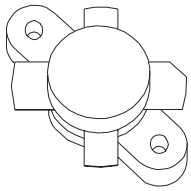
SD1726 (THA15)

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



M174
epoxy sealed

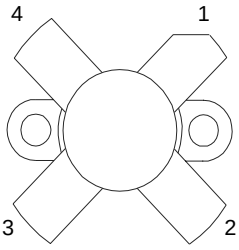
ORDER CODE
SD1726

BRANDING
THA15

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.

PIN CONNECTION



1. Drain
2. Source
3. Gate
4. Source

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

ELECTRICAL SPECIFICATION (T_{CASE} = 25 °C)

STATIC

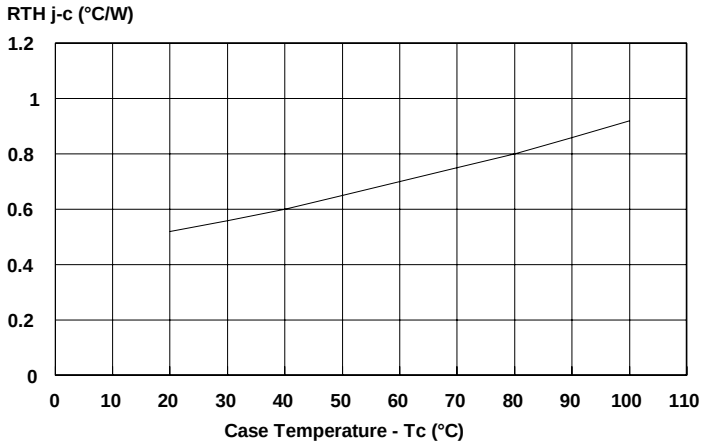
Symbol	Test Conditions	Min.	Typ.	Max.	Unit
BV_{CBO}	I_C = 100 mA I_E = 0 mA	110			V
BV_{CES}	I_C = 100 mA V_{BE} = 0 V	110			V
BV_{CEO}	I_C = 100 mA I_B = 0 mA	55			V
BV_{EBO}	I_E = 10 mA I_C = 0 mA	4.0			V
I_{CEO}	V_{CE} = 30 V I_E = 0 mA			5	mA
I_{CES}	V_{CE} = 60 V I_E = 0 mA			5	mA
h_{FE}	V_{CE}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

DYNAMIC

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

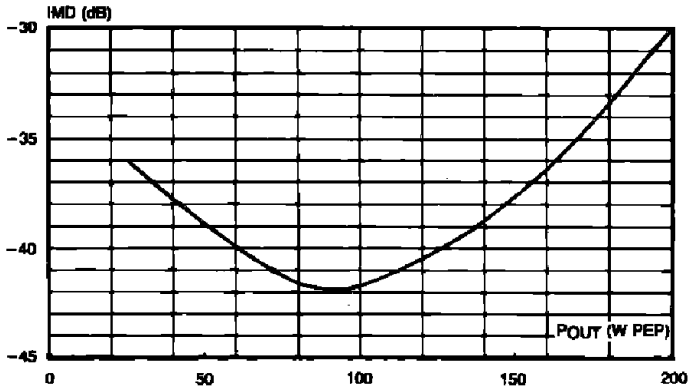
Note: The SD1726 is also usable in Class A at 40 V. Typical performance is:
P_{OUT} = 30 W PEP, G_P = 14 dB, IMD = - 40 dBc
* f_1 = 30.00 MHz; f_2 = 30.001 MHz

Thermal Resistance versus Case Temperature

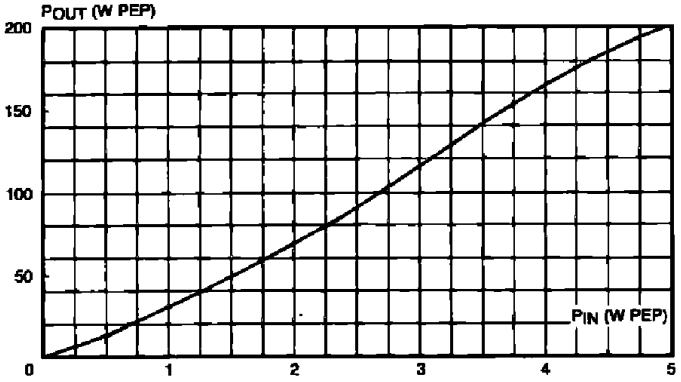


TYPICAL PERFORMANCE

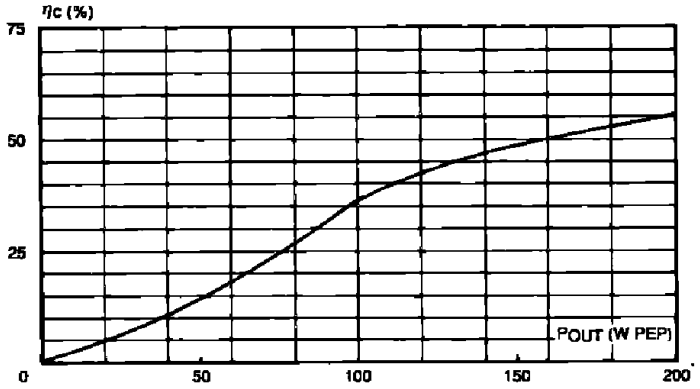
INTERMODULATION DISTORTION vs POWER OUTPUT PEP



POWER OUTPUT PEP vs POWER INPUT

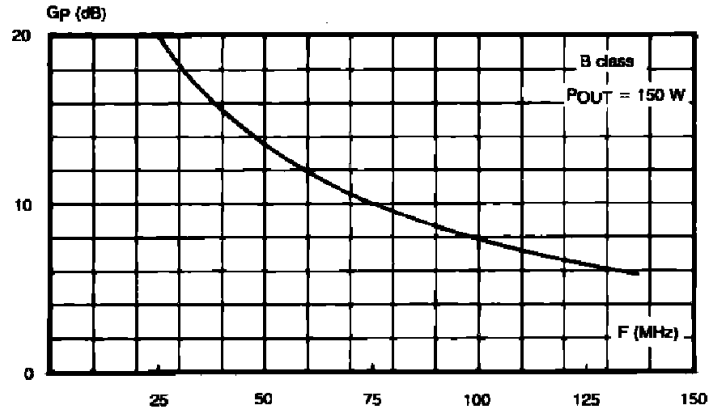


COLLECTOR EFFICIENCY vs POWER OUTPUT PEP

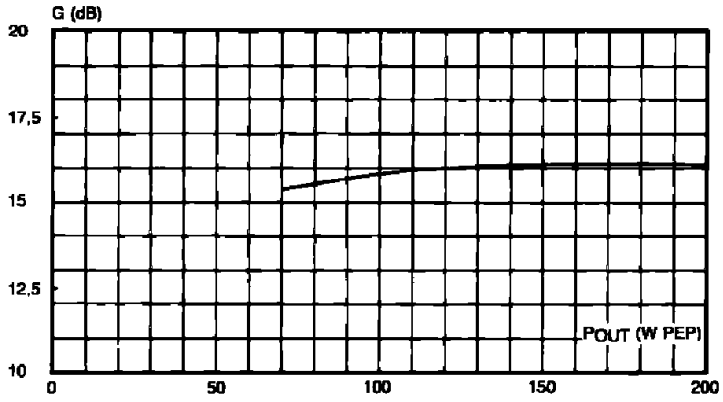


TYPICAL PERFORMANCE (cont'd)

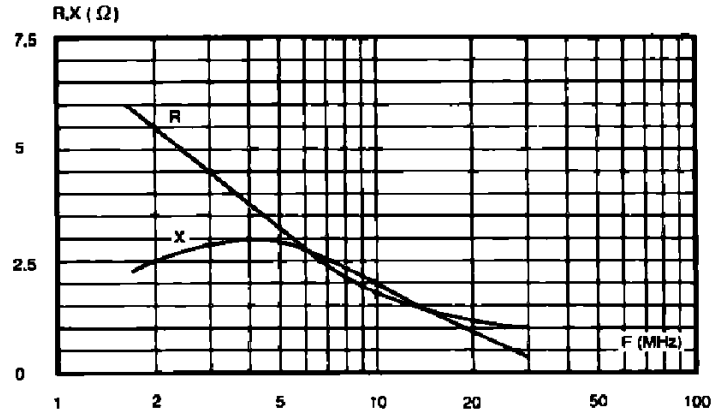
POWER GAIN vs FREQUENCY



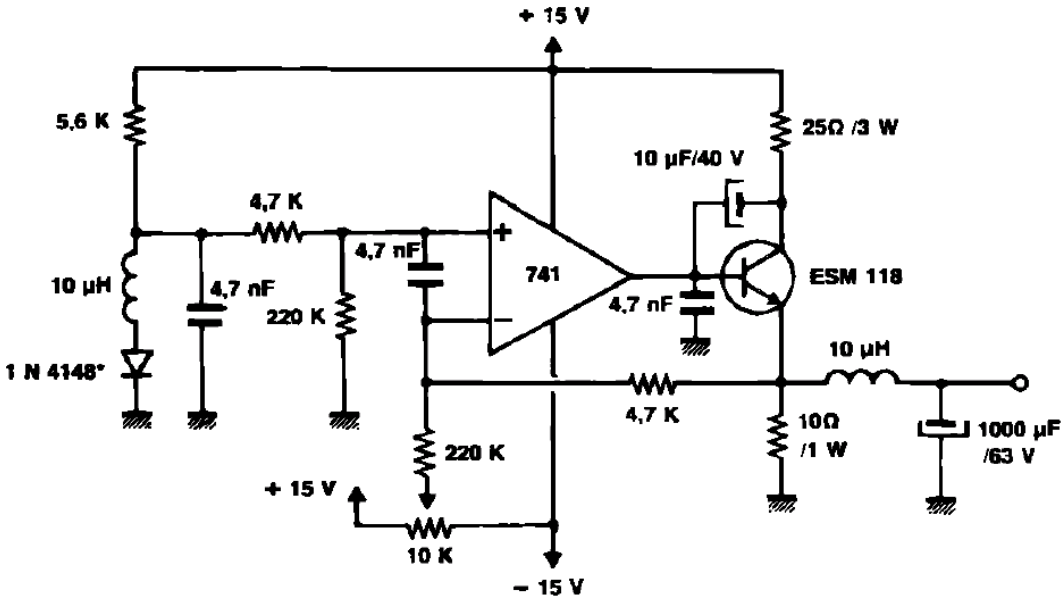
POWER GAIN vs POWER OUTPUT PEP



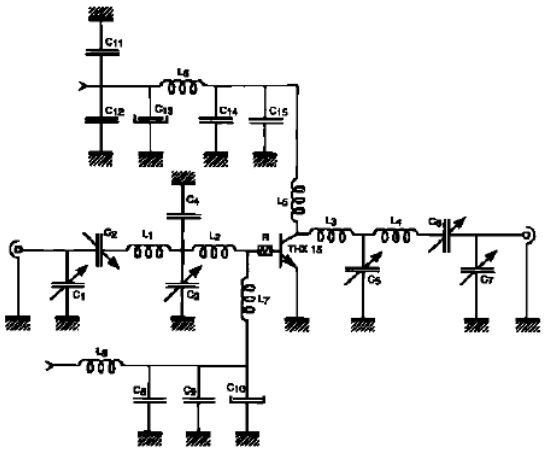
IMPEDENCE DATA



BIAS CIRCUIT



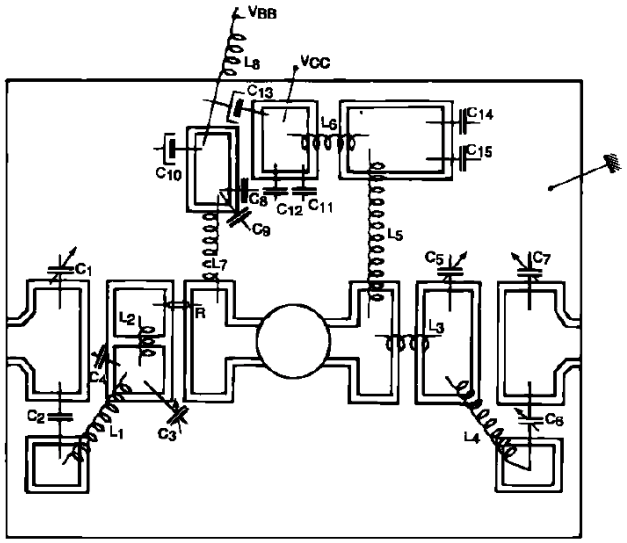
TEST CIRCUIT - CLASS AB - 30 MHz



C1	:	Arco 427
C2	:	Arco 4611
C3	:	Arco 4615
C4	:	220pF
C5, C6	:	Arco 4215
C7	:	Arco 426
C8, C12	:	100nF 63V
C9, C11		
C15	:	1nF
C10	:	470µF 40V
C13	:	220µF 63V
C14	:	10nF

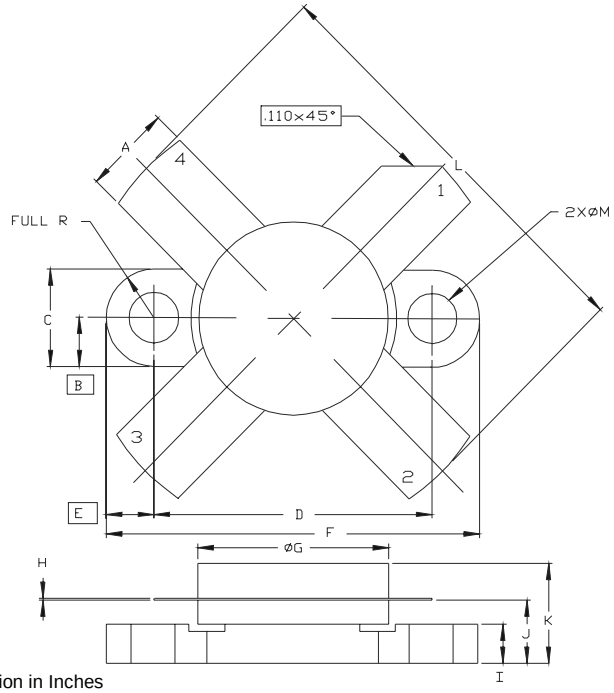
L1	:	5 Turns Diameter 8mm, 1.3mm Wire, Length 15mm
L2	:	Hair Pin Copper Foil 20 x 5mm, 0.2mm Thick
L3	:	1 Turn Diameter 10mm, 1.3mm Wire, Length 8mm
L4	:	6 Turns Diameter 8mm, 1.3mm Wire, Length 25mm
L5	:	4 Turns Diameter 12mm, 2mm Wire, Length 25mm
L6, L7		
L8	:	Choke
R	:	0.6Ω

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



Controlling Dimension in Inches

1011000D