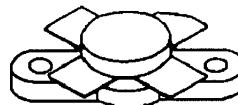


MS1051
**RF & MICROWAVE TRANSISTORS
HF SSB APPLICATIONS**
Features

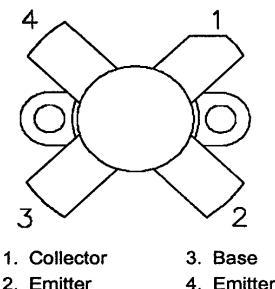
- 30 MHz
- 12.5 VOLTS
- $P_{OUT} = 100$ WATTS
- $G_{PE} = 12.0$ dB MINIMUM
- IMD = -30 dBc
- GOLD METALLIZATION
- COMMON EMITTER CONFIGURATION

DESCRIPTION:

The MS1051 is a 12.5 V Class C epitaxial silicon NPN planar transistor designed primarily for HF communications. This device utilizes state-of-the-art diffused emitter ballasting to achieve extreme ruggedness under severe operating conditions.



.500 4LFL (M174)
epoxy sealed

PIN CONNECTION

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	36	V
V_{CEO}	Collector-Emitter Voltage	18	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	20	A
P_{DISS}	Power Dissipation	290	W
T_J	Junction Temperature	+200	°C
T_{STG}	Storage Temperature	-65 to +150	°C

THERMAL DATA

$R_{TH(J-C)}$	Thermal Resistance Junction-case	0.6	°C/W
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Revision B, January 2010

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)
STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_C = 100\text{mA}$	$I_E = 0\text{mA}$	36	---	---	V
BV_{CES}	$I_C = 100\text{mA}$	$V_{BE} = 0\text{V}$	36	---	---	V
BV_{CEO}	$I_C = 100\text{mA}$	$I_B = 0\text{mA}$	18	---	---	V
BV_{EBO}	$I_E = 20\text{mA}$	$I_C = 0\text{mA}$	4.0	---	---	V
I_{CES}	$V_{CE} = 15\text{V}$	$I_C = 0\text{mA}$	---	---	20	mA
h_{FE}	$V_{CE} = 5\text{V}$	$I_C = 5\text{mA}$	10	---	200	---

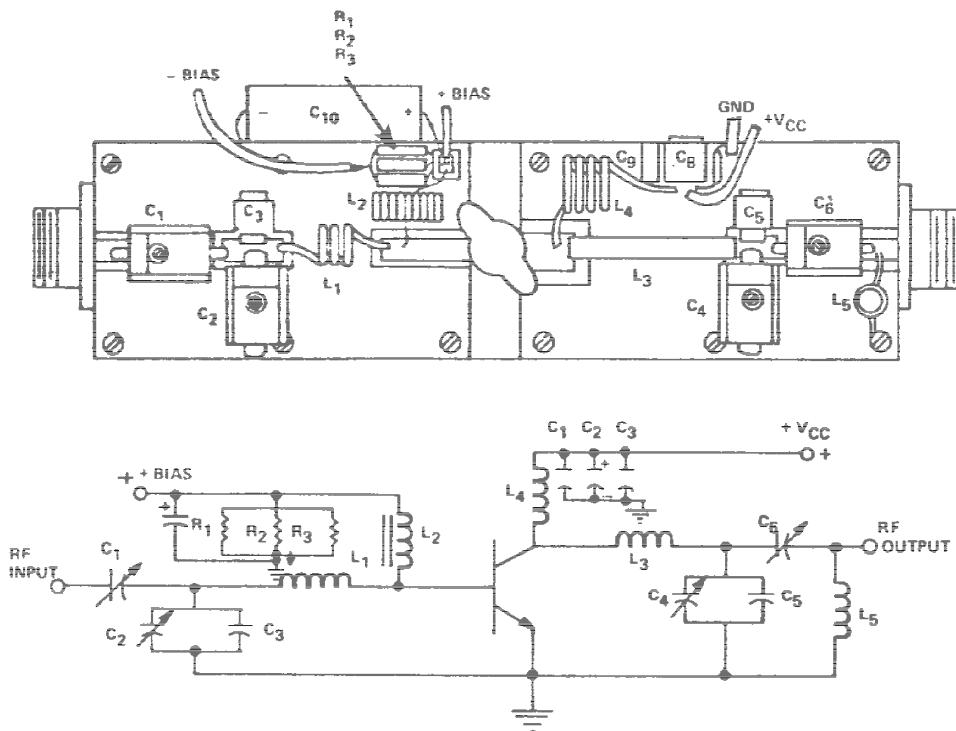
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 30\text{ MHz}$	$V_{CE} = 12.5\text{ V}$	$I_{CQ} = 150\text{mA}$	100	---	---	W
G_P	$f = 30\text{ MHz}$	$V_{CE} = 12.5\text{ V}$	$I_{CQ} = 150\text{mA}$	11	13	---	dB
IMD_3^*	$P_{OUT} = 100\text{ W PEP}$	$V_{CE} = 12.5\text{ V}$	$I_{CQ} = 150\text{mA}$	---	---	-30	dBc
C_{OB}	$f = 1\text{ MHz}$	$V_{CB} = 12.5\text{ V}$		---	400	---	pf

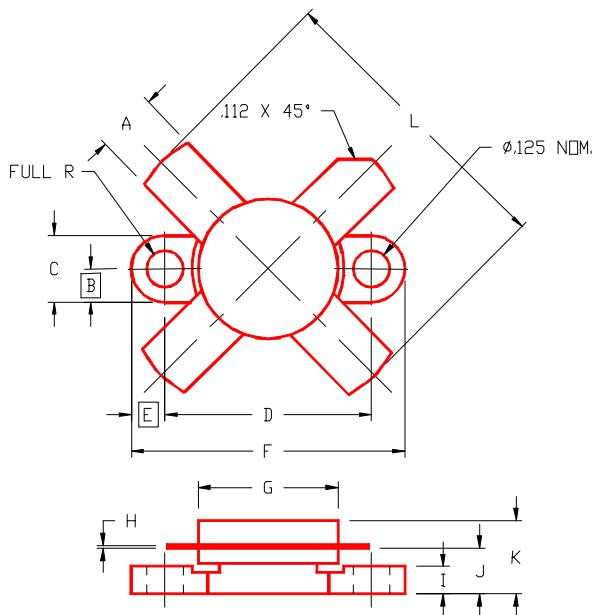
 Conditions: $f_1 = 30.000\text{MHz}$ $f_2 = 30.001\text{MHz}$

IMPEDANCE DATA

FREQ	$Z_{IN}(\Omega)$	$Z_{CL}(\Omega)$
30 MHz	$0.57 + j 0.78$	$0.80 + j 0.43$

 $P_{OUT} = 100$ WPEP, $V_{CE} = 12.5$ V
TEST CIRCUIT


C1	: 9 - 180pF Arco 463	L3	: Copper Strap 1/4" Width, Length 1 1/2", Height 1/2"
C2	: 5 - 380pF Arco 465	L4	: 4 Turns, #16 AWG, Enamelled Wire 3/8" I.D.
C3	: 200pF Arco 465	L5	: 5 Turns, #18 AWG on 1/4" I.D. Coil Form Length 1/2", Ferrite Slug
C4, C6	: 170pF Arco 469	R1, R2,	
C7	: 0.1 μ F Ceramic Disc	R3	: 1.5 Ohm, 1 Watt Carbon
C5, C8	: 1000pF Unelco		
C9	: 10 μ F Electrolytic, 35Vdc		
C10	: 1000 μ F Electrolytic, 35Vdc		
L1	: 2 1/2 Turns, #14 AWG, I.D. Loose Wound		
L2	: 16 Turns, #16 AWG, Enamelled Wire on Micrometals Torroid #T-94		

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			