

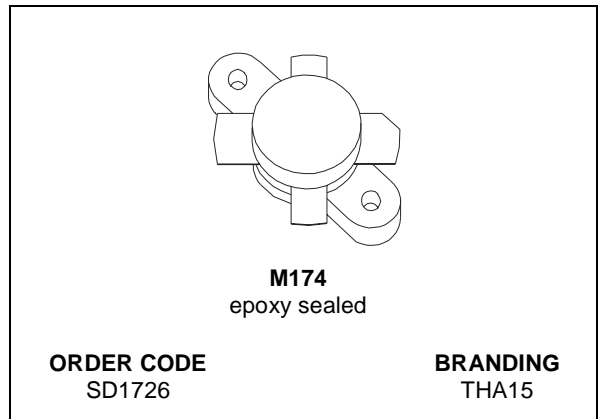


## SD1726 (THA15)

### RF & MICROWAVE TRANSISTORS HF SSB APPLICATIONS

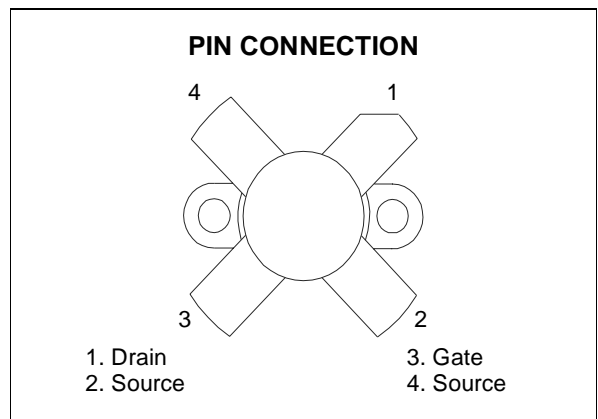
#### FEATURES

- 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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## ELECTRICAL SPECIFICATION (T<sub>CASE</sub> = 25 °C)

### STATIC

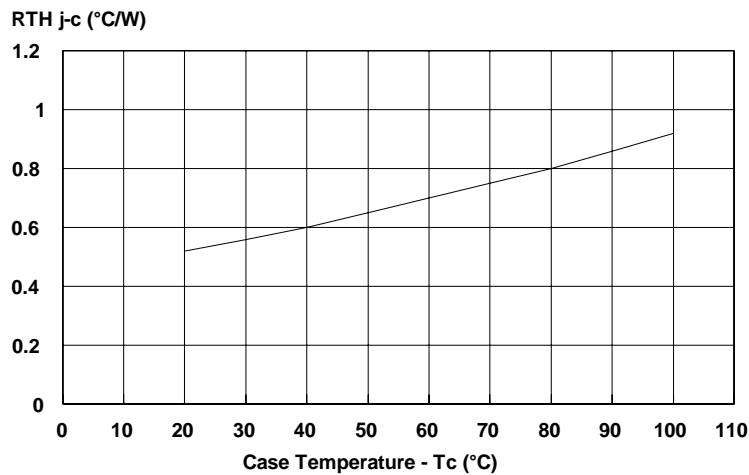
Symbol	Test Conditions	Min.	Typ.	Max.	Unit
BV <sub>CB0</sub>	I <sub>C</sub> = 100 mA I <sub>E</sub> = 0 mA	110			V
BV <sub>CES</sub>	I <sub>C</sub> = 100 mA V <sub>BE</sub> = 0 V	110			V
BV <sub>CEO</sub>	I <sub>C</sub> = 100 mA I <sub>B</sub> = 0 mA	55			V
BV <sub>EBO</sub>	I <sub>E</sub> = 10 mA I <sub>C</sub> = 0 mA	4.0			V
I <sub>CEO</sub>	V <sub>CE</sub> = 30 V I <sub>E</sub> = 0 mA			5	mA
I <sub>CES</sub>	V <sub>CE</sub> = 60 V I <sub>E</sub> = 0 mA			5	mA
h <sub>FE</sub>	V <sub>CE</sub> = 6 V I <sub>C</sub> = 1.4 A	18		43.5	

### DYNAMIC

Symbol	Test Conditions	Min.	Typ.	Max.	Unit
P <sub>OUT</sub>	V <sub>CE</sub> = 50 V I <sub>CQ</sub> = 100 mA f = 30 MHz	150			W
G <sub>P</sub> *	V <sub>CE</sub> = 50 V I <sub>CQ</sub> = 100 mA P <sub>OUT</sub> = 150 W PEP	14			dB
IMD*	V <sub>CE</sub> = 50 V I <sub>CQ</sub> = 100 mA P <sub>OUT</sub> = 150 W PEP			-30	dBc
η <sub>D</sub> *	V <sub>CE</sub> = 50 V I <sub>CQ</sub> = 100 mA P <sub>OUT</sub> = 150 W PEP	37			%
GOB	V <sub>CB</sub> = 50 V f = 1 MHz			220	pF

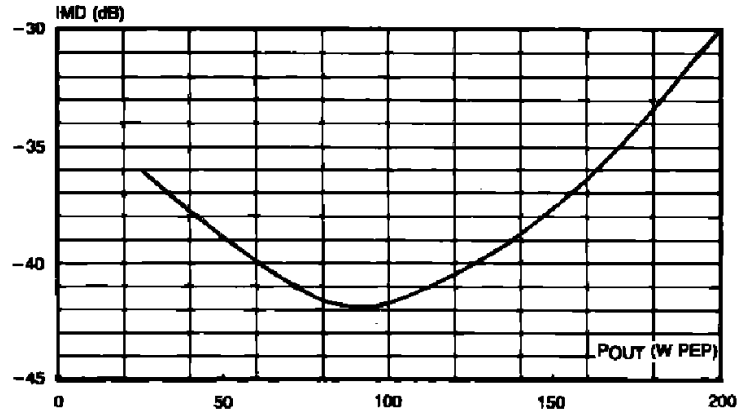
Note: The SD1726 is also usable in Class A at 40 V. Typical performance is:  
 P<sub>OUT</sub> = 30 W PEP, G<sub>P</sub> = 14 dB, IMD = - 40 dBc  
 \* f<sub>1</sub> = 30.00 MHz; f<sub>2</sub> = 30.001 MHz

### Thermal Resistance versus Case Temperature

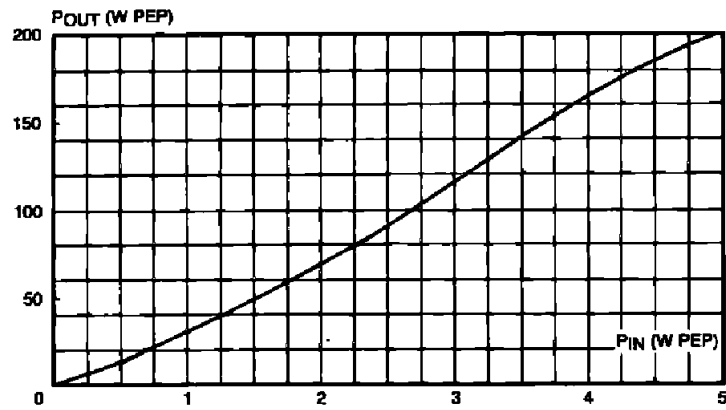


## TYPICAL PERFORMANCE

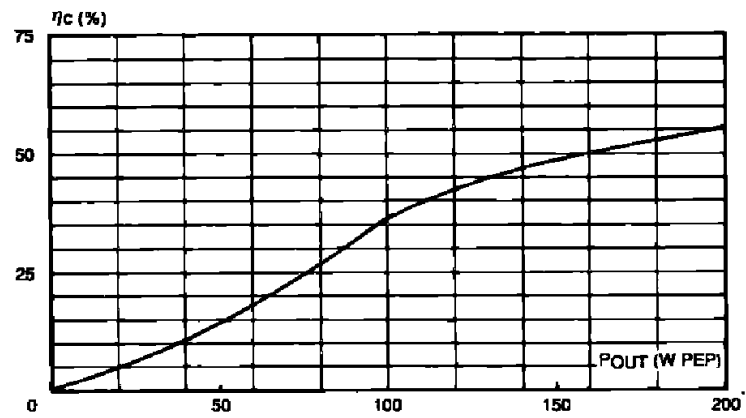
INTERMODULATION DISTORTION vs POWER OUTPUT PEP



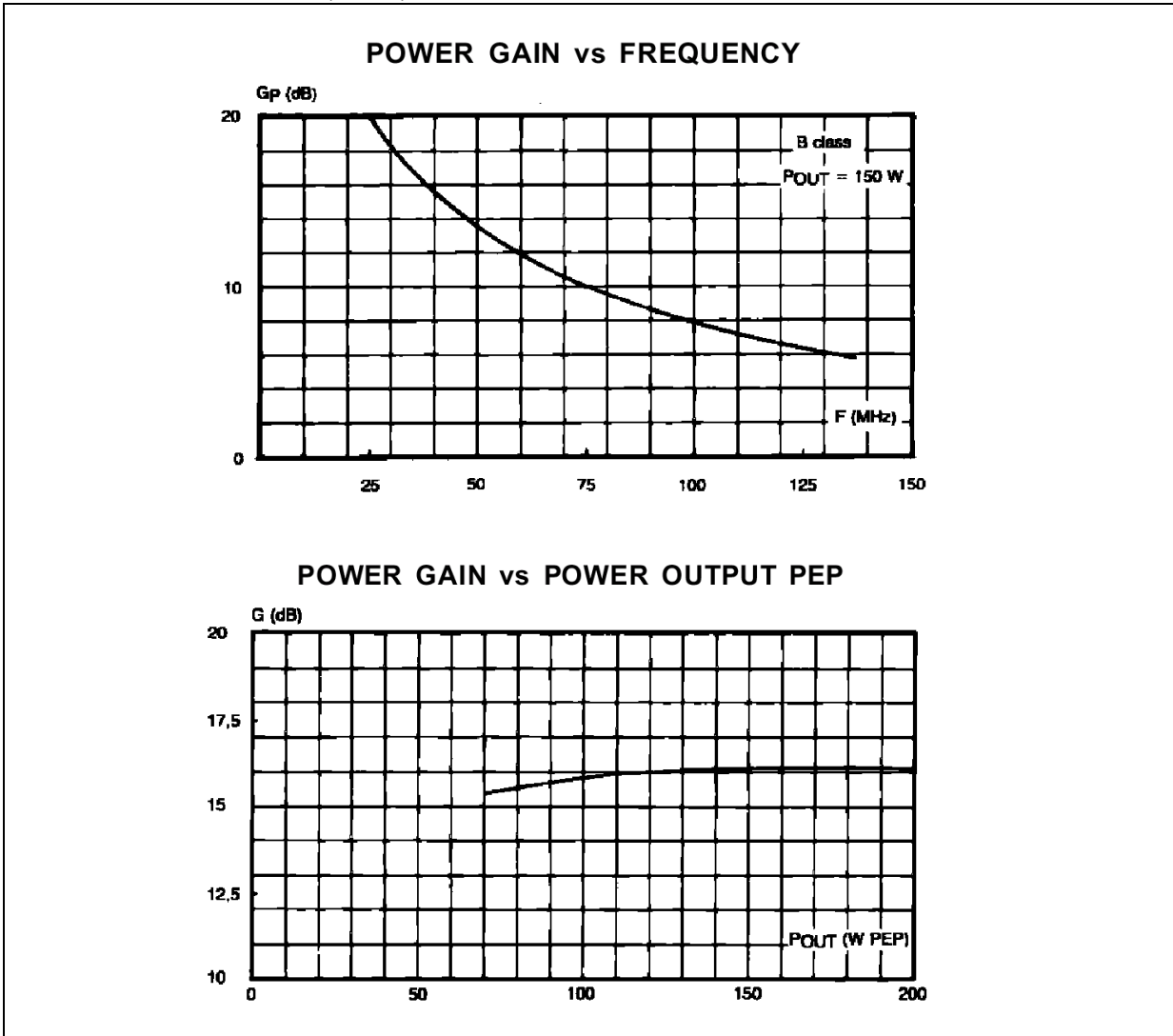
POWER OUTPUT PEP vs POWER INPUT



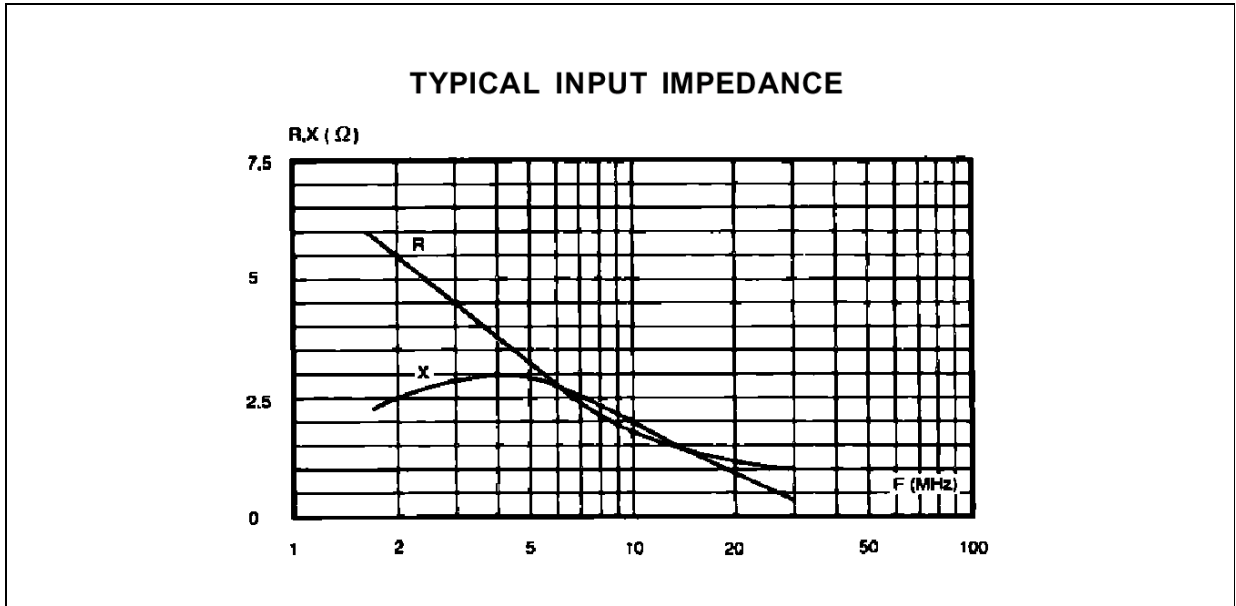
COLLECTOR EFFICIENCY vs POWER OUTPUT PEP



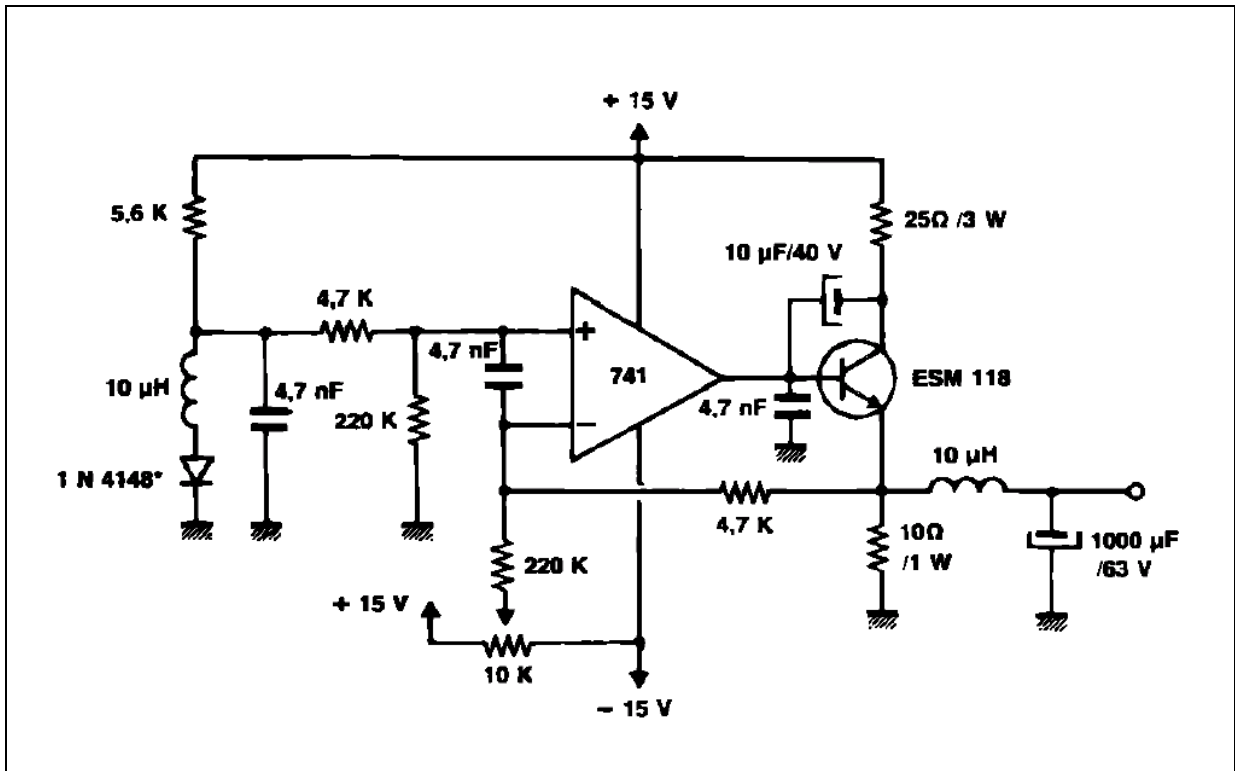
TYPICAL PERFORMANCE (cont'd)



## IMPEDENCE DATA

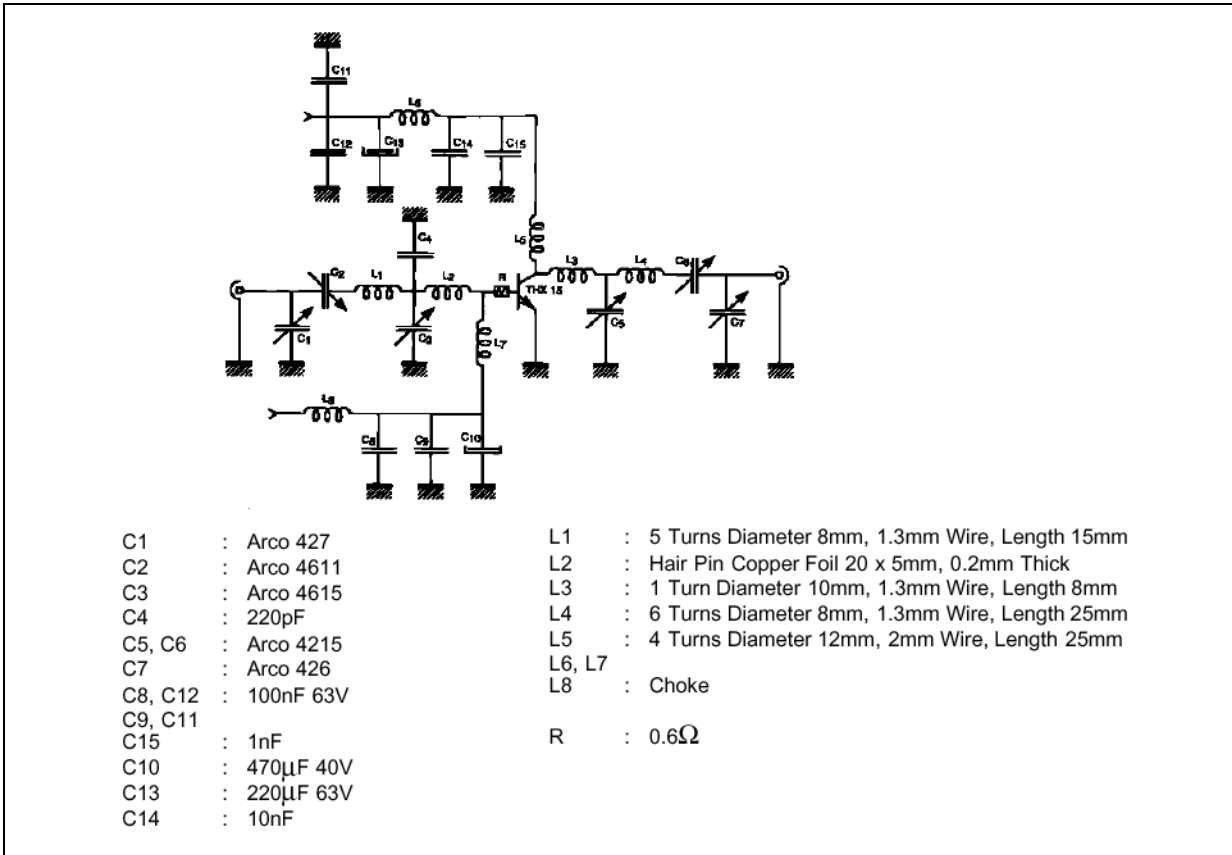


## BIAS CIRCUIT

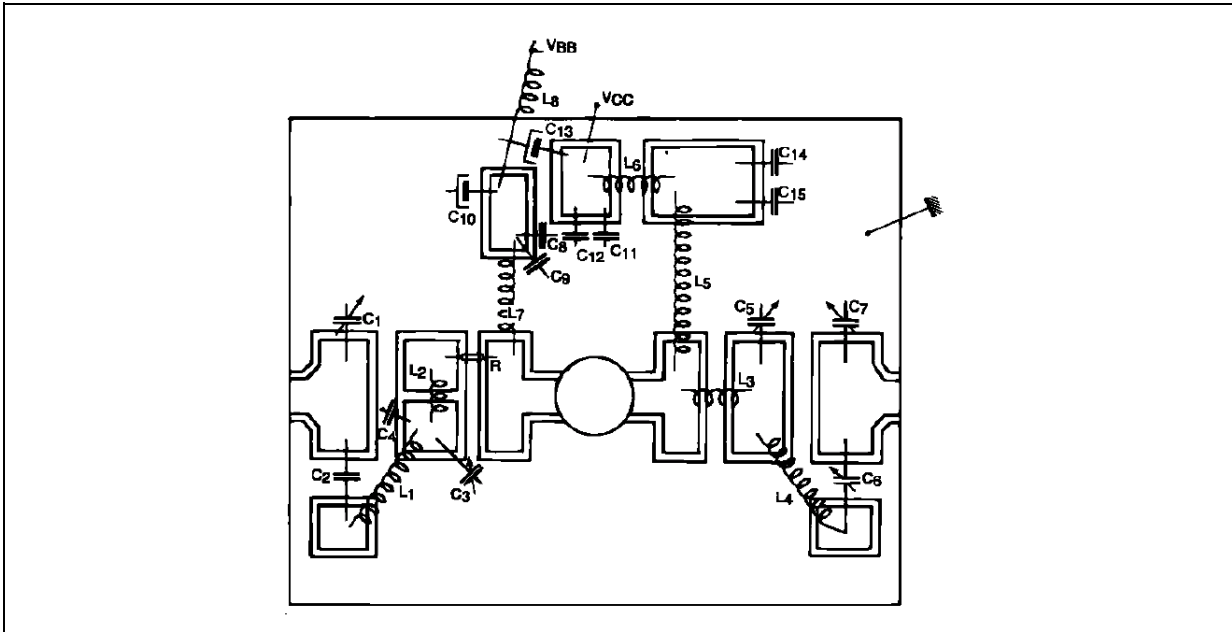


# SD1726 (THA15)

## TEST CIRCUIT - CLASS AB - 30 MHz

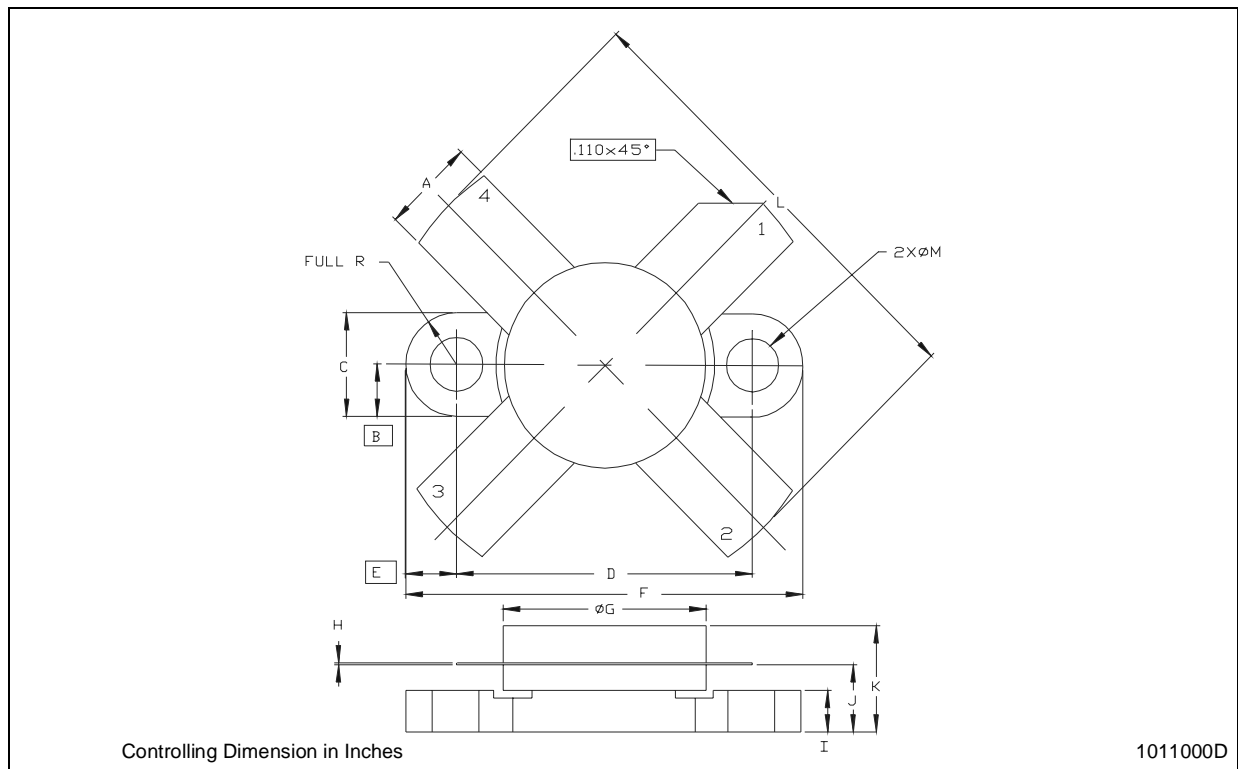


## MOUNTING CIRCUIT - CLASS AB - 30 MHz



## 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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