

MS1076

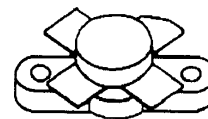
RF & MICROWAVE TRANSISTORS HF SSB APPLICATIONS

Features

- 30 MHz
- 28 VOLTS
- GOLD METALLIZATION
- $P_{OUT} = 220$ W PEP
- $G_p = 12$ dB GAIN MINIMUM
- COMMON EMITTER CONFIGURATION

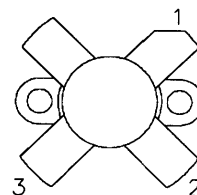
DESCRIPTION:

The MS1076 is a 28 volt epitaxial NPN silicon planar transistor designed primarily for SSB and VHF communications. This device utilizes an emitter ballasted die geometry for maximum ruggedness and reliability.



.500 4LFL (M174)
epoxy sealed

PIN CONNECTION



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

ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector - Base Voltage	70	V
V_{CEO}	Collector - Emitter Voltage	35	V
V_{EBO}	Emitter - Base Voltage	4.0	V
I_C	Device Current	16	A
P_{DISS}	Power Dissipation	250	W
T_J	Junction Temperature	+200	°C
T_{STG}	Storage Temperature	- 65 to +150	°C

Thermal Data

$R_{TH(J-C)}$	Junction - Case Thermal Resistance	0.7	°C/W
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Rev A: October 2009

ELECTRICAL SPECIFICATIONS (Tcase = 25°C)
STATIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CES}	$I_C = 100 \text{ mA}$	70	---	---	V
BV_{CEO}	$I_C = 200 \text{ mA}$	35	---	---	V
BV_{EBO}	$I_E = 20 \text{ mA}$	4.0	---	---	V
I_{CEO}	$V_{CE} = 30 \text{ V}$	---	---	5	mA
I_{CES}	$V_{CE} = 35 \text{ V}$	---	---	5	mA
H_{FE}	$V_{CE} = 5 \text{ V}, I_C = 7 \text{ A}$	15	---	60	---

DYNAMIC

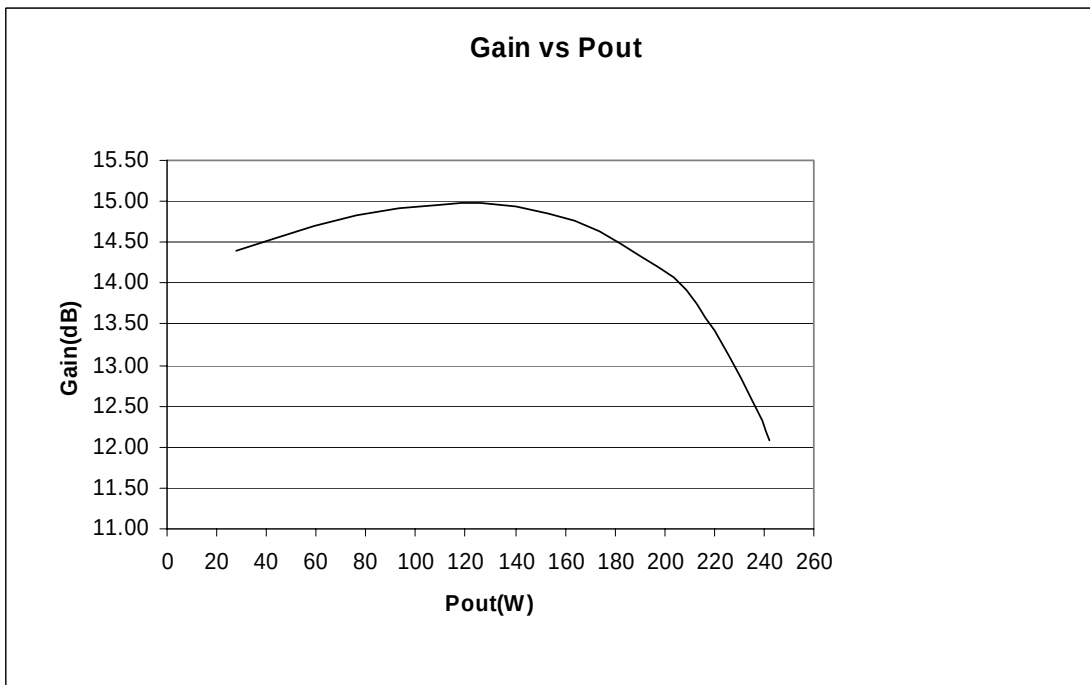
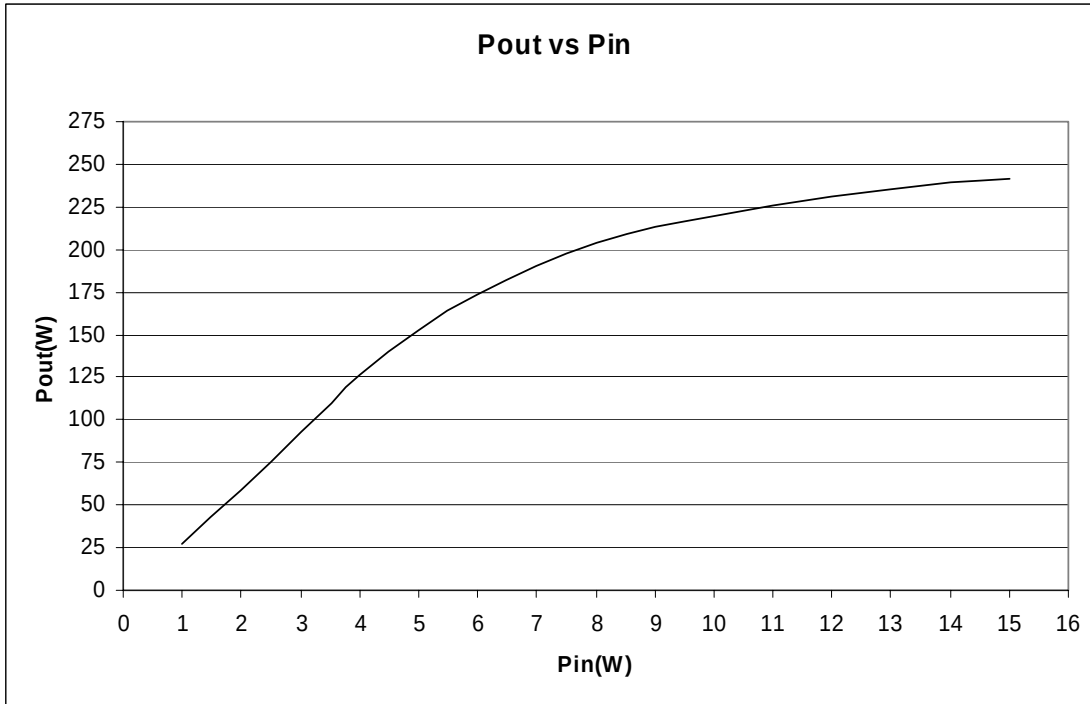
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 30 \text{ MHz}$	$V_{CE} = 28 \text{ V}$	$I_{CQ} = 750 \text{ mA}$	220	---	---	WPEP
G_P	$f = 30 \text{ MHz}$	$V_{CE} = 28 \text{ V}$	$I_{CQ} = 750 \text{ mA}$	12	---	---	dB
η_C	$f = 30 \text{ MHz}$	$V_{CE} = 28 \text{ V}$	$I_{CQ} = 750 \text{ mA}$	40	---	---	%
IMD	$f = 30 \text{ MHz}$	$V_{CE} = 28 \text{ V}$	$I_{CQ} = 750 \text{ mA}$	---	---	-30	dBc
C_{OB}	$f = 1 \text{ MHz}$	$V_{CB} = 28 \text{ V}$		---	450	---	pf
Conditions	$f_1 = 30.000 \text{ MHz}$	$f_2 = 30.001 \text{ MHz}$					

HFE BINNING (marked on lid with appropriate letter):

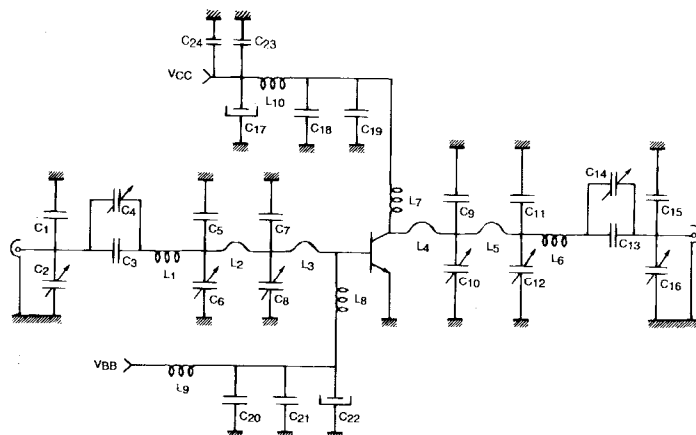
A = 15-19	D = 27-32	G = 45-50
B = 19-22.5	E = 32-38	H = 50-55
C = 22.5-27	F = 38-45	I = 55-60

IMPEDANCE DATA

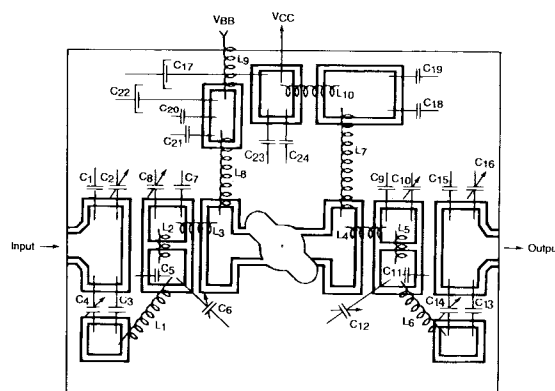
FREQ	Z_{IN}	Z_{CL}
30 MHz	$1.2 + j0.41$	$1.25 + j1.92$

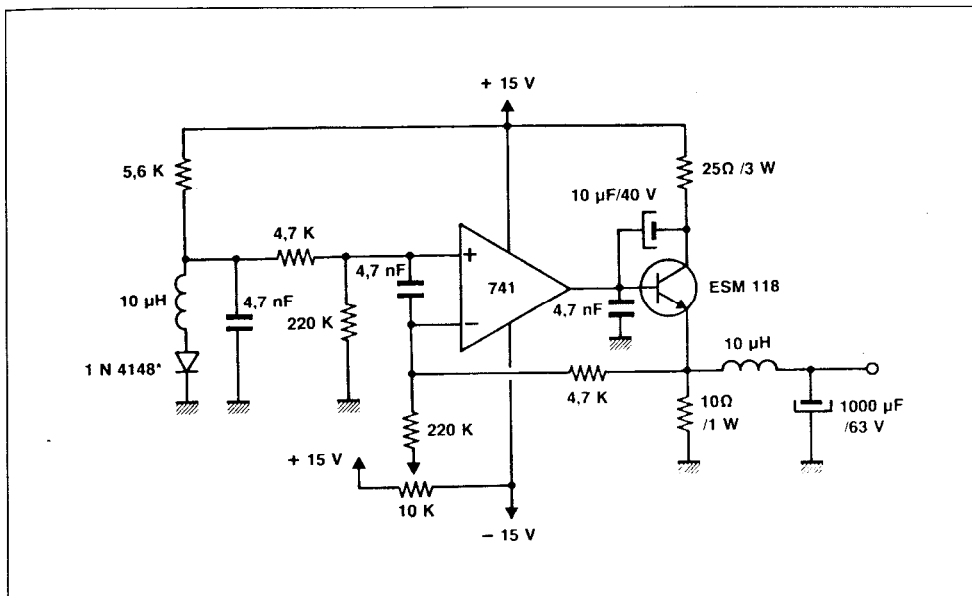
TYPICAL PERFORMANCE

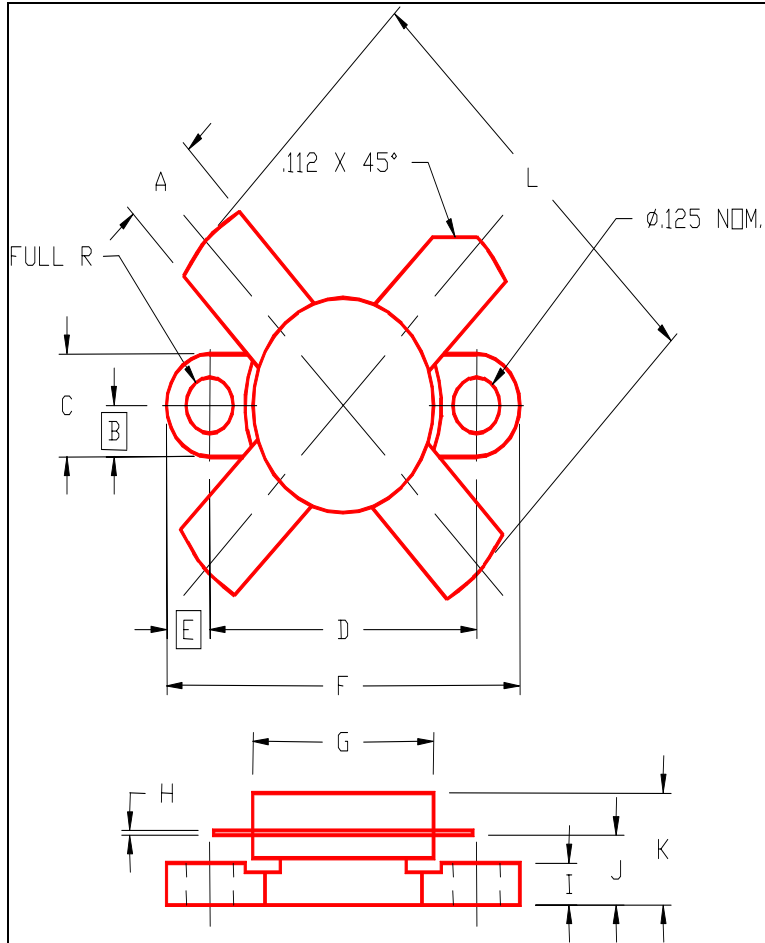
TEST CIRCUIT



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|--------------|---|------------|--------|---|---|
| C1 | : | 180pF | L1 | : | 3 Turns, Diameter 10mm, 1.3mm Wire, Length 10mm |
| C2, C4, C6, | | | L2, L5 | : | Hair Pin Copper foil 40 x 5mm, 0.2mm Thick |
| C8, C10, C12 | | | L3, L4 | : | Hair Pin Copper Foil 10 x 5mm, 0.2mm Thick |
| C14, C16 : | | Arco 428 | L6 | : | 5 Turns, Diameter 10mm, 1.3mm Wire, Length 15mm |
| C3 | : | 820pF | L7 | : | 3 Turns, Diameter 10mm, 1.3mm Wire, Length 25mm |
| C5, C13 | : | 680pF | L8 | : | Choke |
| C7, C11 | : | 1.2nF | L9 | : | Choke |
| C9 | : | 1.5nF | L10 | : | Choke |
| C17, C22 | : | 470µF, 40V | | | |
| C18 | : | 10nF | | | |
| C19, C21 | | | | | |
| C23 | : | 1nF | | | |
| C20, C24 | : | 100nF, 63V | | | |



BIAS CIRCUIT


PACKAGE MECHANICAL DATA

PACKAGE STYLE M174

	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.220/5,59	.230/5,84	I	.090/2,29	.110/2,79
B	.125/3,18		J	.160/4,06	.175/4,45
C	.245/6,22	.255/6,48	K		.280/7,11
D	.720/18,28	.730/18,54	L		1.050/26,67
E	.125/3,18				
F	.970/24,64	.980/24,89			
G	.495/12,57	.505/12,83			
H	.003/0,08	.007/0,18			