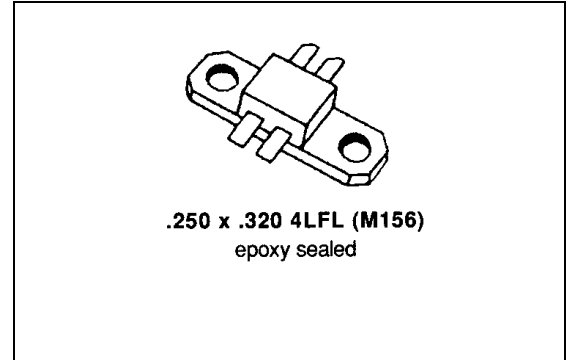


MS1452

RF & MICROWAVE TRANSISTORS 800-900 MHz BASE STATION APPLICATIONS

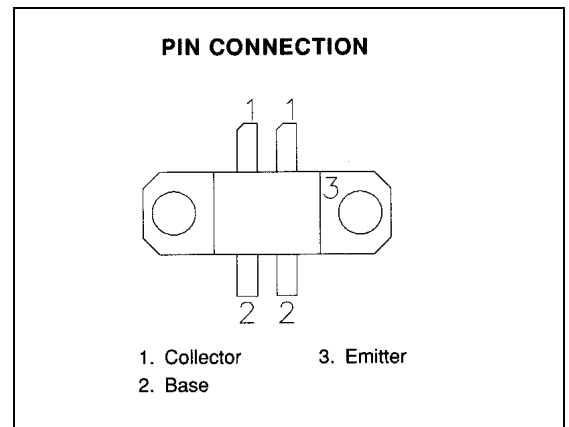
Features

- 800-900 MHz
- 24 VOLTS
- COMMON EMITTER
- GOLD METALLIZATION
- INTERNAL INPUT MATCHING
- CLASS AB LINEAR OPERATION
- $P_{OUT} = 30$ W MINIMUM
- $G_P = 7.5$ dB



DESCRIPTION:

The MS1452 is a gold metallized epitaxial silicon NPN planar transistor using diffused emitter ballast resistors for high linearity Class AB operation in cellular base station application.



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

| Symbol | Parameter | Value | Unit |
|-------------------|---------------------------|-------------|------|
| V _{CBO} | Collector-Base Voltage | 48 | V |
| V _{CES} | Collector-Emitter Voltage | 45 | V |
| V _{EBO} | Emitter-Base Voltage | 4.0 | V |
| P _{DISS} | Power Dissipation | 43 | W |
| I _C | Device Current | 5 | 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 | 3.0 | °C/W |
|----------------------|----------------------------------|-----|------|

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

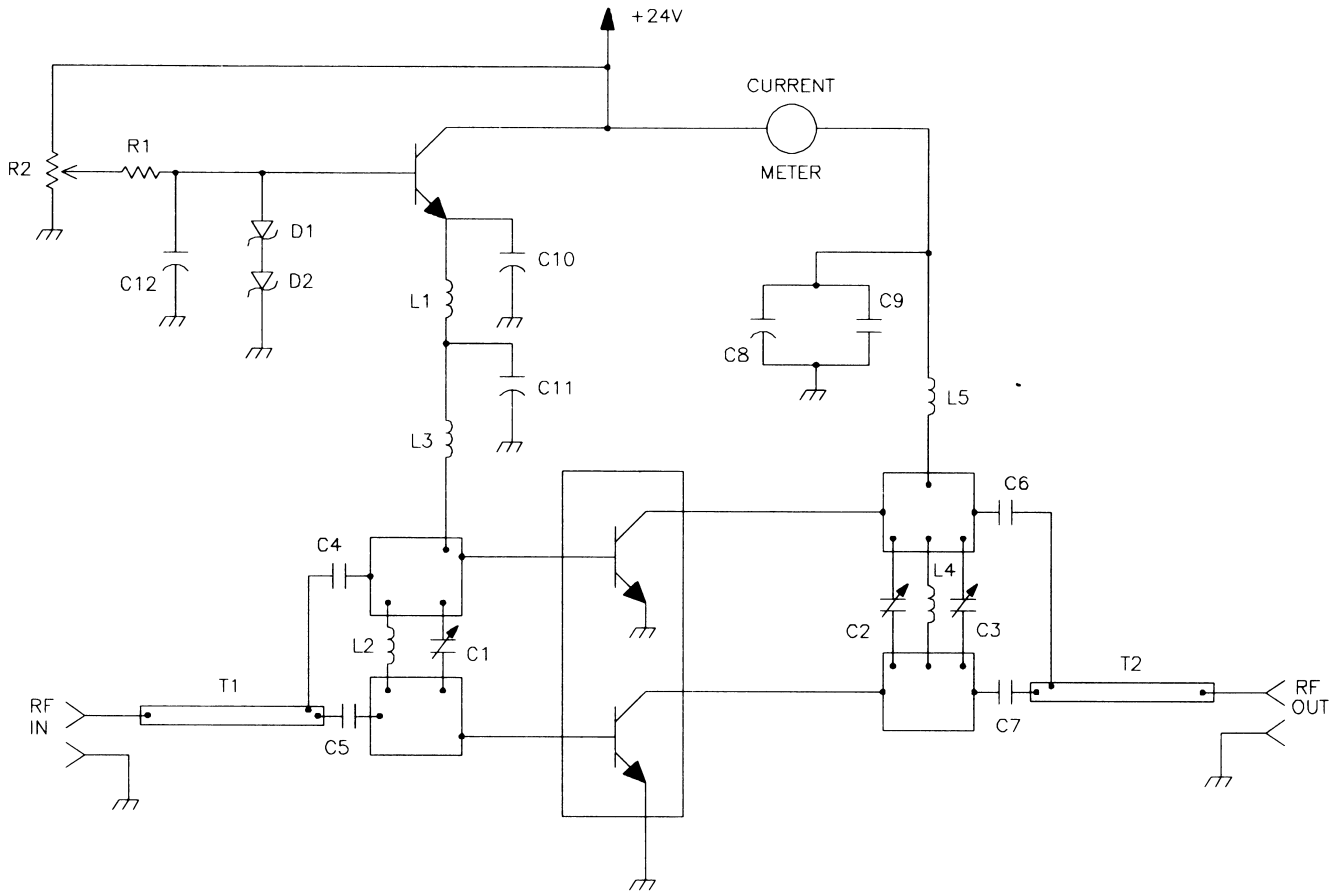
| Symbol | Test Conditions | | Value | | | Unit |
|-------------------------|------------------------------|------------------------------|------------|------------|------------|------------|
| | | | Min. | Typ. | Max. | |
| BV_{CBO} | I_C = 50 mA | I_E = 0 mA | 48 | 50 | --- | V |
| BV_{CEO} | I_C = 20 mA | I_B = 0 mA | 25 | 30 | --- | V |
| BV_{EBO} | I_E = 5 mA | I_C = 0 mA | 3.5 | 4.0 | --- | V |
| I_{CBO} | V_{CB} = 24 V | I_E = 0 mA | --- | --- | 1.0 | mA |
| HFE | V_{CE} = 5 V | I_C = 100mA | 20 | --- | 100 | --- |

DYNAMIC

| Symbol | Test Conditions | | | Value | | | Unit |
|------------------------|--------------------|-------------------------------|-----------------------------|------------|------------|------------|-----------|
| | | | | Min. | Typ. | Max. | |
| P_{OUT} | f = 960 MHz | P_{IN} = 5.3 W | V_{CC} = 24V | 30 | --- | --- | W |
| G_P | f = 960 MHz | P_{IN} = 5.3 W | V_{CC} = 24V | 7.5 | --- | --- | dB |
| η_C | f = 960 MHz | P_{IN} = 5.3 W | V_{CC} = 24V | 45 | 50 | --- | % |
| C_{OB} | f = 1 MHz | V_{CB} = 24V | | --- | 20 | 24 | pF |

Conditions: I_{CQ} = 150 mA

TEST CIRCUIT



- C1, C2, C3 : 0.8 - 8pF Variable Capacitors
- C4, C5, C6, C7 : 62pF
- C8 : 22 μ F
- C9 : 180pF
- C10 : 47 μ F, 63V
- C11 : 180pF
- C12 : 10 μ F, 63V

D1, D2 : SD1423 Devices

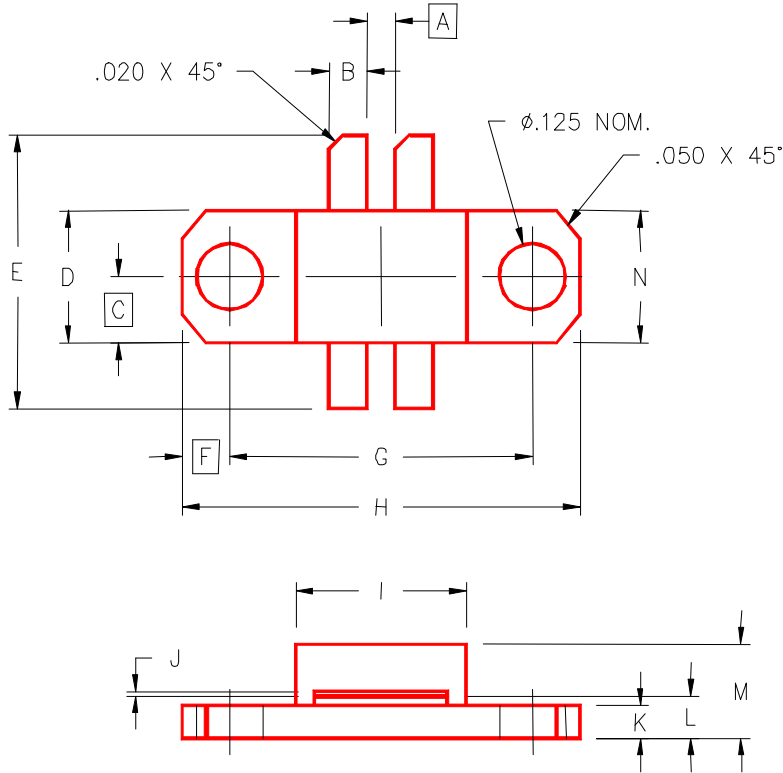
- L1, L2 : #22 AWG with Ferrite Core
- L3 : 4 Turns, #22 AWG
- L4 : 2 Turns, #22 AWG
- L5 : 5 Turns, #22 AWG

T1, T2 : $\lambda/4$ Transformers

Material: Epsilam 10, Er = 10.5, Height = .050"

PACKAGE MECHANICAL DATA

PACKAGE STYLE M156



| | MINIMUM INCHES/MM | MAXIMUM INCHES/MM | | MINIMUM INCHES/MM | MAXIMUM INCHES/MM |
|---|----------------------|----------------------|---|----------------------|----------------------|
| A | .060/1,52 | | I | .315/8,00 | .325/8,26 |
| B | .055/1,40 | .065/1,65 | J | .002/0,05 | .006/0,15 |
| C | .124/3,15 | | K | .055/1,40 | .065/1,65 |
| D | .243/6,17 | .253/6,43 | L | .075/1,91 | .095/2,41 |
| E | .635/16,13 | .665/16,89 | M | | .190/4,83 |
| F | .092/2,34 | | N | .245/6,22 | .255/6,48 |
| G | .555/14,10 | .565/14,35 | | | |
| H | .739/18,77 | .749/19,02 | | | |