

MS1455

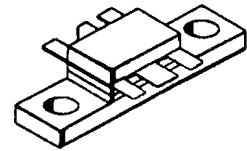
RF & MICROWAVE TRANSISTORS 800 - 900 MHz APPLICATIONS

Features

- 836 MHz
- 12.5 VOLTS
- $P_{OUT} = 45$ WATTS
- $G_P = 4.7$ dB MINIMUM
- COMMON BASE CONFIGURATION

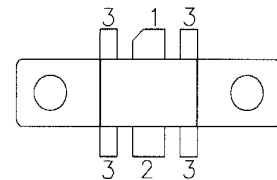
DESCRIPTION:

The MS1455 is a 12.5 V Class C epitaxial silicon NPN planar transistor designed for amplifier applications in the 806-866 MHz frequency range. Internal impedance matching assures optimum gain and efficiency across the entire frequency band. Gold metalization and emitter ballast resistors assures infinite VSWR capability and long term reliability.



.230 6LFL (M142)
epoxy sealed

PIN CONNECTION



1. Collector 3. Base
2. Emitter

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

| Symbol | Parameter | Value | Unit |
|------------|---------------------------|-------------|------|
| V_{CBO} | Collector-Base Voltage | 36 | V |
| V_{EBO} | Emitter-Base Voltage | 4.0 | V |
| V_{CEO} | Collector-Emitter Voltage | 18 | V |
| V_{CES} | Collector-Emitter Voltage | 36 | V |
| P_{DISS} | Power Dissipation | 150 | W |
| I_C | Device Current | 9.0 | A |
| T_J | Junction Temperature | 200 | °C |
| T_{STG} | Storage Temperature | -65 to +150 | °C |

Thermal Data

| | | | |
|---------------|----------------------------------|-----|------|
| $R_{TH(J-C)}$ | Thermal Resistance Junction-case | 1.2 | °C/W |
|---------------|----------------------------------|-----|------|

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)

STATIC

| Symbol | Test Conditions | | | Value | | | Unit |
|-------------------|------------------------|-----------------------|-----|-------|------|------|------|
| | | | | Min. | Typ. | Max. | |
| BV _{CES} | I _C = 50 mA | V _{BE} = 0 V | 36 | --- | --- | V | |
| BV _{CEO} | I _C = 50 mA | I _B = 0 mA | 18 | --- | --- | V | |
| BV _{EBO} | I _E = 10 mA | I _C = 0 mA | 4.0 | --- | --- | V | |
| I _{CBO} | V _{CB} = 15 V | I _E = 0 mA | --- | --- | 5 | mA | |
| HFE | V _{CE} = 5 V | I _C = 1 A | 5 | --- | 200 | --- | |

DYNAMIC

| Symbol | Test Conditions | | | Value | | | Unit |
|------------------|-----------------|--------------------------|-------------------------|-------|------|------|------|
| | | | | Min. | Typ. | Max. | |
| P _{OUT} | f = 836 MHz | P _{IN} = 15W | V _{CE} = 12.5V | 45 | --- | --- | W |
| G _P | f = 836 MHz | P _{IN} = 15W | V _{CE} = 12.5V | 4.7 | --- | --- | dB |
| C _{OB} | f = 1 MHz | V _{CB} = 12.5 V | | --- | --- | 105 | pf |

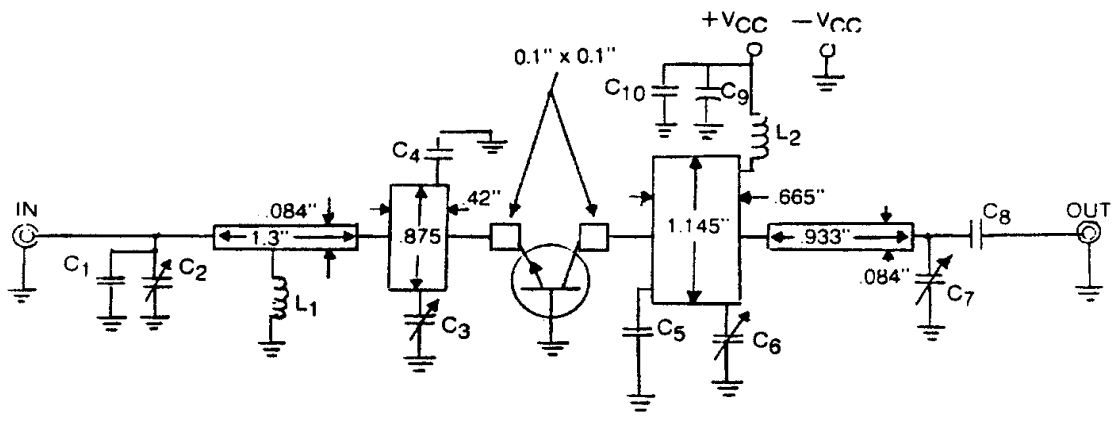
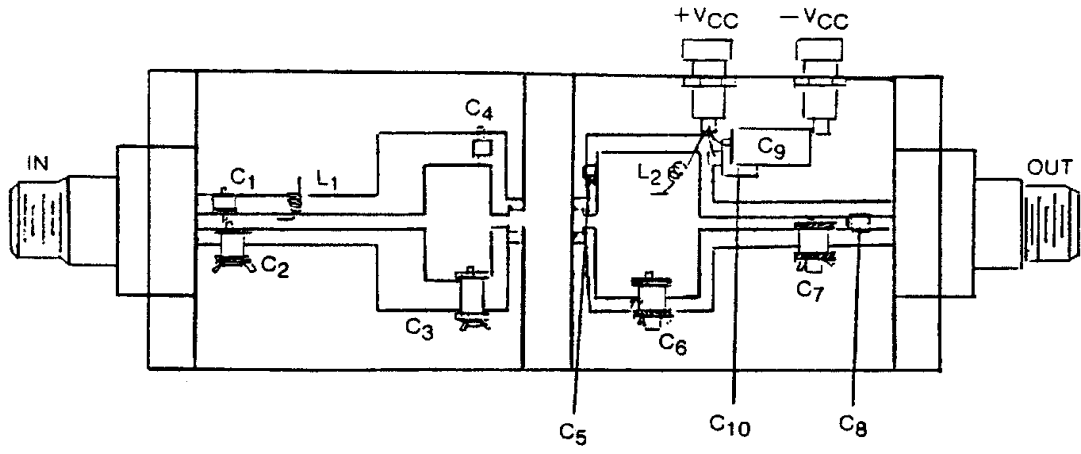
IMPEDANCE DATA

| FREQ | Z _{IN} (Ω) | Z _{CL} (Ω) |
|---------|---------------------|---------------------|
| 806 MHz | 1.4 – j4.6 | 1.0 – j1.5 |
| 836 MHz | 2.0 – j5.2 | 0.95 – j1.7 |
| 866 MHz | 2.3 – j5.3 | 0.75 – j1.7 |

P_{IN} = 15W
V_{CE} = 12.5V

TEST CURCUIT

MS1455



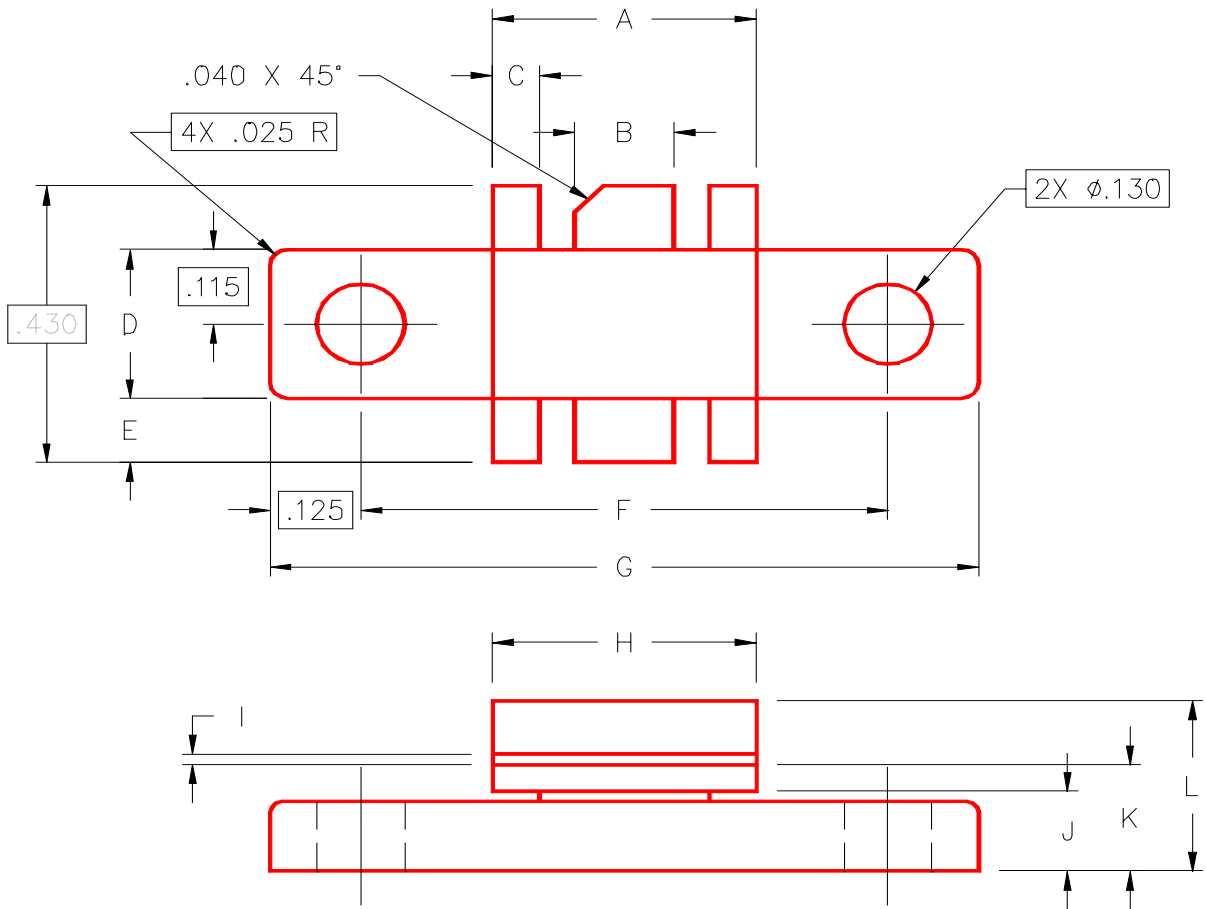
- C1, C4 : 5pF ATC 100 mils Chip Capacitor
- C2 : 1 - 12pF Variable Capacitor
- C3 : .6 - 6pF Variable Capacitor
- C5 : 2pF "A" Size Chip Capacitor
- C6, C7 : .6 - 12pF Voltronic Variable Capacitor

- C8 : 480pF ATC 100 mils Chip Capacitor
- C9 : 47µF, 63V, Electrolytic Capacitor
- C10 : 1000pF Unelco Capacitor
- L1, L2 : 5 Turns #24 AWG Enamel

Board Material: 3M-K-6098-11 12.9 mils Thick

PACKAGE MECHANICAL DATA

PACKAGE STYLE M142



| | MINIMUM INCHES/MM | MAXIMUM INCHES/MM | | MINIMUM INCHES/MM | MAXIMUM INCHES/MM |
|---|----------------------|----------------------|---|----------------------|----------------------|
| A | .355/9,02 | .365/9,27 | I | .004/0,10 | .006/0,15 |
| B | .115/2,92 | .125/3,18 | J | .120/3,05 | .130/3,30 |
| C | .075/1,91 | .085/2,16 | K | .160/4,06 | .180/4,57 |
| D | .225/5,72 | .235/5,97 | L | .230/5,84 | .260/6,60 |
| E | .090/2,29 | .110/2,79 | | | |
| F | .720/18,29 | .730/18,54 | | | |
| G | .970/24,64 | .980/24,89 | | | |
| H | .355/9,02 | .365/9,27 | | | |