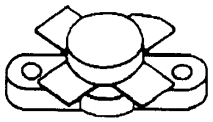
MS1076

RF & MICROWAVE TRANSISTORS
HF SSB APPLICATIONS



.500 4LFL (M174)
epoxy sealed

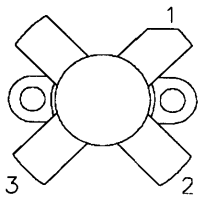
Features

- 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.

PIN CONNECTION



1. Collector
2. Emitter
3. Base
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

Rev A: October 2009

MS1076

ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

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

DYNAMIC

Symbol	Test Conditions			Value			
				Min.	Typ.	Max.	Unit
P_{OUT}	f = 30 MHz	V_{CE} = 28 V	I_{CQ} = 750 mA	220	---	---	WPEP
G_P	f = 30 MHz	V_{CE} = 28 V	I_{CQ} = 750 mA	12	---	---	dB
η_C	f = 30 MHz	V_{CE} = 28 V	I_{CQ} = 750 mA	40	---	---	%
IMD	f = 30 MHz	V_{CE} = 28 V	I_{CQ} = 750 mA	---	---	-30	dBc
C_{OB}	f = 1 MHz	V_{CB} = 28 V		---	450	---	pf
Conditions	f1 = 30.000 MHz	f2 = 30.001 MHz					

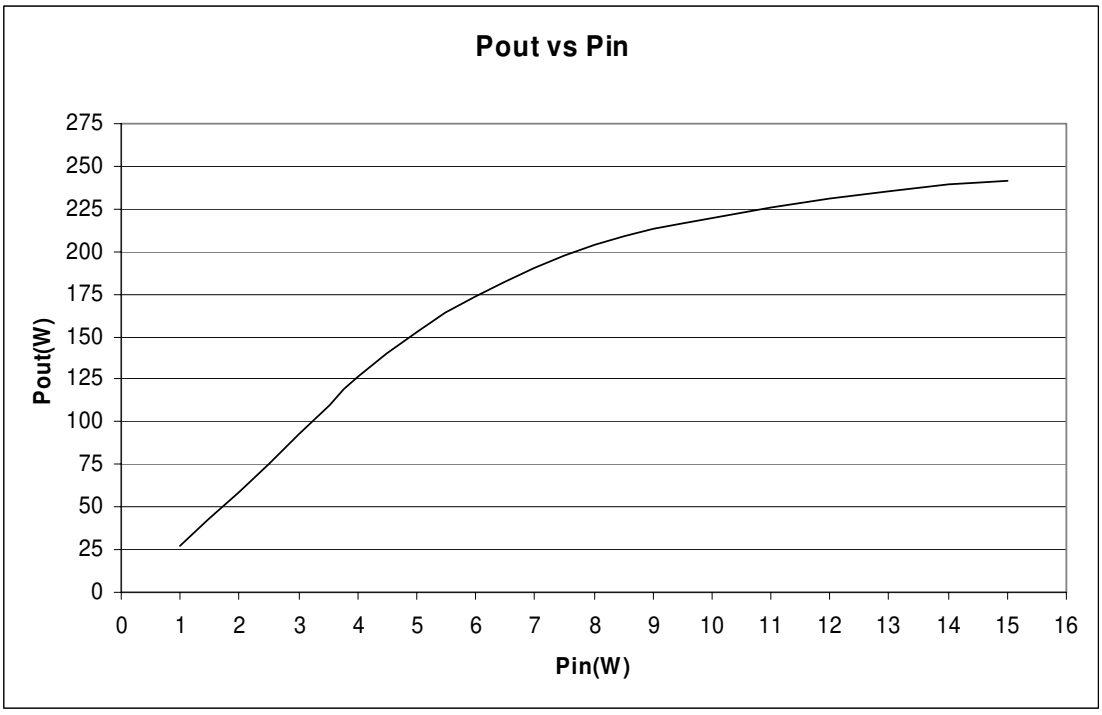
HFE BINNING (marked on lid with appropriate letter):

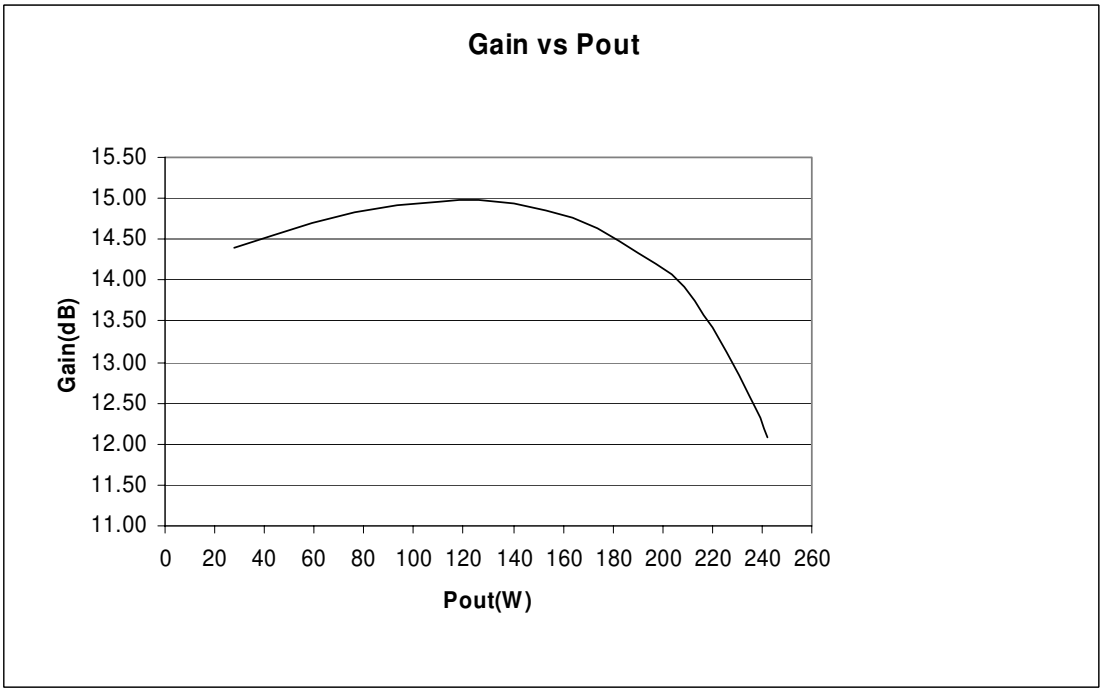
A = 15-19	D = 27-32	G = 45-50
B = 19-22.5	E = 32-38	H = 50-55
C = 22.5-27	F = 38-45	I = 55-60

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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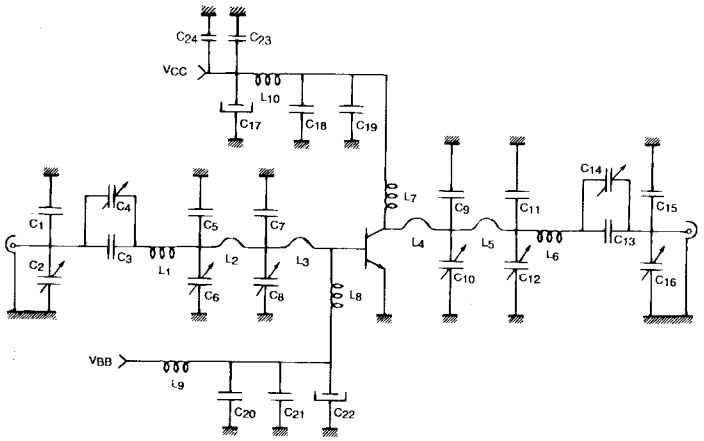
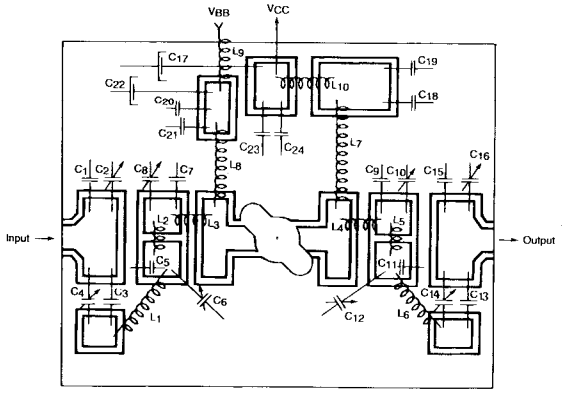
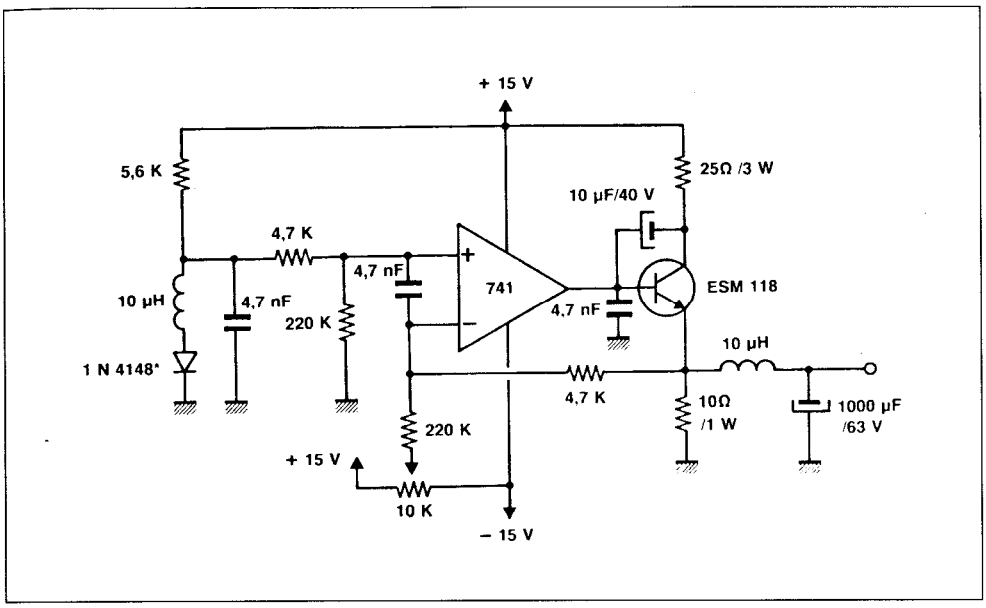


C1	:	180pF
C2, C4, C6, C8, C10, C12	:	Arco 428
C14, C16	:	Arco 428
C3	:	820pF
C5, C13	:	680pF
C7, C11	:	1.2nF
C9	:	1.5nF
C17, C22	:	470µF, 40V
C18	:	10nF
C19, C21		
C23	:	1nF
C20, C24	:	100nF, 63V

L1	:	3 Turns, Diameter 10mm, 1.3mm Wire, Length 10mm
L2, L5	:	Hair Pin Copper foil 40 x 5mm, 0.2mm Thick
L3, L4	:	Hair Pin Copper Foil 10 x 5mm, 0.2mm Thick
L6	:	5 Turns, Diameter 10mm, 1.3mm Wire, Length 15mm
L7	:	3 Turns, Diameter 10mm, 1.3mm Wire, Length 25mm
L8	:	Choke
L9	:	Choke
L10	:	Choke

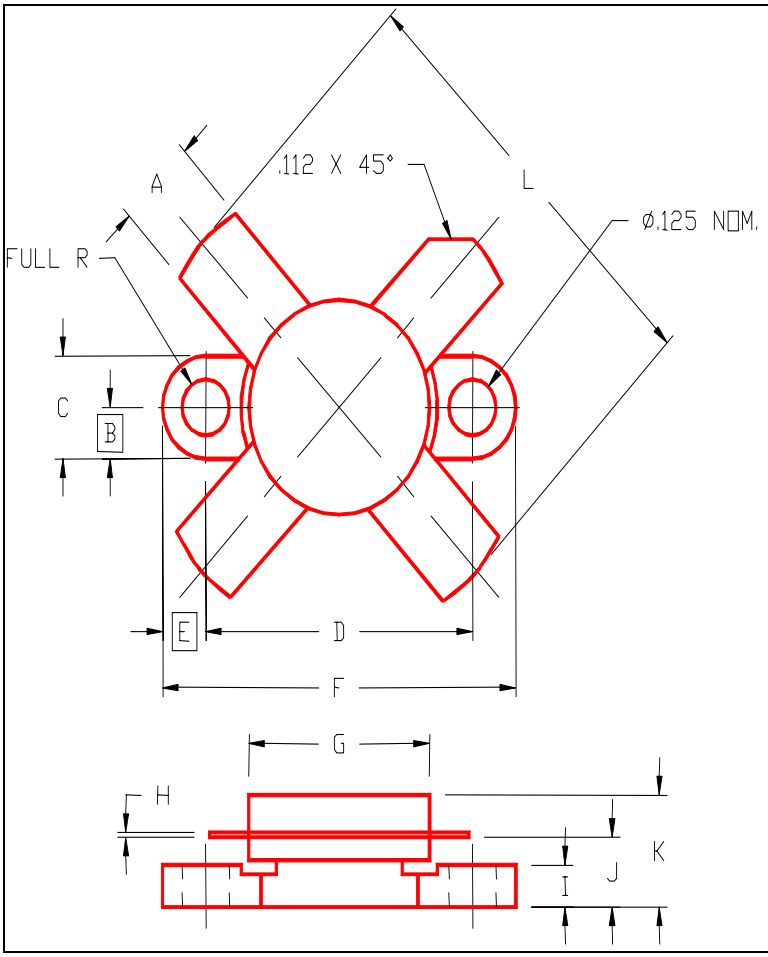


BIAS CIRCUIT



MS1076

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			