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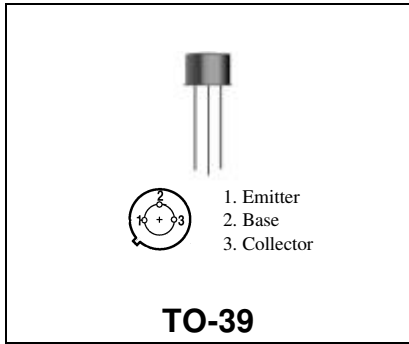


SD1444

RF & MICROWAVE TRANSISTORS 450-512MHz CLASS C MOBILE APPLICATIONS

Features

- 470 MHz
- 12.5 VOLTS
- P_{OUT} = 4.0 WATTS
- G_p = 12.0 dB MINIMUM
- COMMON EMITTER



DESCRIPTION:

The SD1444 is a 12.5V epitaxial silicon NPN planar transistor designed primarily for UHF communications. This device is packaged in a grounded emitter TO-39 package for increased power gain and optimum heat dissipation.

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

| Symbol | Parameter | Value | Unit |
|------------------|---------------------------|-----------|------|
| V _{CBO} | Collector-Base Voltage | 36.0 | V |
| V _{CEO} | Collector-Emitter Voltage | 16.0 | V |
| V _{EBO} | Emitter – Base Voltage | 4.0 | V |
| I _C | Collector Current | 0.40 | A |
| P _{tot} | Total Power Dissipation | 5.0 | W |
| T _{STG} | Storage Temperature | -65 + 200 | °C |
| T _J | Junction Temperature | +200 | °C |

THERMAL DATA

| | | | |
|----------------------|----------------------------------|------|------|
| R _{TH(J-C)} | Junction-case Thermal Resistance | 35.0 | °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 | 36 | --- | --- | V |
| BV_{CEO} | I_C = 50 mA | I_B = 0 | 16 | --- | --- | V |
| BV_{EBO} | I_E = 1 mA | I_C = 0 | 4.0 | --- | --- | V |
| I_{CBO} | V_{CB} = 15 V | I_E = 0 | --- | --- | 1.0 | mA |
| H_{FE} | V_{CE} = 5 V | I_C = 50 mA | 20 | --- | 200 | --- |

DYNAMIC

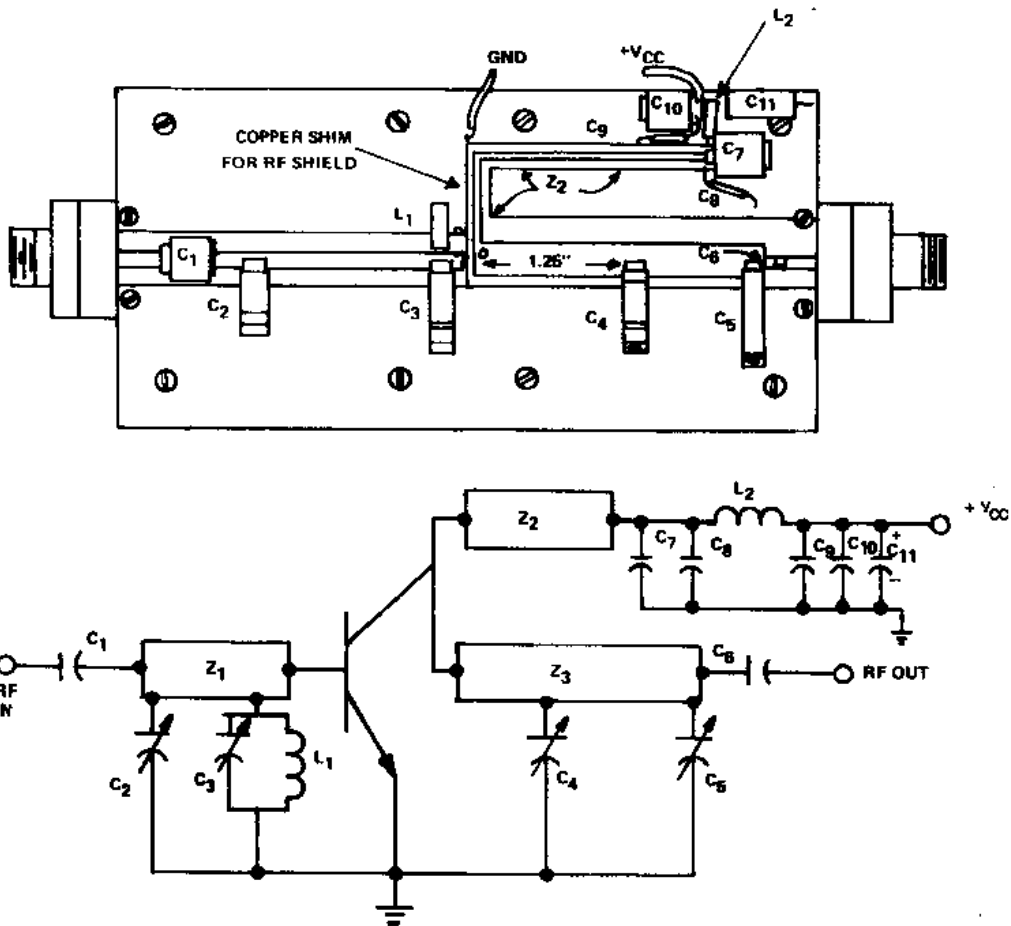
| Symbol | Test Conditions | | | Value | | | Unit |
|------------------------|--------------------------------|--------------------------------|--------------------------|-------|------|-------------|-----------|
| | | | | Min. | Typ. | Max. | |
| P_{OUT} | f = 470 MHz | V_{CE} = 12.5 V | 2.0 | --- | --- | W | |
| G_{PE} | f = 470 MHz | V_{CE} = 12.5 V | 8.0 | --- | --- | dB | |
| Cob | V_{CE} = 15.0 V | f = 1 MHz | I_E = 0 | --- | --- | 15.0 | pf |

IMPEDANCE DATA

| FREQ | Z _{IN} (Ω) | Z _{CL} (Ω) |
|---------|---------------------|---------------------|
| 470 MHz | 2.9 + j 0.6 | 15.6 – j 10.2 |

P_{OUT} = 2W
V_{CC} = 12.5V

TEST CIRCUIT



COMPONENT LIST

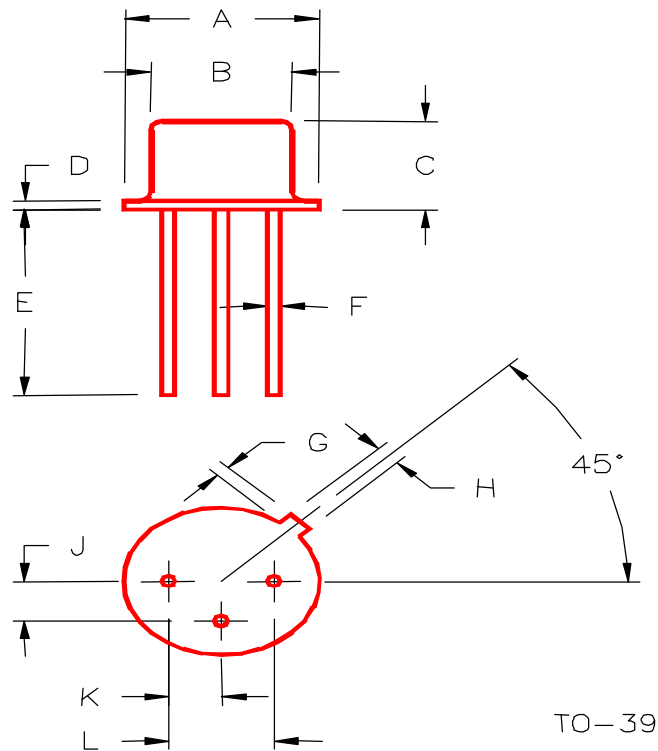
C₁, C₇, C₁₀ 1000pf UNELCO
 C₂ 0.8 – 10pf, VOLTRONICS AJ10
 C₃, C₄ 1.0 – 20pf, JOHANSON 5500
 C₅ 1.0 – 30pf, JOHANSON 5600
 C₆ 1000pf CHIP CAPACITOR
 C₈, C₉ 0.01µf DISC-CERAMIC
 C₁₁ 10µf, 35V ELECTROLYTIC

L₁ 0.47µh MOLDED CHOKE
 L₂ 2.2µh MOLDED CHOKE
 Z₁ 2.25" x 0.185"
 Z₂ 2.50" x 0.0625"
 Z₃ 2.25" x 0.185"
 BOARD MATERIAL – 3M-K6098,
 1/16" THK

S68SD1444-06

PACKAGE MECHANICAL DATA

PACKAGE STYLE M246



TO-39

| | MINIMUM INCHES/MM | MAXIMUM INCHES/MM | | MINIMUM INCHES/MM | MAXIMUM INCHES/MM |
|---|----------------------|----------------------|---|----------------------|----------------------|
| A | .350/8,89 | .370/9,40 | J | .095/2,41 | .105/2,67 |
| B | .315/8,00 | .335/8,51 | K | .095/2,41 | .105/2,67 |
| C | .240/6,10 | .260/6,60 | L | .190/4,83 | .210/5,33 |
| D | .015/0,38 | .045/1,14 | | | |
| E | .500/12,70 | | | | |
| F | .016/0,41 | .019/0,48 | | | |
| G | .029/0,74 | .040/1,02 | | | |
| H | .028/0,71 | .034/0,86 | | | |