

# MS1576

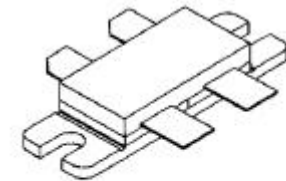
## RF & MICROWAVE TRANSISTORS TV LINEAR APPLICATIONS

### Features

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

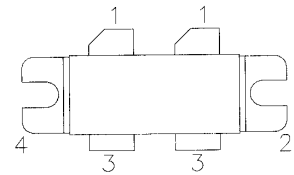
### DESCRIPTION:

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	$^{\circ}\text{C/W}$
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**ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)**
**STATIC**

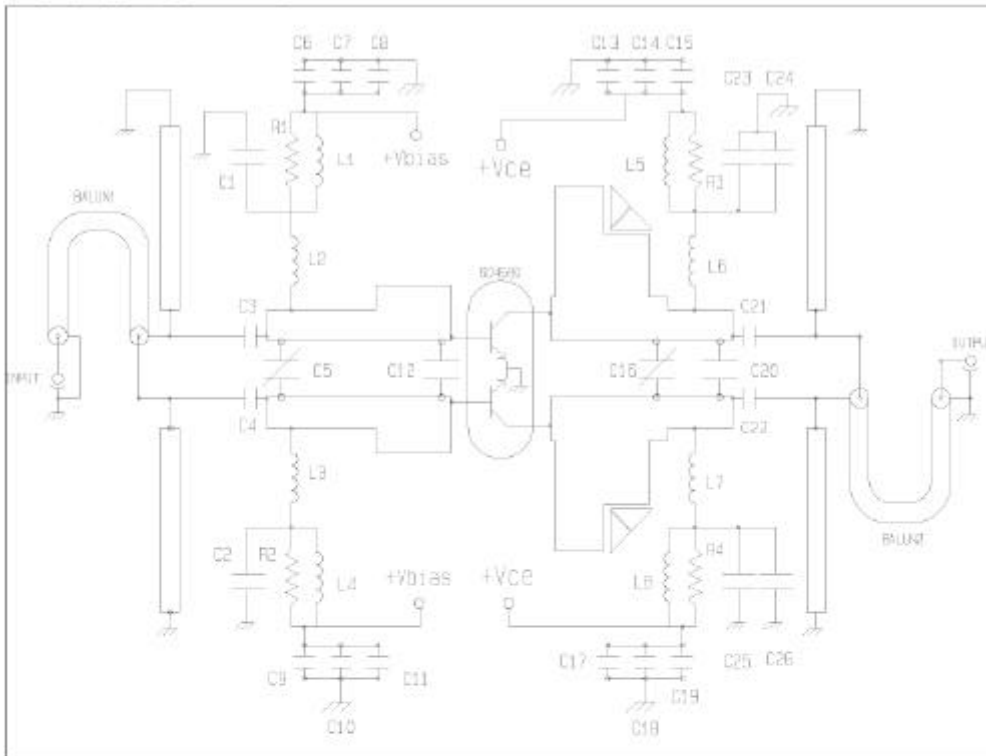
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
<b>BV<sub>CBO</sub></b>	<b>I<sub>C</sub> = 40 mA</b>	<b>I<sub>E</sub> = 0mA</b>	<b>65</b>	---	---	<b>V</b>
<b>BV<sub>CEO</sub></b>	<b>I<sub>C</sub> = 80mA</b>	<b>I<sub>B</sub> = 0mA</b>	<b>30</b>	---	---	<b>V</b>
<b>BV<sub>CER</sub></b>	<b>I<sub>C</sub> = 120mA</b>	<b>R<sub>BE</sub> = 75 Ω</b>	<b>40</b>	---	---	<b>V</b>
<b>BV<sub>EBO</sub></b>	<b>I<sub>E</sub> = 20mA</b>	<b>I<sub>C</sub> = 0mA</b>	<b>3.5</b>	---	---	<b>V</b>
<b>I<sub>CEO</sub></b>	<b>V<sub>CE</sub> = 28V</b>	<b>I<sub>B</sub> = 0mA</b>	---	---	<b>10</b>	<b>mA</b>
<b>h<sub>FE</sub></b>	<b>V<sub>CE</sub> = 5V</b>	<b>I<sub>C</sub> = 4A</b>	<b>25</b>	---	<b>120</b>	---

**DYNAMIC**

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
<b>P<sub>1dB</sub></b>	<b>f = 860 MHz</b>	<b>P<sub>REF</sub> = 25 W</b>	<b>I<sub>CQ</sub> = 200mA</b>	<b>100</b>	---	---	<b>W</b>
<b>G<sub>p</sub></b>	<b>f = 860 MHz</b>	<b>P<sub>OUT</sub> = 100 W</b>	<b>I<sub>CQ</sub> = 200mA</b>	<b>8.5</b>	---	---	<b>dB</b>
<b>η<sub>C</sub></b>	<b>f = 860 MHz</b>	<b>P<sub>OUT</sub> = 100 W</b>	<b>I<sub>CQ</sub> = 200mA</b>	<b>55</b>	---	---	<b>%</b>
<b>C<sub>OB</sub></b>	<b>f = 1 MHz</b>	<b>V<sub>CB</sub> = 28 V</b>		---	<b>50</b>	---	<b>pf</b>

**TEST CIRCUIT**

TEST CIRCUIT SCHEMATIC

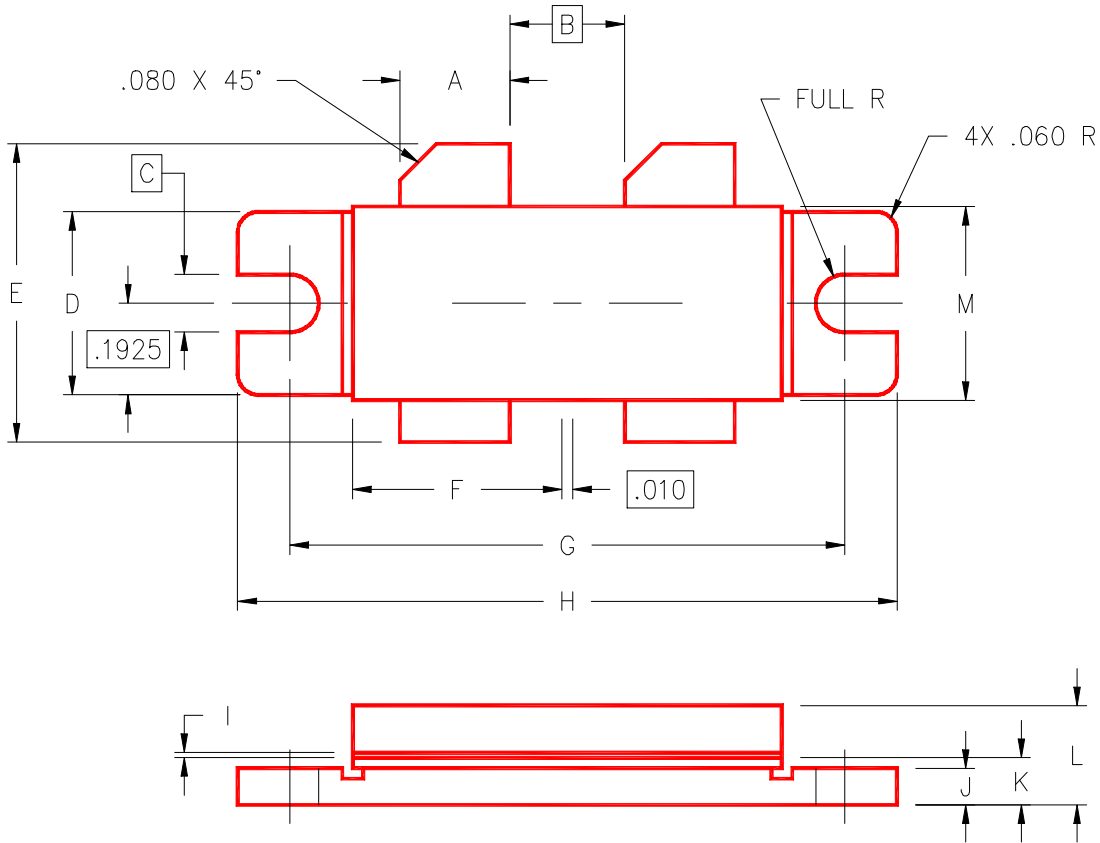


TEST CIRCUIT COMPONENT PART LIST

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

**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			