

MS1649

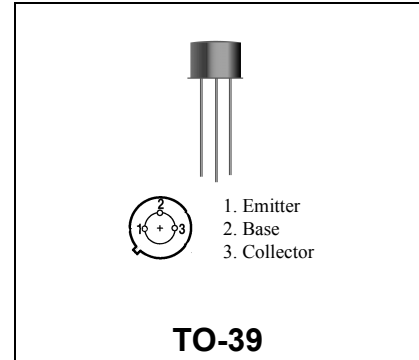
**RF & MICROWAVE TRANSISTORS
UHF CLASS C MOBILE APPLICATIONS**

Features

- 470 MHz
- $P_{OUT} = 3W$
- $G_P = 9.5dB$ MINIMUM
- COMMON EMITTER CONFIGURATION

DESCRIPTION:

The MS1649 is a 12.5V epitaxial 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 | V |
| V_{CEO} | Collector-Emitter Voltage | 16 | V |
| V_{EBO} | Emitter-Base Voltage | 3.5 | V |
| I_C | Collector Current | 1.0 | A |
| P_{TOT} | Total Power Dissipation | 7.8 | W |
| T_{STG} | Storage Temperature | -65 to +200 | °C |
| T_J | Junction Temperature | +200 | °C |

Thermal Data

| | | | |
|---------------|----------------------------------|------|------|
| $R_{TH(J-C)}$ | Thermal Resistance Junction-Case | 35.0 | °C/W |
|---------------|----------------------------------|------|------|

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

| Symbol | Test Conditions | | Value | | | Unit |
|-------------------------|-------------------------------|------------------------------|------------|------|------------|-----------|
| | | | Min. | Typ. | Max. | |
| BV_{CES} | I_C = 50mA | V_{BE} = 0 | 36 | --- | --- | V |
| BV_{CEO} | I_C = 50mA | I_B = 0 | 16 | --- | --- | V |
| BV_{EBO} | I_E = 1mA | I_C = 0 | 3.5 | --- | --- | V |
| I_{CES} | V_{CB} = 12.5V | V_{BE} = 0 | --- | --- | 1.0 | mA |
| H_{FE} | V_{CE} = 5.0V | I_C = 100mA | 20 | --- | 150 | --- |

DYNAMIC

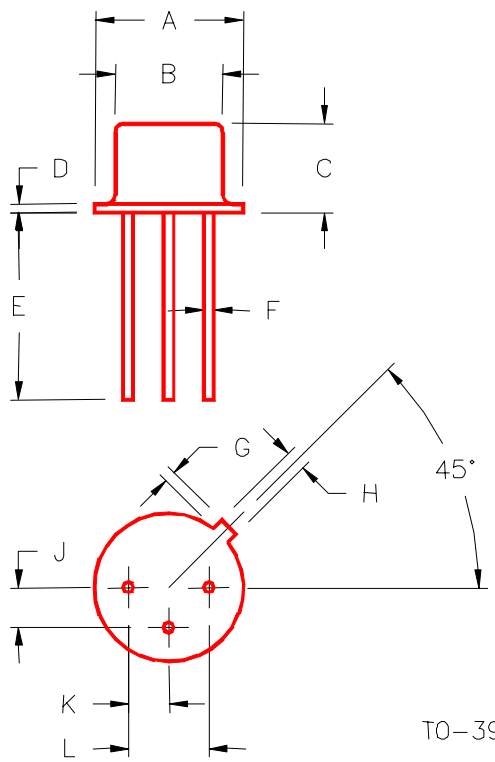
| Symbol | Test Conditions | | | Value | | | Unit |
|-----------------------|-------------------|--------------------------------|-------------------------------|------------|------|-----------|-----------|
| | | | | Min. | Typ. | Max. | |
| G_{PE} | f = 470MHz | P_{OUT} = 3.0W | V_{CC} = 12.5V | 9.5 | --- | --- | dB |
| η | f = 470MHz | P_{OUT} = 3.0W | V_{CC} = 12.5V | 50 | --- | --- | % |
| C_{OB} | f = 1.0MHz | V_{CB} = 12.5 V | | --- | --- | 12 | pf |

IMPEDANCE DATA

| FREQ | Z _{IN} (Ω) | Z _{CL} (Ω) |
|---------|---------------------|---------------------|
| 173 MHz | 3.5 + j1.2 | 14.0 + j10.0 |
| 458 MHz | 3.3 + j3.2 | 11.0 + j5.7 |

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 | | | |