ADVANCED POWER TECHNOLOGY RF®

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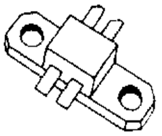
MS1579

RF & MICROWAVE TRANSISTORS TV LINEAR APPLICATIONS



.250 x .320 4LFL (M156)
epoxy sealed

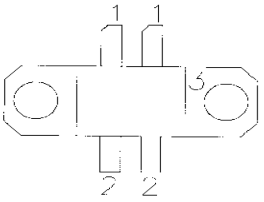
Features

- **470 - 860 MHz**
- **25 VOLTS**
- **CLASS A OPERATION**
- **INTERNAL INPUT MATCHING**
- **P_{OUT} = 14 WATTS**
- **G_P = 8.5 dB MINIMUM**
- **COMMON EMITTER CONFIGURATION**

DESCRIPTION:

The MS1579 is a gold metallized, epitaxial silicon NPN transistor designed for Class A, UHF and Band IV, V television transmitters applications. Diffused emitter ballast resistors ensure long term reliability under Class A linear operation.

PIN CONNECTION



1. Collector
2. Base
3. Emitter

ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	45	V
V_{CEO}	Collector-Emitter Voltage	25	V
V_{EBO}	Emitter-Base Voltage	4.0	V
P_{DISS}	Power Dissipation	65	W
I_C	Device Current	5.2	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	2.5	°C/W

ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	I_C = 20 mA I_E = 0 mA	45	---	---	V
BV_{CEO}	I_C = 40 mA I_B = 0 mA	25	---	---	V
BV_{EBO}	I_E = 5 mA I_C = 0 mA	3.0	---	---	V
HFE	V_{CE} = 20 V I_C = 0.5 A	10	---	200	---

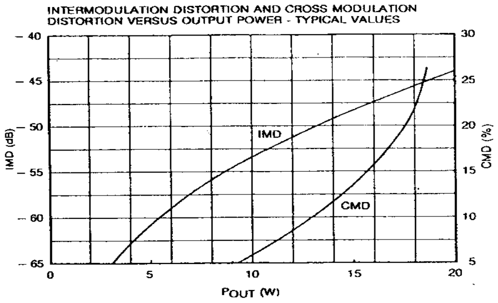
DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	f = 845 MHz P_{IN} = 2.0 V_{CE} = 25 V	14	---	---	W
G_P	P_{OUT} = 14 W P_{IN} = 2.0 V_{CE} = 25 V	8.5	---	---	dB
IMD_3	P_{OUT} = 14 W P_{IN} = 2.0 V_{CE} = 25 V	---	-47	---	dBc
C_{OB}	f =1 MHz V_{CB} = 25 V	---	---	20	pf

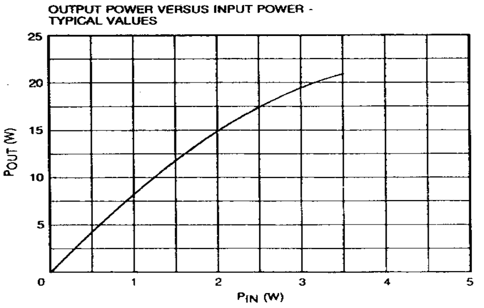
Conditions: **V_{CE} = 25 V** **I_{CQ} = 2 x 850 mA**

TYPICAL PERFORMANCE

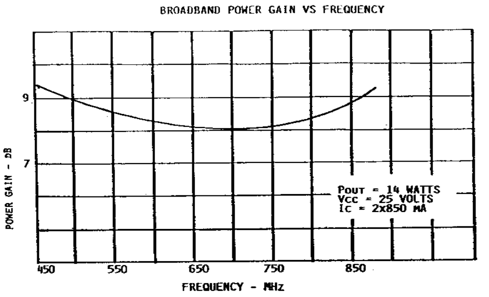
INTERMODULATION DISTORTION & CROSS MODULATION DISTORTION vs POWER OUTPUT



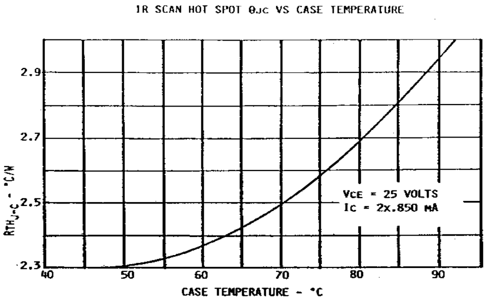
POWER OUTPUT vs POWER INPUT



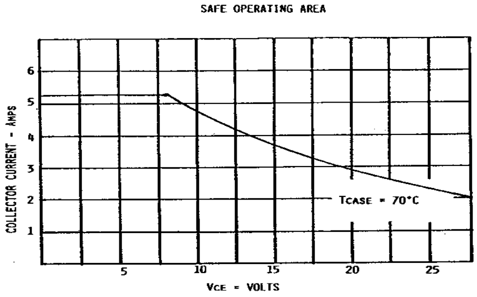
BROADBAND POWER GAIN vs FREQUENCY



THERMAL RESISTANCE vs CASE TEMPERATURE



SAFE OPERATING AREA



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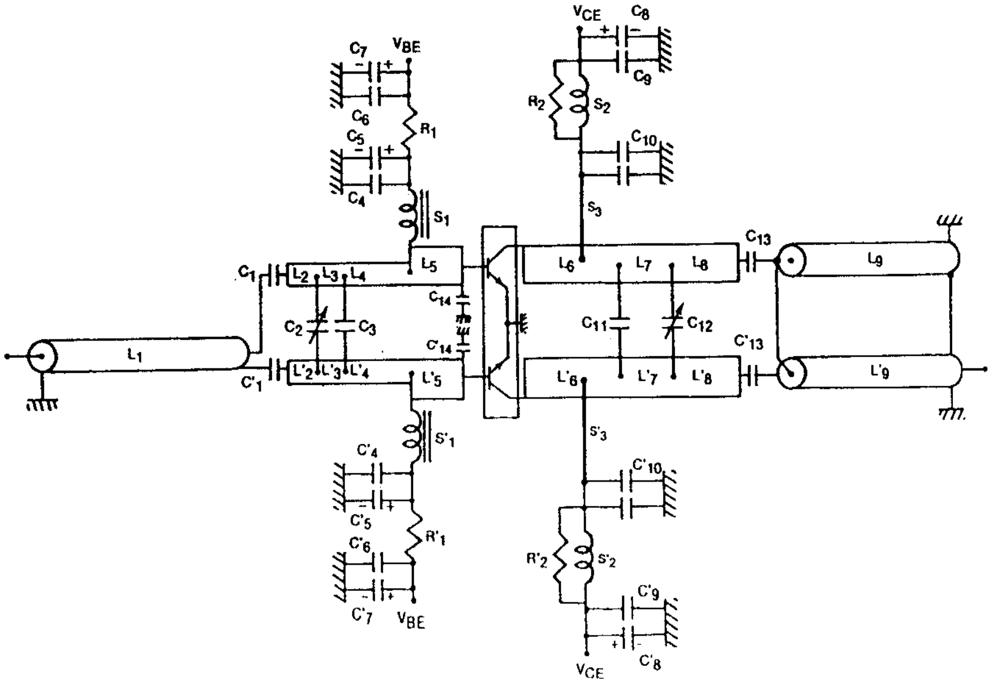
TEST CIRCUIT



C1, C'1,
C13, C'13 : 68pF, ATC 100A
C2 : 4.5pF Adjustable Johanson
C3 : 4.7pF, ATC 100A
C4, C'4, C6, C'6, C9, C'9,
C10, C'10 : 100pF, ATC 100A + 1nF LCC Chip + 10nF LCC Chip
C5, C'5 : 4.7µF, 25V, Tantalum Capacitor
C7, C'7 : 10µF, 25V, Tantalum Capacitor
C8, C'8 : 22µF, 35V, Tantalum Capacitor
C11 : 4.7pf, ATC 100A
C12 : 8pF Adjustable Johanson
C14, C'14 : 22pF, ATC 100A

L1, L9, L'9 : 50Ω Coaxial Wire Diameter 2.2mm, Length 29mm on 70Ω Transmission Line
L2, L'2 : 50Ω Printed Transmission Line Length 4mm

L3, L'3 : 50Ω Printed Transmission Line Length 3mm
L4, L'4 : 50Ω Printed Transmission Line Length 9.5mm
L5, L'5 : 39Ω Printed Transmission Line Length 7mm
L6, L'6 : 39Ω Printed Transmission Line Length 15mm
L7, L'7 : 39Ω Printed Transmission Line Length 8mm
L8, L'8 : 39Ω Printed Transmission Line Length 10mm

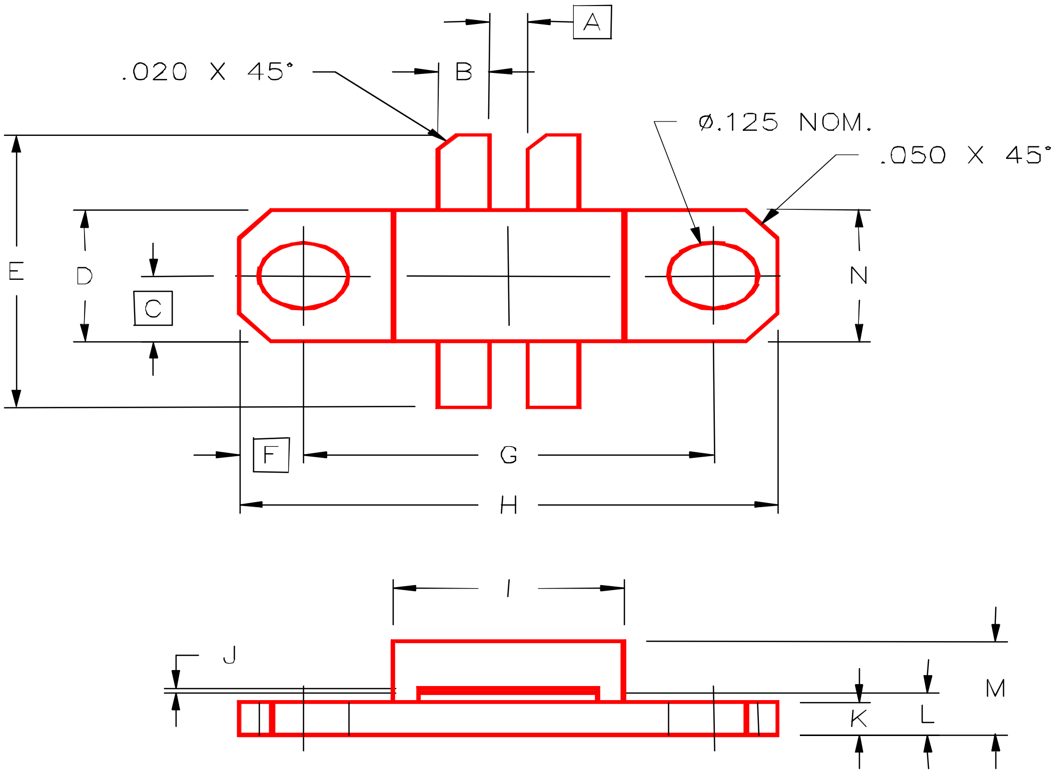
R1, R'1 : 4.7Ω, 1/2W
R2, R'2 : 1207Ω, 1/2W

S1, S'1 : 470nH Molded
S2, S'2 : 5 Turns, Diameter Wire 0.5mm on 3mm I.D.
S3, S'3 : Diameter Wire 1.2mm, Length 12mm

Substrate: Teflon Glass 30Mils, Er = 2.55

PACKAGE MECHANICAL DATA

PACKAGE STYLE M156



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.060/1,52		I	.315/8,00	.325/8,26
B	.055/1,40	.065/1,65	J	.002/0,05	.006/0,15
C	.124/3,15		K	.055/1,40	.065/1,65
D	.243/6,17	.253/6,43	L	.075/1,91	.095/2,41
E	.635/16,13	.665/16,89	M		.190/4,83
F	.092/2,34		N	.245/6,22	.255/6,48
G	.555/14,10	.565/14,35			
H	.739/18,77	.749/19,02			