

MS1576

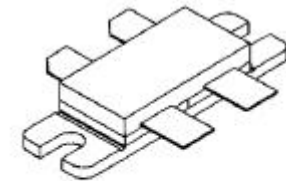
RF & MICROWAVE TRANSISTORS TV LINEAR APPLICATIONS

Features

- 470 - 860 MHz
- 28 VOLTS
- $P_{OUT} = 100\text{ W}$
- $G_P = 8.5\text{ dB MINIMUM}$
- INPUT/OUTPUT MATCHING
- COMMON EMITTER CONFIGURATION

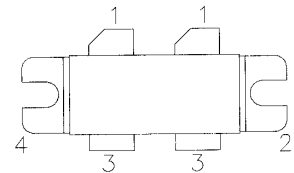
DESCRIPTION:

The MS1576 is a gold metallized NPN planar transistor designed for high linearity Class AB operation in UHF and Band IV, V television transmitters and transposers. The MS1576 utilizes an emitter ballasted die geometry for superior ruggedness and reliability.



.400 x .860 4LFL (M208)
epoxy sealed

PIN CONNECTION



1. Collector 2. Emitter
3. Base 4. Emitter

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}\text{C}$)

| Symbol | Parameter | Value | Unit |
|------------|---------------------------|-------------|--------------------|
| V_{CBO} | Collector-Base Voltage | 65 | V |
| V_{CEO} | Collector-Emitter Voltage | 30 | V |
| V_{EBO} | Emitter-Base Voltage | 3.5 | V |
| I_C | Device Current | 16 | A |
| P_{DISS} | Power Dissipation | 220 | W |
| T_J | Junction Temperature | +200 | $^{\circ}\text{C}$ |
| T_{STG} | Storage Temperature | -65 to +150 | $^{\circ}\text{C}$ |

Thermal Data

| | | | |
|---------------|----------------------------------|-----|----------------------|
| $R_{TH(J-C)}$ | Thermal Resistance Junction-case | 0.8 | $^{\circ}\text{C/W}$ |
|---------------|----------------------------------|-----|----------------------|

ELECTRICAL SPECIFICATIONS (Tcase = 25°C)
STATIC

| Symbol | Test Conditions | | Value | | | Unit |
|-------------------------|------------------------------|------------------------------|------------|------|------------|-----------|
| | | | Min. | Typ. | Max. | |
| BV_{CBO} | I_C = 40 mA | I_E = 0mA | 65 | --- | --- | V |
| BV_{CEO} | I_C = 80mA | I_B = 0mA | 30 | --- | --- | V |
| BV_{CER} | I_C = 120mA | R_{BE} = 75 Ω | 40 | --- | --- | V |
| BV_{EBO} | I_E = 20mA | I_C = 0mA | 3.5 | --- | --- | V |
| I_{CEO} | V_{CE} = 28V | I_B = 0mA | --- | --- | 10 | mA |
| h_{FE} | V_{CE} = 5V | I_C = 4A | 25 | --- | 120 | --- |

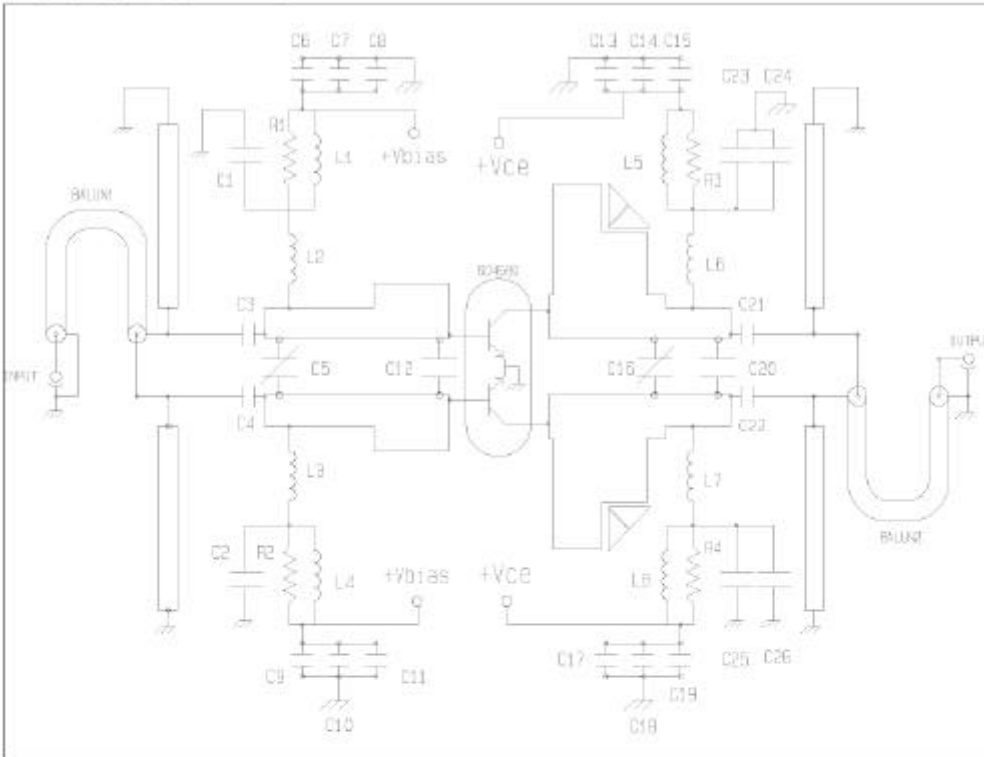
DYNAMIC

| Symbol | Test Conditions | | | Value | | | Unit |
|------------------------|--------------------|--------------------------------|-------------------------------|------------|-----------|------|-----------|
| | | | | Min. | Typ. | Max. | |
| P_{1dB} | f = 860 MHz | P_{REF} = 25 W | I_{CQ} = 200mA | 100 | --- | --- | W |
| G_p | f = 860 MHz | P_{OUT} = 100 W | I_{CQ} = 200mA | 8.5 | --- | --- | dB |
| η_C | f = 860 MHz | P_{OUT} = 100 W | I_{CQ} = 200mA | 55 | --- | --- | % |
| C_{OB} | f = 1 MHz | V_{CB} = 28 V | | --- | 50 | --- | pf |

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TEST CIRCUIT

TEST CIRCUIT SCHEMATIC



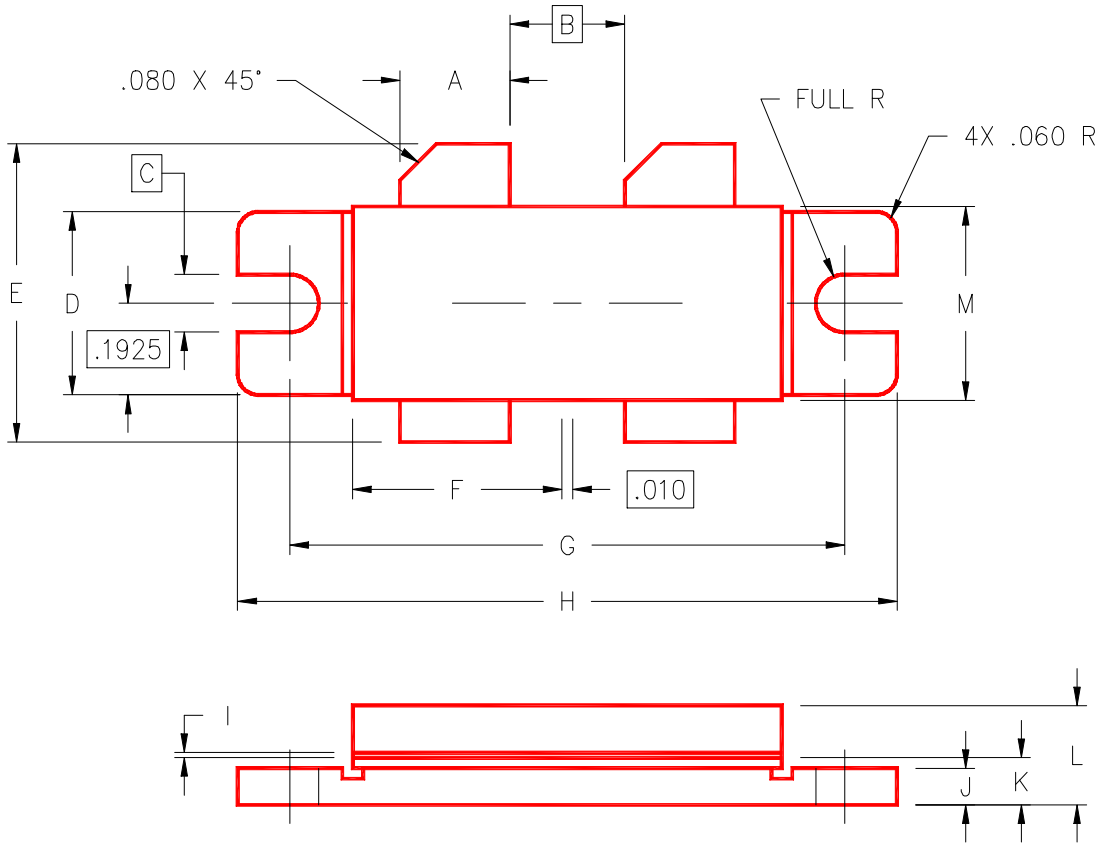
TEST CIRCUIT COMPONENT PART LIST

| | |
|-------------------|---|
| PCB | ROGERS, $\epsilon = 2.55$, Height = 31.25 mil 1 oz. Cu. |
| Balun 1,2 | 50 W Coaxial Cable Length 2.2" attached to 2 x 50 W printed microstrip transmission lines (see photomaster) |
| C1, C2, C23, C25 | 75pF Ceramic Chip ATC B |
| C3, C4, C21, C22 | 2 x 47pF Ceramic Chip, ATC B |
| C5, C16 | 0.8 - 8pF Variable, JOHANSON Giga - Trim |
| C6, C9 | 750pF Ceramic Chip, ATC B |
| C7, C10 | 39nF Ceramic Chip, ATCB |
| C8, C11, C24, C26 | 47nF, 50V Electrolytic |
| C13, C17 | 100nF, 50V Electrolytic |
| C12 | 9.1pF, Ceramic Chip, ATC A |
| C14, C18 | 39nF Ceramic Chip (OPTIONAL) |
| C15, C19 | 750pF Ceramic Chip (OPTIONAL) |
| C20 | 1.3pF Ceramic Chip, ATC B |
| L1, L4, L5, L8 | 12 Turns, #200 AWG, 0.15" I.D. (Tight) |
| L2, L3, L6, L7 | 4 Turns, #20AWG, 0.13" I.D. (1:1) |
| R1, R2, R3, R4 | 5 X 50 W Chip Resistor |

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PACKAGE MECHANICAL DATA

PACKAGE STYLE M208



| | MINIMUM INCHES/MM | MAXIMUM INCHES/MM | | MINIMUM INCHES/MM | MAXIMUM INCHES/MM |
|---|-------------------|-------------------|---|-------------------|-------------------|
| A | .220/5,59 | .230/5,84 | I | .003/0,08 | .007/0,18 |
| B | .210/5,33 | | J | .060/1,52 | .070/1,78 |
| C | .125/3,18 | | K | .100/2,54 | .115/2,92 |
| D | .380/9,65 | .390/9,91 | L | | .230/5,84 |
| E | .580/14,73 | .620/15,75 | M | .395/10,03 | .405/10,29 |
| F | .420/10,67 | .430/10,93 | | | |
| G | 1.090/27,69 | 1.105/28,07 | | | |
| H | 1.335/33,91 | 1.345/34,16 | | | |