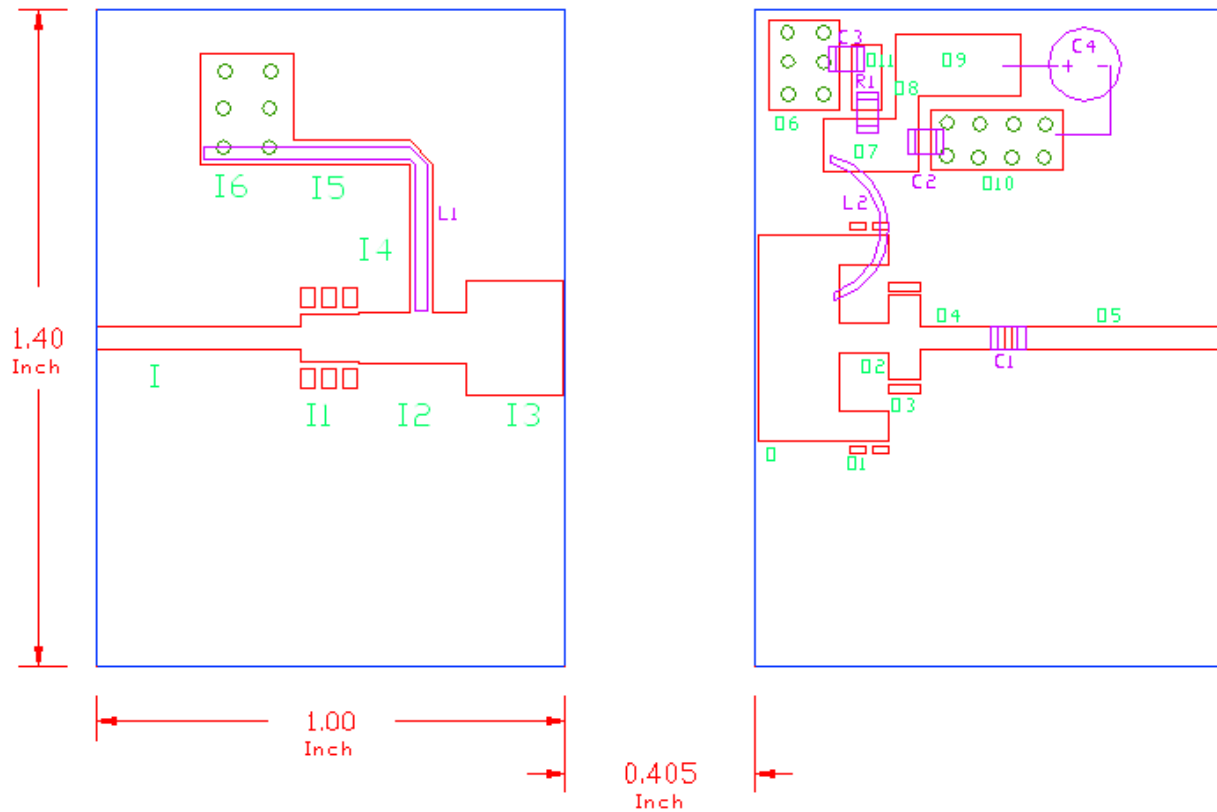


Broadband Test Fixture Impedance

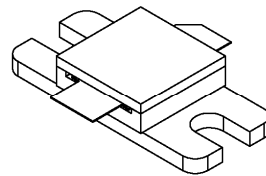
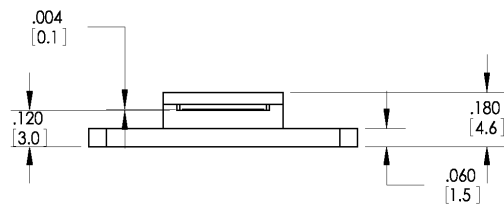
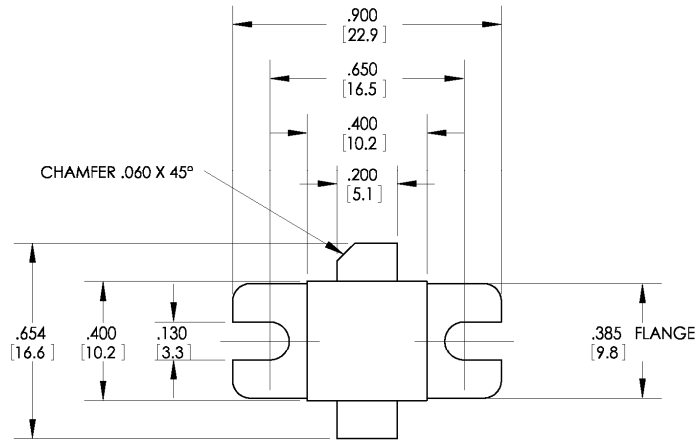
| Frequency (GHz) | Z _{in} | Z _{out} |
|-----------------|-----------------|------------------|
| 3.1 | 10.34 – j 7.88 | 6.72 – j 10.80 |
| 3.2 | 10.27 – j 7.34 | 6.56 – j 10.46 |
| 3.3 | 10.24 – j 6.82 | 6.41 – j 10.14 |
| 3.4 | 10.23 – j 6.32 | 6.28 – j 9.84 |



3134-65M



| Input Matching Network | | | Output Matching Network | | | Circuit & Components | |
|------------------------|---------|---------|-------------------------|---------|---------|----------------------|---------------------------------|
| Item | W (mil) | L (mil) | Item | W (mil) | L (mil) | Item | Value |
| I1 | 51 | 434 | O1 | 64 | 105 | C1 | 9.1pF (A size) |
| I2 | 110 | 232 | O2 | 62 | 105 | C2 | 100pF (A size) |
| I3 | 242 | 205 | O3 | 180 | 66 | C3 | 10,000pF (B size) |
| I4 | 51 | 315 | O4 | 51 | 180 | C4 | 1000uF (electrolytic) |
| I5 | 51 | 248 | O5 | 51 | 430 | R1 | 8.2 ohms (size 0805) |
| I6 | 238 | 200 | O6 | 190 | 150 | L1 | Copper wire, 20 AWG, L=600 Mils |
| | | | O7 | 110 | 200 | L2 | Copper wire, 20 AWG, L=560 Mils |
| | | | O8 | 50 | 50 | Board | Duroid 6002 @ 20 Mils, Er=2.94 |
| | | | O9 | 130 | 260 | | |
| | | | O10 | 130 | 280 | | |
| | | | O11 | 140 | 62 | | |



DWG NO.

A57