

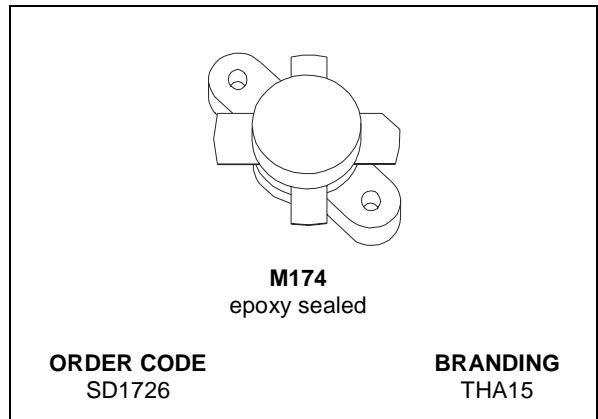


SD1726 (THA15)

RF & MICROWAVE TRANSISTORS HF SSB APPLICATIONS

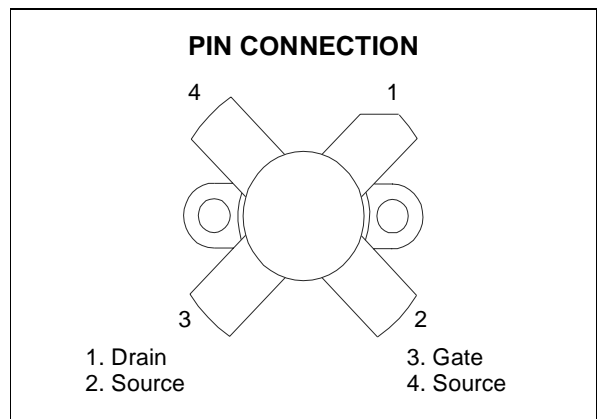
FEATURES

- OPTIMIZED FOR SSB
- 30 MHz
- 50 V
- IMD-30 dB
- COMMON EMITTER
- GOLD METALLIZATION
- $P_{OUT} = 150$ W PEP MIN. WITH 14 dB GAIN



DESCRIPTION

The SD1726 is a 50 V epitaxial silicon NPN planar transistor designed primarily for SSB communications. This device utilizes emitter ballasting to achieve extreme ruggedness under severe operating conditions.



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

Symbol	Parameter	Value	Unit
V_{CBO}	Collecto-Base Voltage	110	V
V_{CEO}	Collector-Emitter Voltage	55	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Drain Current	20	A
P_{DISS}	Power Dissipation	318	W
T_j	Max. Operating Junction Temperature	+200	°C
T_{STG}	Storage Temperature	-65 to +150	°C

THERMAL DATA

$R_{th(j-c)}$	Junction -Case Thermal Resistance at $T_{CASE} = 70$ °C	0.75	°C/W
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SD1726 (THA15)

ELECTRICAL SPECIFICATION ($T_{CASE} = 25\text{ }^{\circ}\text{C}$)

STATIC

Symbol	Test Conditions	Min.	Typ.	Max.	Unit
BV_{CBO}	$I_C = 100\text{ mA}$ $I_E = 0\text{ mA}$	110			V
BV_{CES}	$I_C = 100\text{ mA}$ $V_{BE} = 0\text{ V}$	110			V
BV_{CEO}	$I_C = 100\text{ mA}$ $I_B = 0\text{ mA}$	55			V
BV_{EBO}	$I_E = 10\text{ mA}$ $I_C = 0\text{ mA}$	4.0			V
I_{CEO}	$V_{CE} = 30\text{ V}$ $I_E = 0\text{ mA}$			5	mA
I_{CES}	$V_{CE} = 60\text{ V}$ $I_E = 0\text{ mA}$			5	mA
h_{FE}	$V_{CE} = 6\text{ V}$ $I_C = 1.4\text{ A}$	18		43.5	

DYNAMIC

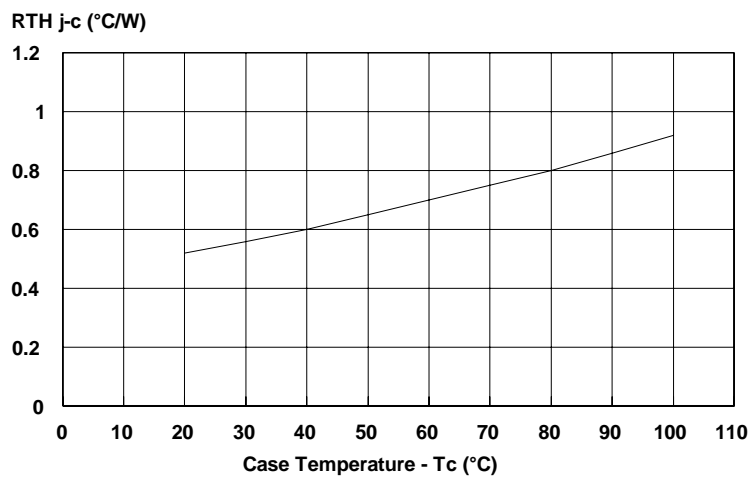
Symbol	Test Conditions	Min.	Typ.	Max.	Unit
P_{OUT}	$V_{CE} = 50\text{ V}$ $I_{CQ} = 100\text{ mA}$ $f = 30\text{ MHz}$	150			W
G_P^*	$V_{CE} = 50\text{ V}$ $I_{CQ} = 100\text{ mA}$ $P_{OUT} = 150\text{ W PEP}$	14			dB
IMD^*	$V_{CE} = 50\text{ V}$ $I_{CQ} = 100\text{ mA}$ $P_{OUT} = 150\text{ W PEP}$			-30	dBc
η_D^*	$V_{CE} = 50\text{ V}$ $I_{CQ} = 100\text{ mA}$ $P_{OUT} = 150\text{ W PEP}$	37			%
G_{OB}	$V_{CB} = 50\text{ V}$ $f = 1\text{ MHz}$			220	pF

Note: The SD1726 is also usable in Class A at 40 V. Typical performance is:

$P_{OUT} = 30\text{ W PEP}$, $G_P = 14\text{ dB}$, $IMD = -40\text{ dBc}$

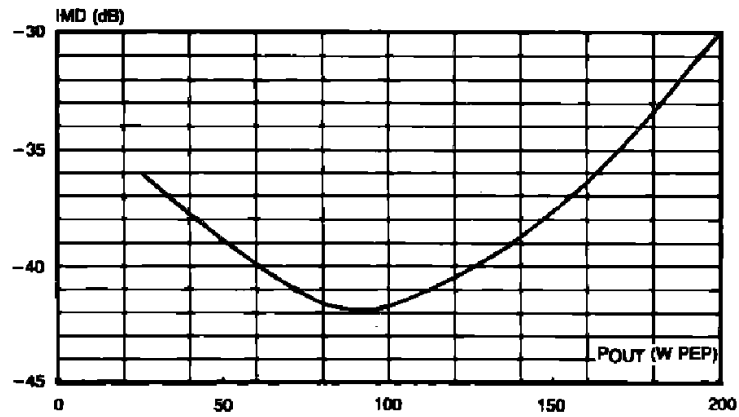
* $f_1 = 30.00\text{ MHz}$; $f_2 = 30.001\text{ MHz}$

Thermal Resistance versus Case Temperature

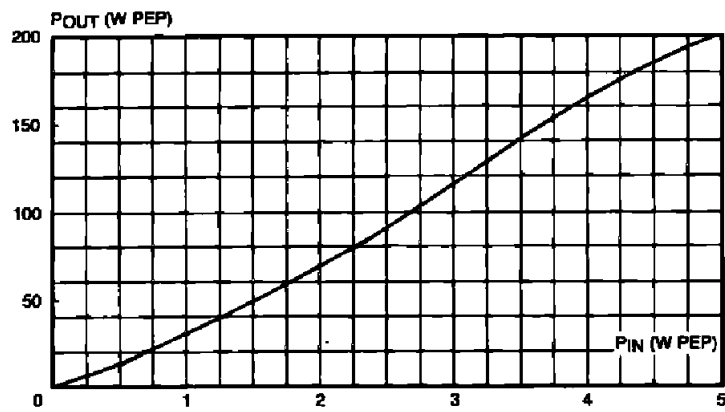


TYPICAL PERFORMANCE

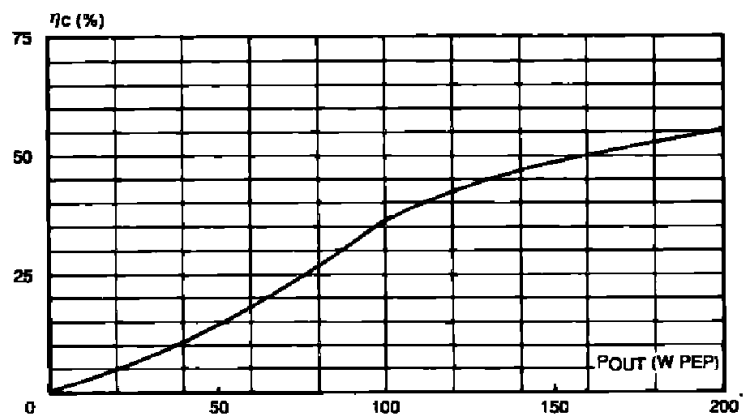
INTERMODULATION DISTORTION vs POWER OUTPUT PEP



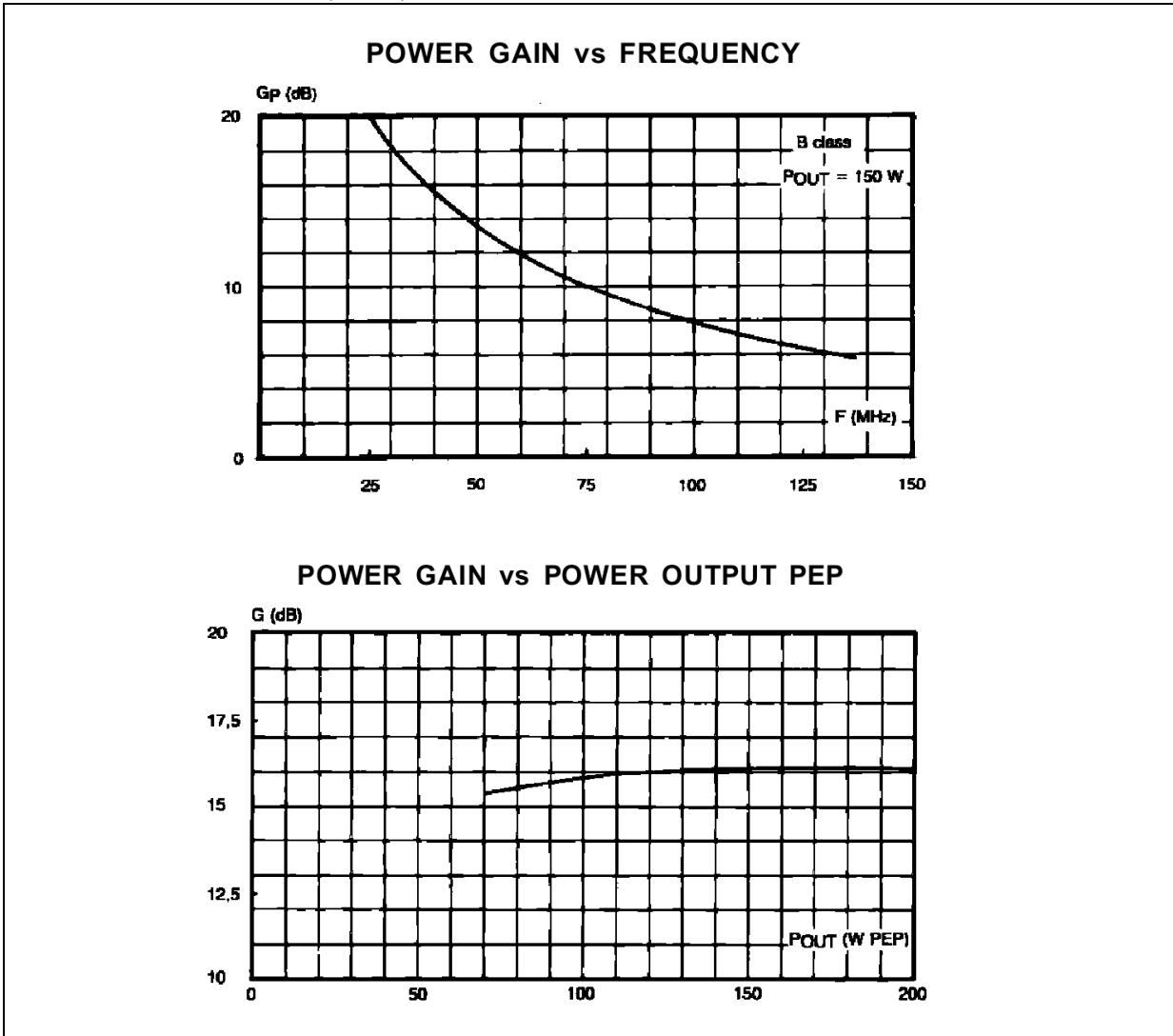
POWER OUTPUT PEP vs POWER INPUT



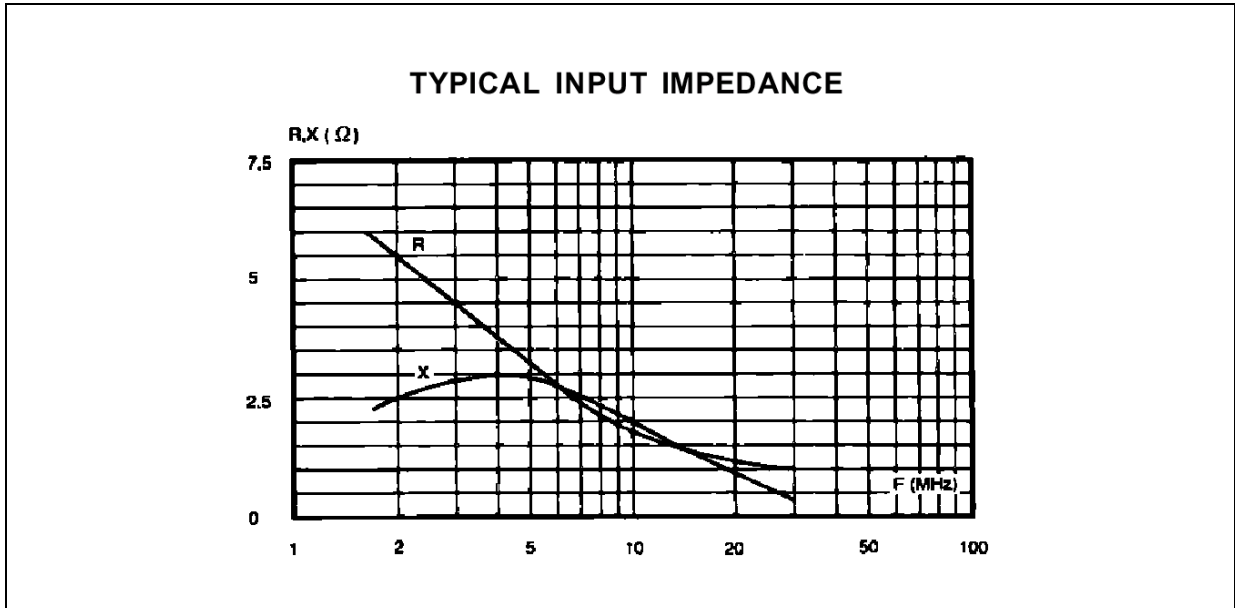
COLLECTOR EFFICIENCY vs POWER OUTPUT PEP



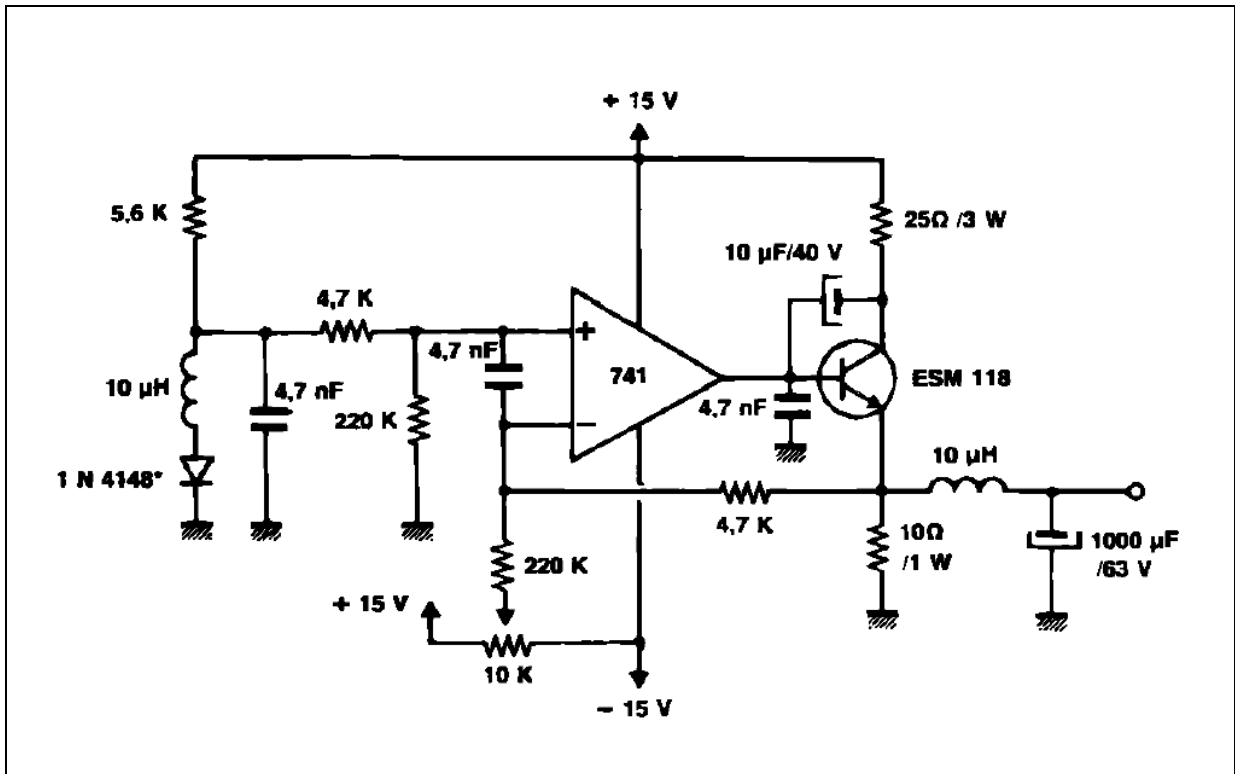
TYPICAL PERFORMANCE (cont'd)



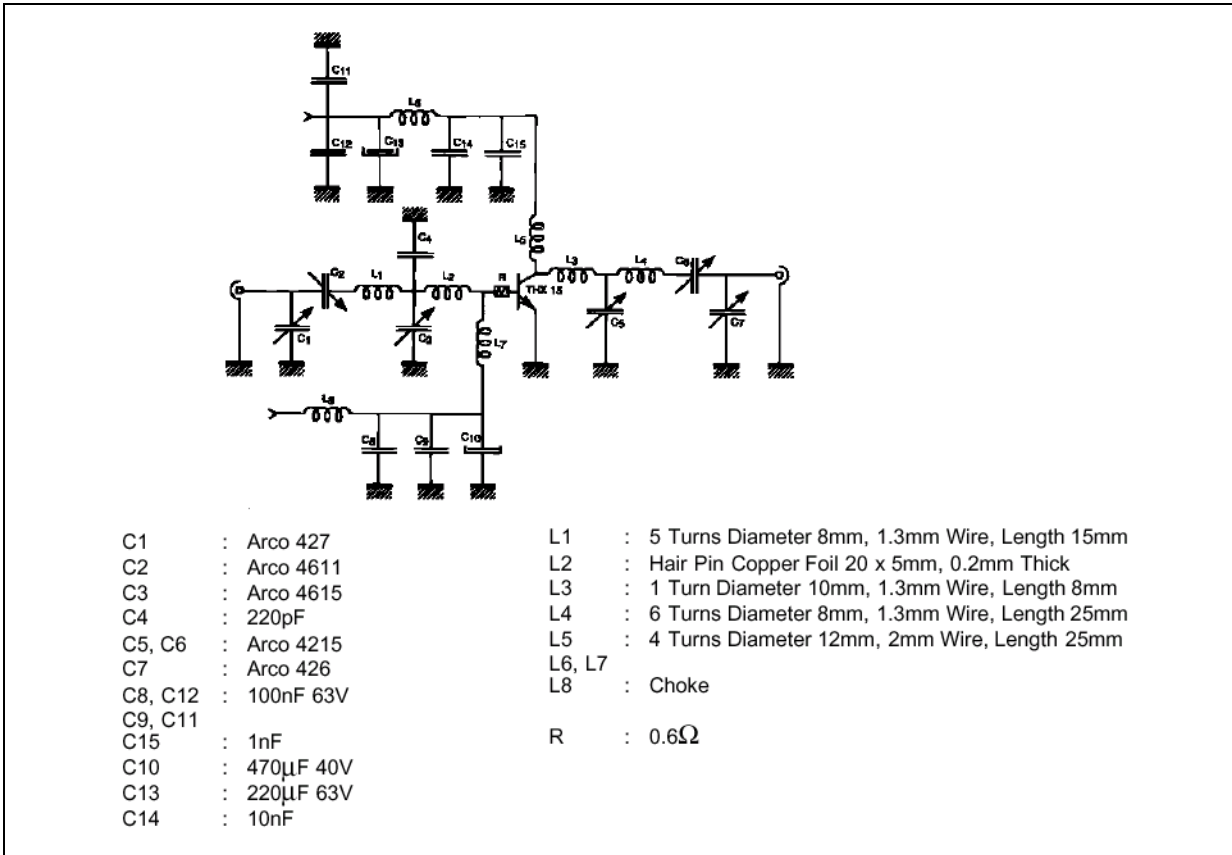
IMPEDENCE DATA



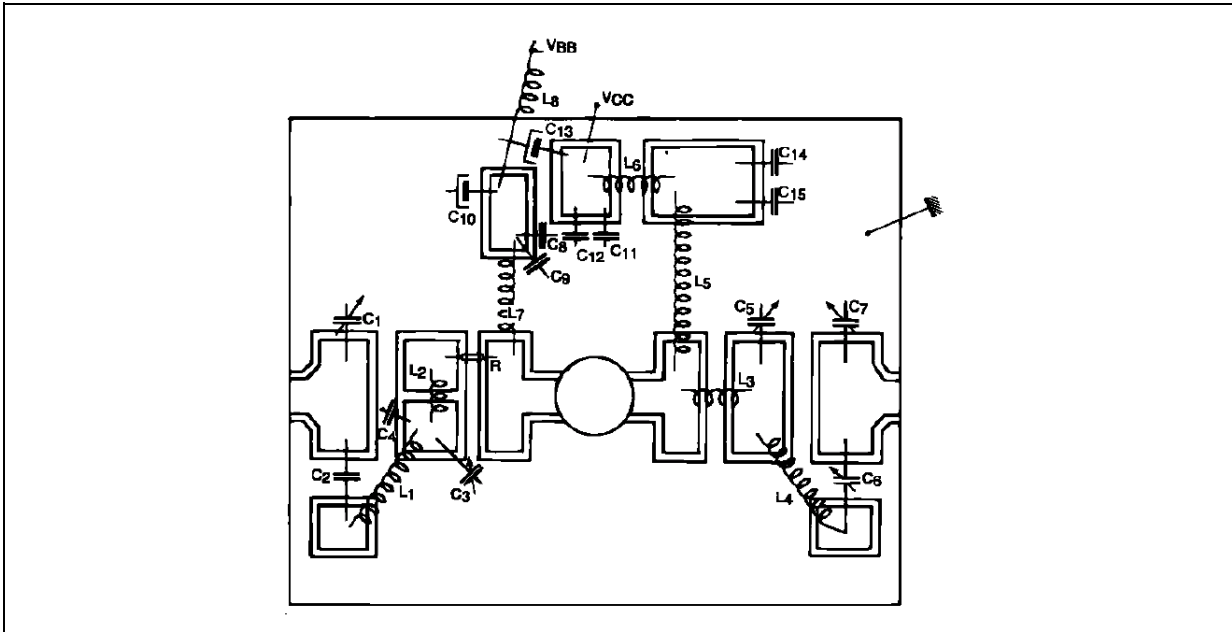
BIAS CIRCUIT



TEST CIRCUIT - CLASS AB - 30 MHz

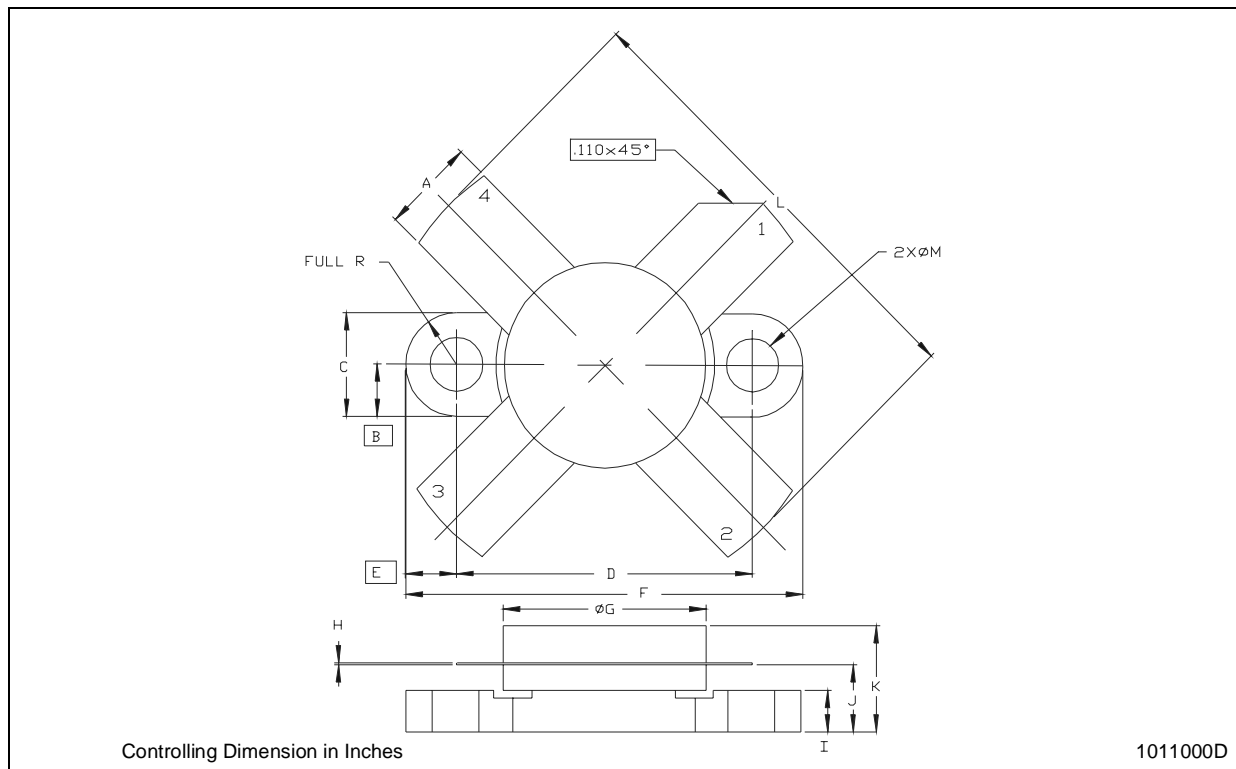


MOUNTING CIRCUIT - CLASS AB - 30 MHz



M174 (.500 DIA 4/L N/HERM W/FLG) MECHANICAL DATA

DIM.	mm			Inch		
	MIN.	TYP.	MAX	MIN.	TYP.	MAX
A	5.56		5.584	0.219		0.230
B		3.18			0.125	
C	6.22		6.48	0.245		0.255
D	18.28		18.54	0.720		0.730
E		3.18			0.125	
F	24.64		24.89	0.970		0.980
G	12.57		12.83	0.495		0.505
H	0.08		0.18	0.003		0.007
I	2.11		3.00	0.083		0.118
J	3.81		4.45	0.150		0.175
K			7.11			0.280
L	25.53		26.67	1.005		1.050
M	3.05		3.30	0.120		0.130



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