

MS1076

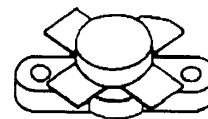
RF & MICROWAVE TRANSISTORS HF SSB APPLICATIONS

Features

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

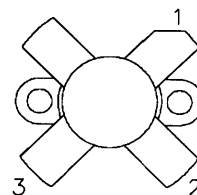
DESCRIPTION:

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

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	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	- 65 to +150	$^{\circ}\text{C}$

Thermal Data

$R_{TH(J-C)}$	Junction - Case Thermal Resistance	0.7	$^{\circ}\text{C/W}$
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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

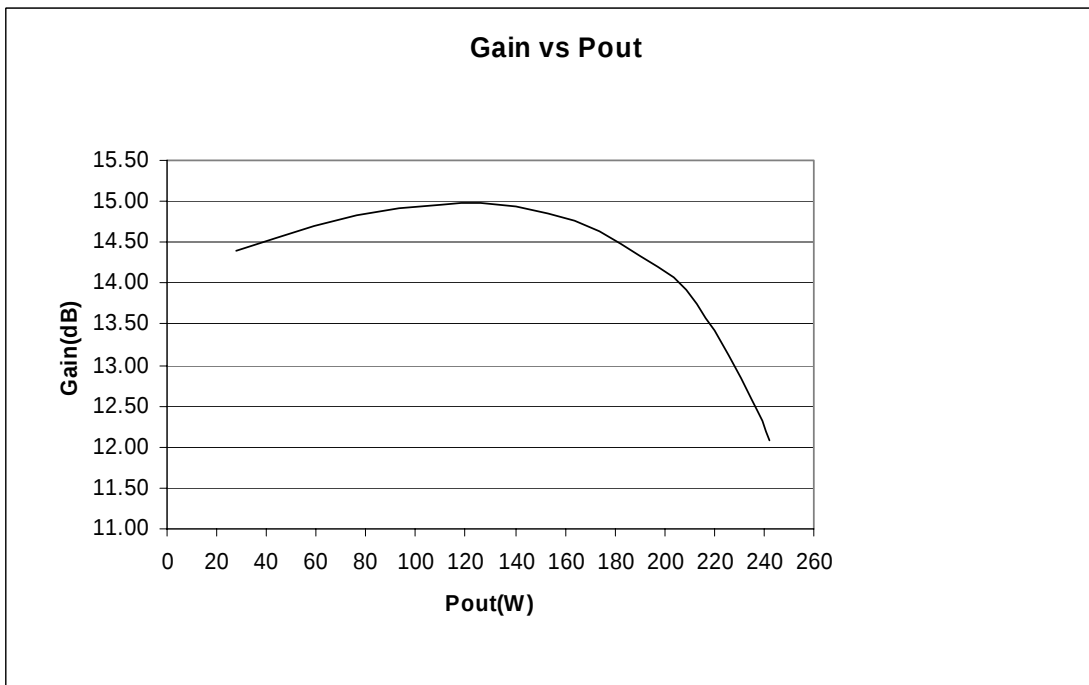
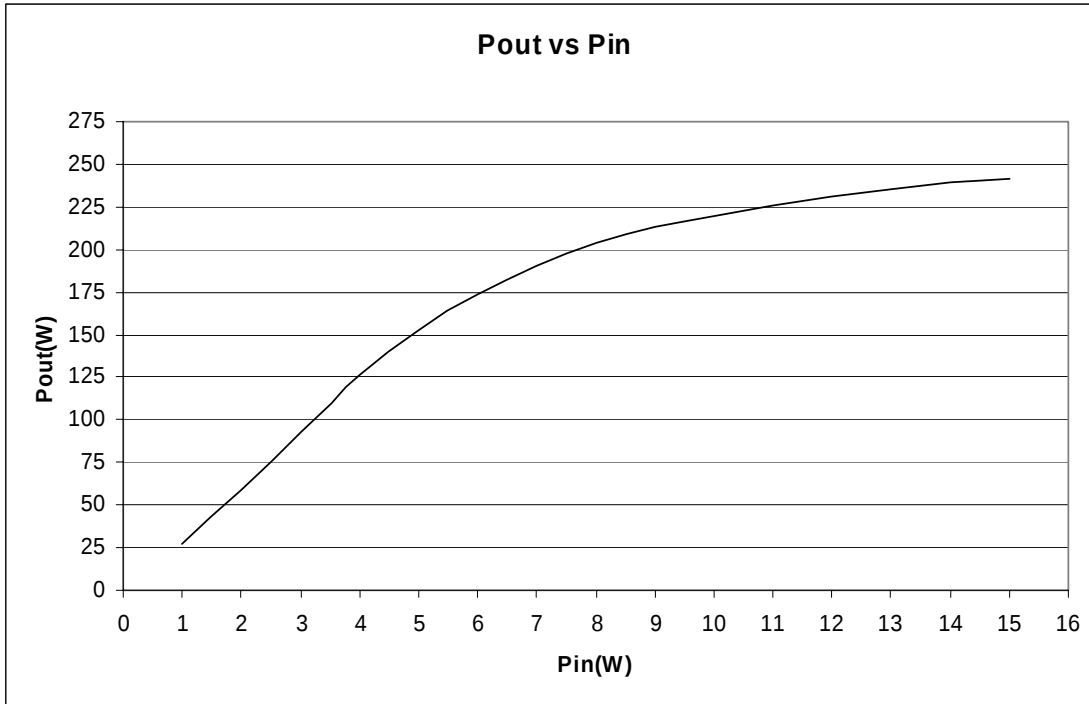
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 30 \text{ MHz}$	$V_{CE} = 28 \text{ V}$	$I_{CQ} = 750 \text{ mA}$	220	---	---	WPEP
G_P	$f = 30 \text{ MHz}$	$V_{CE} = 28 \text{ V}$	$I_{CQ} = 750 \text{ mA}$	12	---	---	dB
η_C	$f = 30 \text{ MHz}$	$V_{CE} = 28 \text{ V}$	$I_{CQ} = 750 \text{ mA}$	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

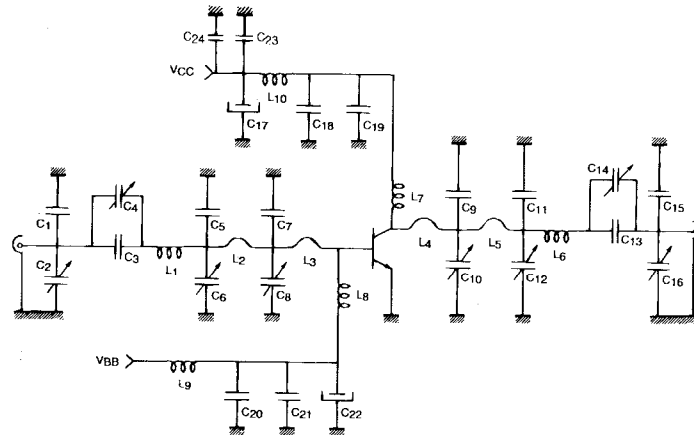
IMPEDANCE DATA

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

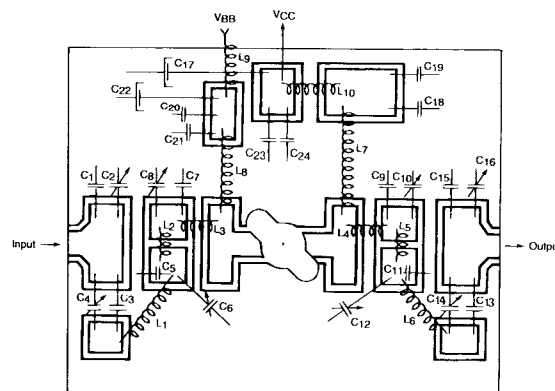
TYPICAL PERFORMANCE

TEST CIRCUIT

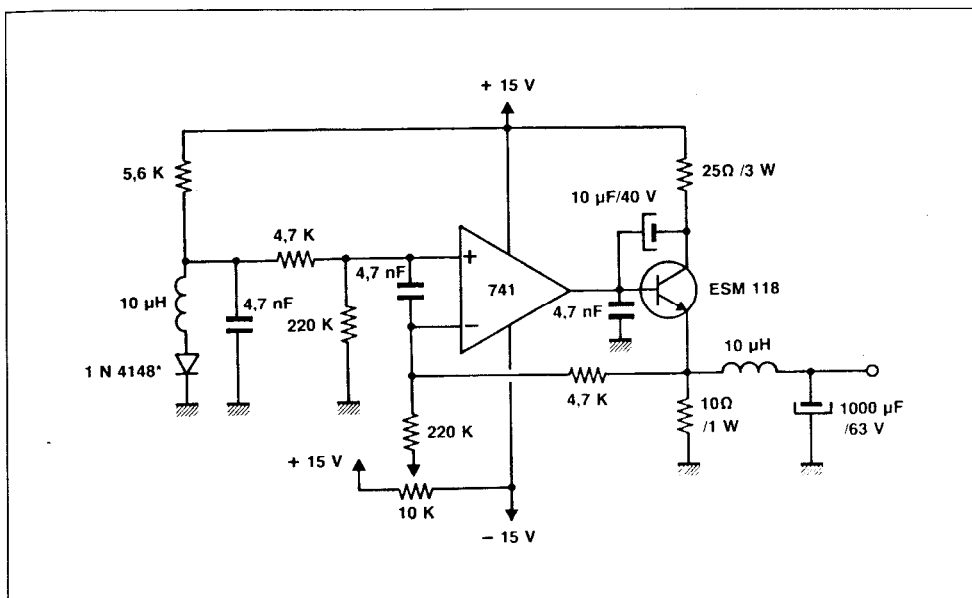
TEST CIRCUIT

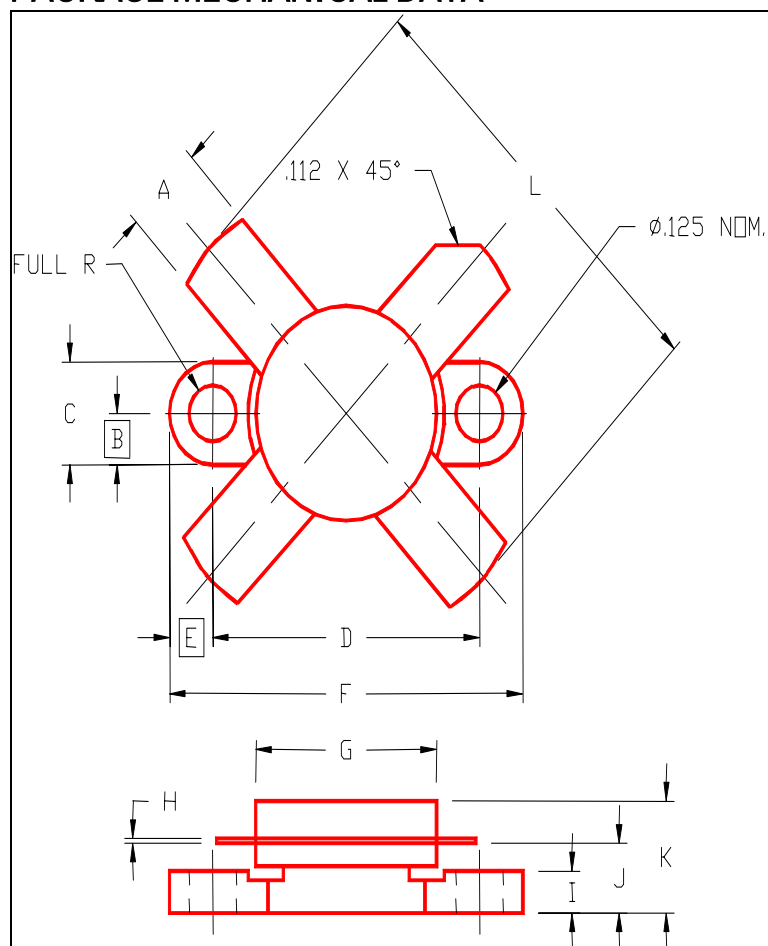


C1	: 180pF	L1	: 3 Turns, Diameter 10mm, 1.3mm Wire, Length 10mm
C2, C4, C6,		L2, L5	: Hair Pin Copper foil 40 x 5mm, 0.2mm Thick
C8, C10, C12		L3, L4	: Hair Pin Copper Foil 10 x 5mm, 0.2mm Thick
C14, C16	: Arco 428	L6	: 5 Turns, Diameter 10mm, 1.3mm Wire, Length 15mm
C3	: 820pF	L7	: 3 Turns, Diameter 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			