

DME375A

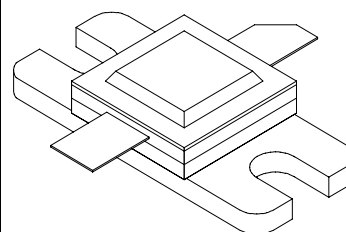
375 Watts, 50 Volts, Pulsed
Avionics 1025-1150 MHz

GENERAL DESCRIPTION

The DME375A is a high power COMMON BASE bipolar transistor. It is designed for pulsed systems in the frequency band 1025-1150 MHz. The device has gold thin-film metallization for proven highest MTTF. The transistor includes input and output prematch for broadband capability. Low thermal resistance package reduces junction temperature, extends life.

CASE OUTLINE

55AW Style 1



ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @25°C² 875 W

Maximum Voltage and Current

Collector to Base Voltage (BV_{ces}) 55 V

Emitter to Base Voltage (BV_{ebo}) 4.0 V

Collector Current (I_c) 30 A

Maximum Temperatures

Storage Temperature -65 to +200 °C

Operating Junction Temperature +200 °C

ELECTRICAL CHARACTERISTICS @ 25°C

| SYMBOL | CHARACTERISTICS | TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|-------------------|-------------------------|----------------------------|-----|-----|-----|-------|
| P _{out} | Power Out | F = 1025 – 1150 MHz | 375 | | | W |
| P _{in} | Power Input | V _{cc} = 50 Volts | | | 85 | W |
| P _g | Power Gain | PW = 10 μsec | 6.5 | | | dB |
| η _c | Collector Efficiency | DF = 1% | | 40 | | % |
| VSWR ¹ | Load Mismatch Tolerance | F = 1090 MHz | | | □:1 | |

FUNCTIONAL CHARACTERISTICS @ 25°C

| | | | | | | |
|------------------------------|--------------------------------|---|-----|--|-----|------|
| BV _{ebo} | Emitter to Base Breakdown | I _e = 20 mA | 4.0 | | | V |
| BV _{ces} | Collector to Emitter Breakdown | I _c = 25 mA | 55 | | | V |
| h _{FE} | DC – Current Gain | V _{ce} = 5V, I _c = 300 mA | 10 | | | |
| θ _{jc} ² | Thermal Resistance | | | | 0.2 | °C/W |

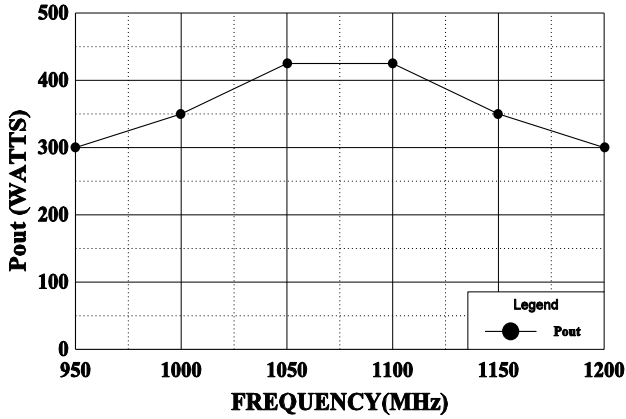
NOTE 1: At rated output power and pulse conditions

2. At rated pulse conditions

Initial Issue June 1994

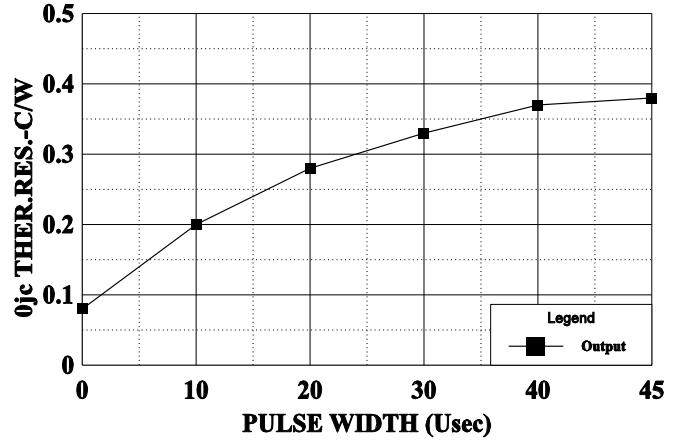
POWER OUTPUT

V_{cc} = 50 V, P_{in} = 85 W



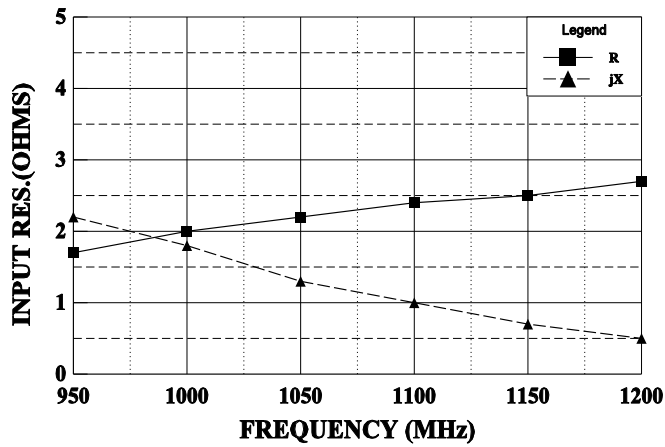
THERMAL RESISTANCE vs PULSE WIDTH

V_{cc} = 50 V, T_f = 30 C



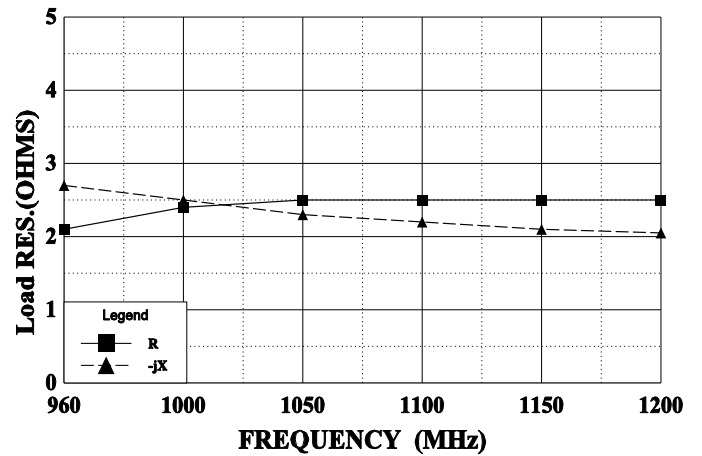
SERIES INPUT IMPEDANCE vs FREQUENCY

V_{cc} = 50 V, P_o = 375 W



SERIES LOAD IMPEDANCE vs FREQUENCY

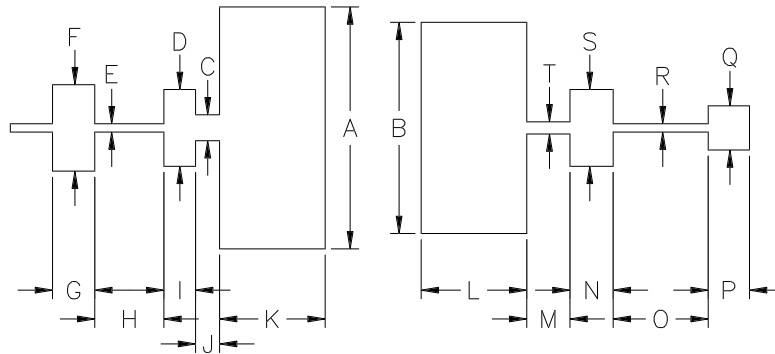
V_{cc} = 50 V, P_o = 375 W



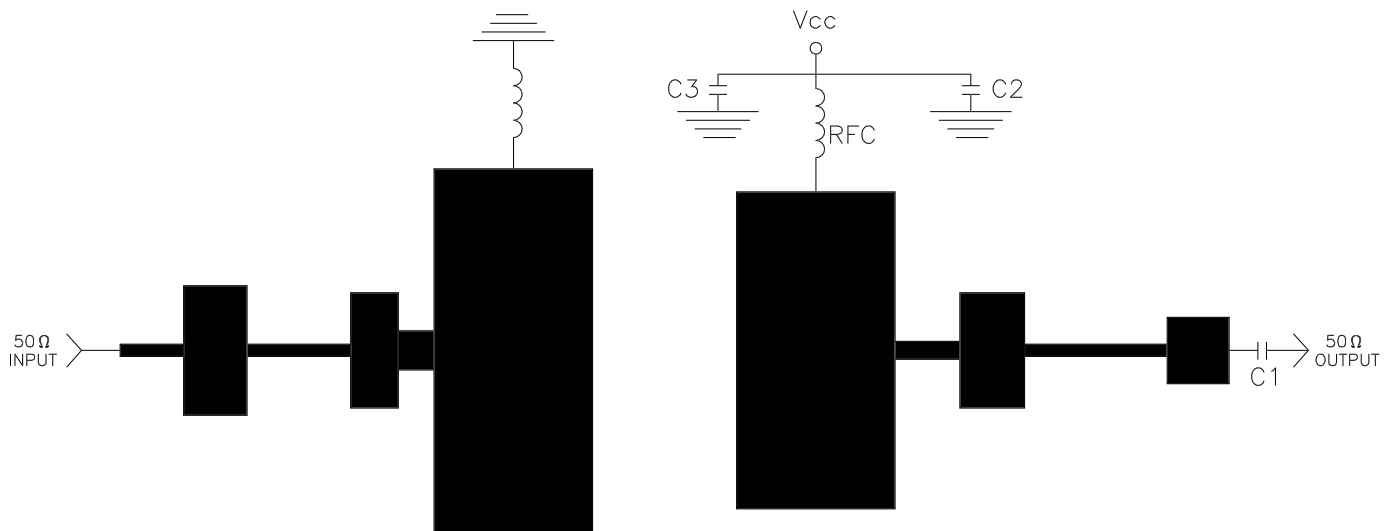
REVISIONS

| ZONE | REV | DESCRIPTION | DATE | APPROVED |
|------|-----|-------------|------|----------|
|------|-----|-------------|------|----------|

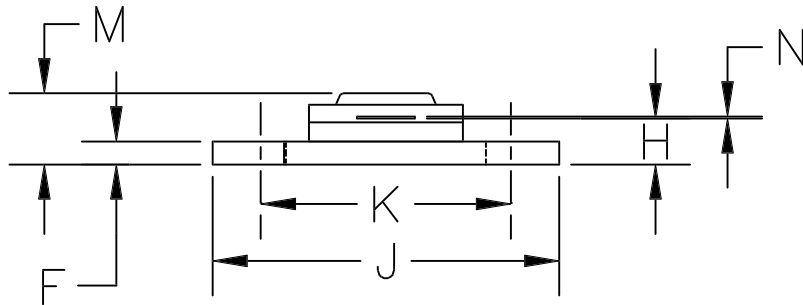
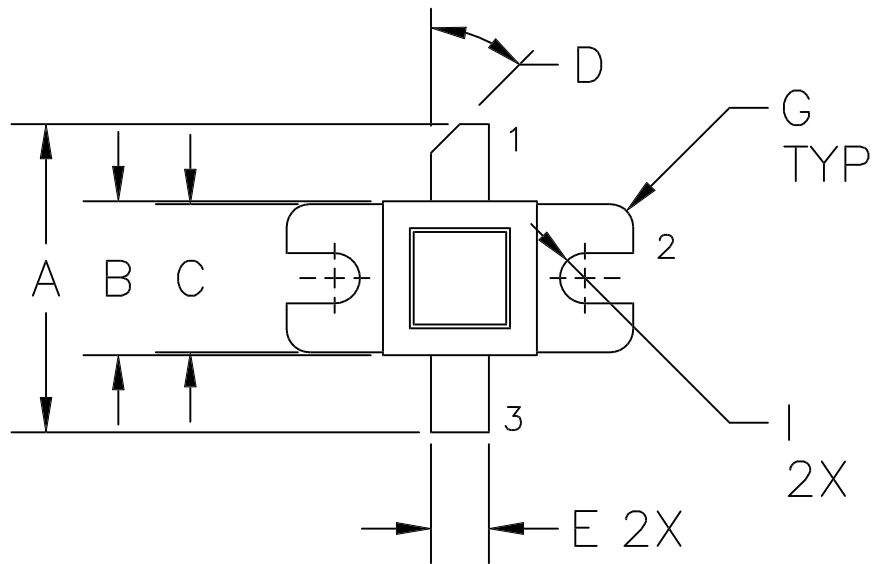
| DIM | INCHES |
|-----|--------|
| A | 1.260 |
| B | 1.100 |
| C | .135 |
| D | .400 |
| E | .042 |
| F | .450 |
| G | .220 |
| H | .360 |
| I | .165 |
| J | .125 |
| K | .550 |
| L | .550 |
| M | .225 |
| N | .225 |
| O | .495 |
| P | .215 |
| Q | .230 |
| R | .042 |
| S | .400 |
| T | .062 |



1025/1150 MHz TEST AMPLIFIER (FIG. 1)



PCB= .020" TFE, 2 oz. CU. Type "GT"
 C1, C2= 82pf Chip
 C3= 250 MFD



| DIM | MILLIMETER | TOL | INCHES | TOL |
|-----|------------|-----|----------|------|
| A | 20.32 | .76 | .800 | .050 |
| B | 10.16 | .13 | .400 | .005 |
| C | 9.78 | .13 | .385 | .005 |
| D | 45° | 5° | 45° | 5° |
| E | 3.81 | .13 | .150 | .005 |
| F | 1.52 | .13 | .060 | .005 |
| G | 1.52R | .13 | .060R | .005 |
| H | 3.05 | .13 | .120 | .005 |
| I | 3.30 DIA | .13 | .130 DIA | .005 |
| J | 22.86 | .13 | .900 | .005 |
| K | 16.51 | .13 | .650 | .005 |
| M | 4.70 | REF | .185 | REF |
| N | 0.13 | .02 | .005 | .001 |

STYLE 1:
PIN1 = COLLECTOR
2 = BASE
3 = EMITTER

STYLE 2:
PIN1 = COLLECTOR
2 = EMITTER
3 = BASE

