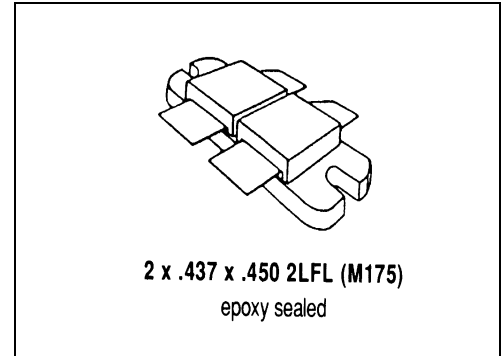


# MS1533

## RF & MICROWAVE TRANSISTORS TV/LINEAR APPLICATIONS

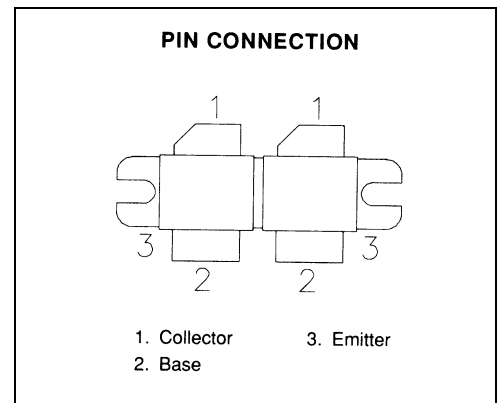
### Features

- 470 - 860 MHz
- 28 VOLTS
- INTERNAL INPUT MATCHING
- CLASS AB LINEAR
- $P_{OUT} = 150$  WATTS
- $G_P = 6.5$  dB MINIMUM
- COMMON EMITTER CONFIGURATION



### DESCRIPTION:

The MS1533 is a gold metallized epitaxial silicon NPN planar transistor designed for high linearity Class AB operation in UHF and Band IV, V television transmitters and transposers.



### ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

| Symbol     | Parameter                 | Value       | Unit |
|------------|---------------------------|-------------|------|
| $V_{CBO}$  | Collector-Base Voltage    | 60          | V    |
| $V_{EBO}$  | Emitter-Base Voltage      | 3.0         | V    |
| $V_{CEO}$  | Collector-Emitter Voltage | 30          | V    |
| $P_{DISS}$ | Power Dissipation         | 310         | W    |
| $I_C$      | Device Current            | 25          | 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 | .55 | °C/W |
|---------------|----------------------------------|-----|------|

## ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)

### STATIC

| Symbol                  | Test Conditions               |                             | Value      |      |           | Unit      |
|-------------------------|-------------------------------|-----------------------------|------------|------|-----------|-----------|
|                         |                               |                             | Min.       | Typ. | Max.      |           |
| <b>BV<sub>CBO</sub></b> | <b>I<sub>C</sub> = 100 mA</b> | <b>I<sub>E</sub> = 0mA</b>  | <b>60</b>  | ---  | ---       | <b>V</b>  |
| <b>BV<sub>CEO</sub></b> | <b>I<sub>C</sub> = 100 mA</b> | <b>I<sub>B</sub> = 0 mA</b> | <b>30</b>  | ---  | ---       | <b>V</b>  |
| <b>BV<sub>EBO</sub></b> | <b>I<sub>E</sub> = 50 mA</b>  | <b>I<sub>C</sub> = 0 mA</b> | <b>3.0</b> | ---  | ---       | <b>V</b>  |
| <b>I<sub>CES</sub></b>  | <b>V<sub>CE</sub> = 28 V</b>  | <b>I<sub>E</sub> = 0 mA</b> | ---        | ---  | <b>10</b> | <b>mA</b> |
| <b>HFE</b>              | <b>V<sub>CE</sub> = 5 V</b>   | <b>I<sub>C</sub> = 4 A</b>  | <b>15</b>  | ---  | <b>70</b> | ---       |

### DYNAMIC

| Symbol                 | Test Conditions                |                              |                              | Value      |      |            | Unit      |
|------------------------|--------------------------------|------------------------------|------------------------------|------------|------|------------|-----------|
|                        |                                |                              |                              | Min.       | Typ. | Max.       |           |
| <b>P<sub>OUT</sub></b> | <b>f = 860 MHz</b>             | <b>P<sub>IN</sub> = 33 W</b> | <b>V<sub>CE</sub> = 28 V</b> | <b>150</b> | ---  | ---        | <b>W</b>  |
| <b>G<sub>P</sub></b>   | <b>P<sub>OUT</sub> = 150 W</b> | <b>P<sub>IN</sub> = 33 W</b> | <b>V<sub>CE</sub> = 28 V</b> | <b>6.5</b> | ---  | ---        | <b>dB</b> |
| <b>η<sub>c</sub></b>   | <b>P<sub>OUT</sub> = 150 W</b> | <b>P<sub>IN</sub> = 33 W</b> | <b>V<sub>CE</sub> = 28 V</b> | <b>45</b>  | ---  | ---        | <b>%</b>  |
| <b>Cob</b>             | <b>f = 1 MHz</b>               | <b>P<sub>IN</sub> = 33 W</b> | <b>V<sub>CB</sub> = 28 V</b> | ---        | ---  | <b>100</b> | <b>pf</b> |

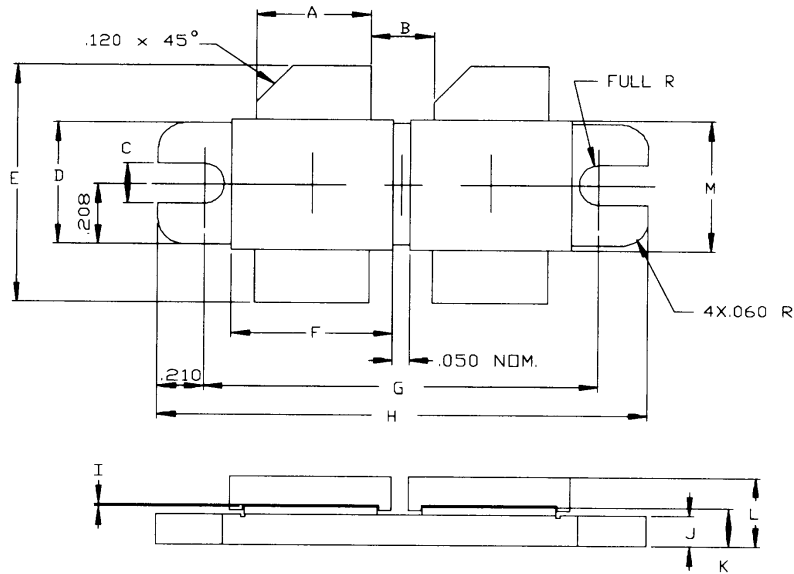
Conditions: **V<sub>CE</sub> = 28 V** **I<sub>CQ</sub> = 2 x 500 mA**

### IMPEDANCE DATA

| FREQ           | Z <sub>IN</sub> (Ω) | Z <sub>CL</sub> (Ω) |
|----------------|---------------------|---------------------|
| <b>900 MHz</b> | <b>2.65 + j 0.8</b> | <b>2.4 - j 1.6</b>  |
| <b>860 MHz</b> | <b>3.2 + j 1.6</b>  | <b>2.3 - j 0.9</b>  |
| <b>470 MHz</b> | <b>0.3 - j 1.2</b>  | <b>1.2 - j 1.3</b>  |

**P<sub>OUT</sub> = 150 W**  
**V<sub>CE</sub> = 28 V**

## PACKAGE MECHANICAL DATA



|   | MINIMUM<br>Inches/mm | MAXIMUM<br>Inches/mm |   | MINIMUM<br>Inches/mm | MAXIMUM<br>Inches/mm |
|---|----------------------|----------------------|---|----------------------|----------------------|
| A | .373/9,47            | .385/9,78            | K | .115/2,92            | .135/3,43            |
| B | .190/4,83            |                      | L |                      | .250/6,35            |
| C | .125/3,18            |                      | M | .445/11,30           | .455/11,56           |
| D | .411/10,44           | .421/10,69           |   |                      |                      |
| E | .825/20,96           | .865/21,97           |   |                      |                      |
| F | .525/13,34           | .535/13,59           |   |                      |                      |
| G | 1.255/31,88          | 1.265/32,13          |   |                      |                      |
| H | 1.675/42,55          | 1.685/42,80          |   |                      |                      |
| I | .002/0,05            | .006/0,15            |   |                      |                      |
| J | .095/2,41            | .105/2,67            |   |                      |                      |