

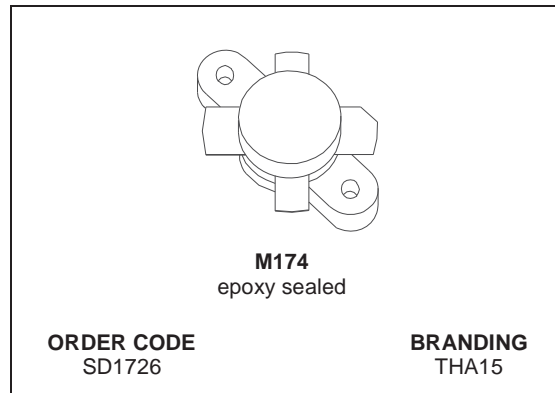


SD1726 (THA15)

RF & MICROWAVE TRANSISTORS HF SSB APPLICATIONS

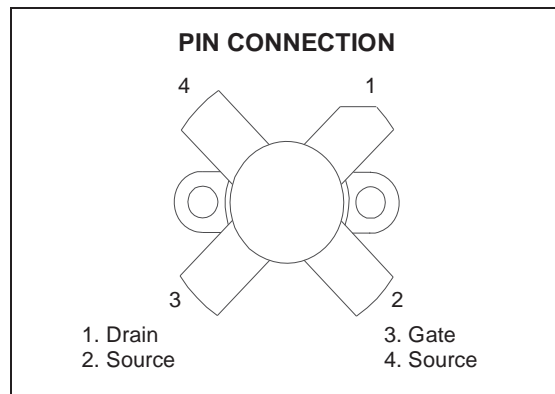
FEATURES

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

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

THERMAL DATA

$R_{th(j-c)}$	Junction -Case Thermal Resistance at $T_{CASE} = 70\text{ }^{\circ}\text{C}$	0.75	$^{\circ}\text{C/W}$
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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

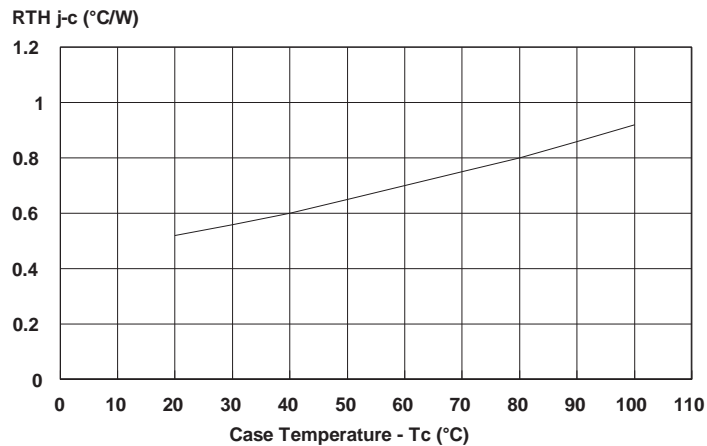
Symbol	Test Conditions	Min.	Typ.	Max.	Unit
P_{OUT}	$V_{CE} = 50\text{ V}$ $I_{CQ} = 100\text{ mA}$ $f = 30\text{ MHz}$	150			W
G_P^*	$V_{CE} = 50\text{ V}$ $I_{CQ} = 100\text{ mA}$ $P_{OUT} = 150\text{ W PEP}$	14			dB
IMD^*	$V_{CE} = 50\text{ V}$ $I_{CQ} = 100\text{ mA}$ $P_{OUT} = 150\text{ W PEP}$			-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:

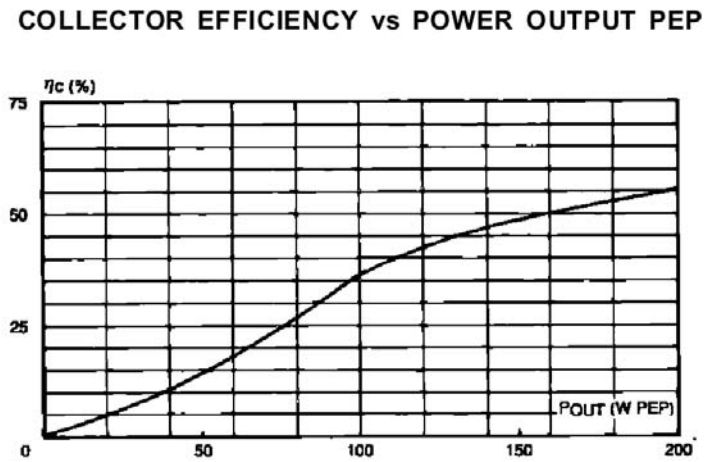
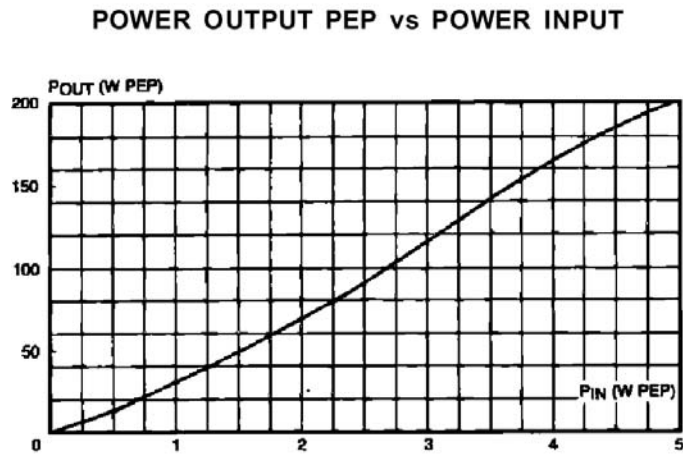
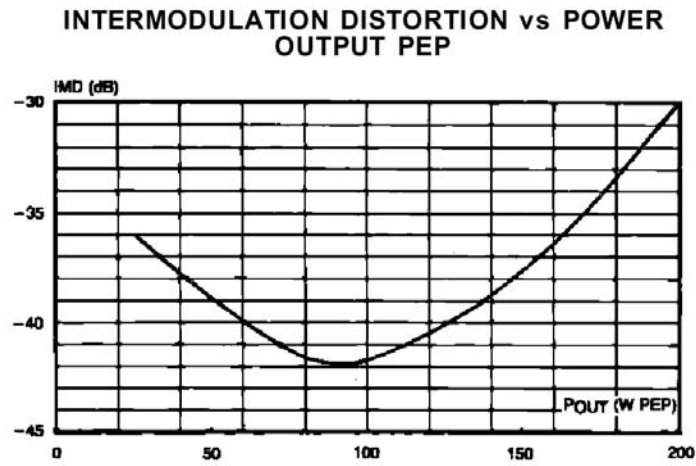
$P_{OUT} = 30\text{ W PEP}$, $G_P = 14\text{ dB}$, $IMD = -40\text{ dBc}$

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

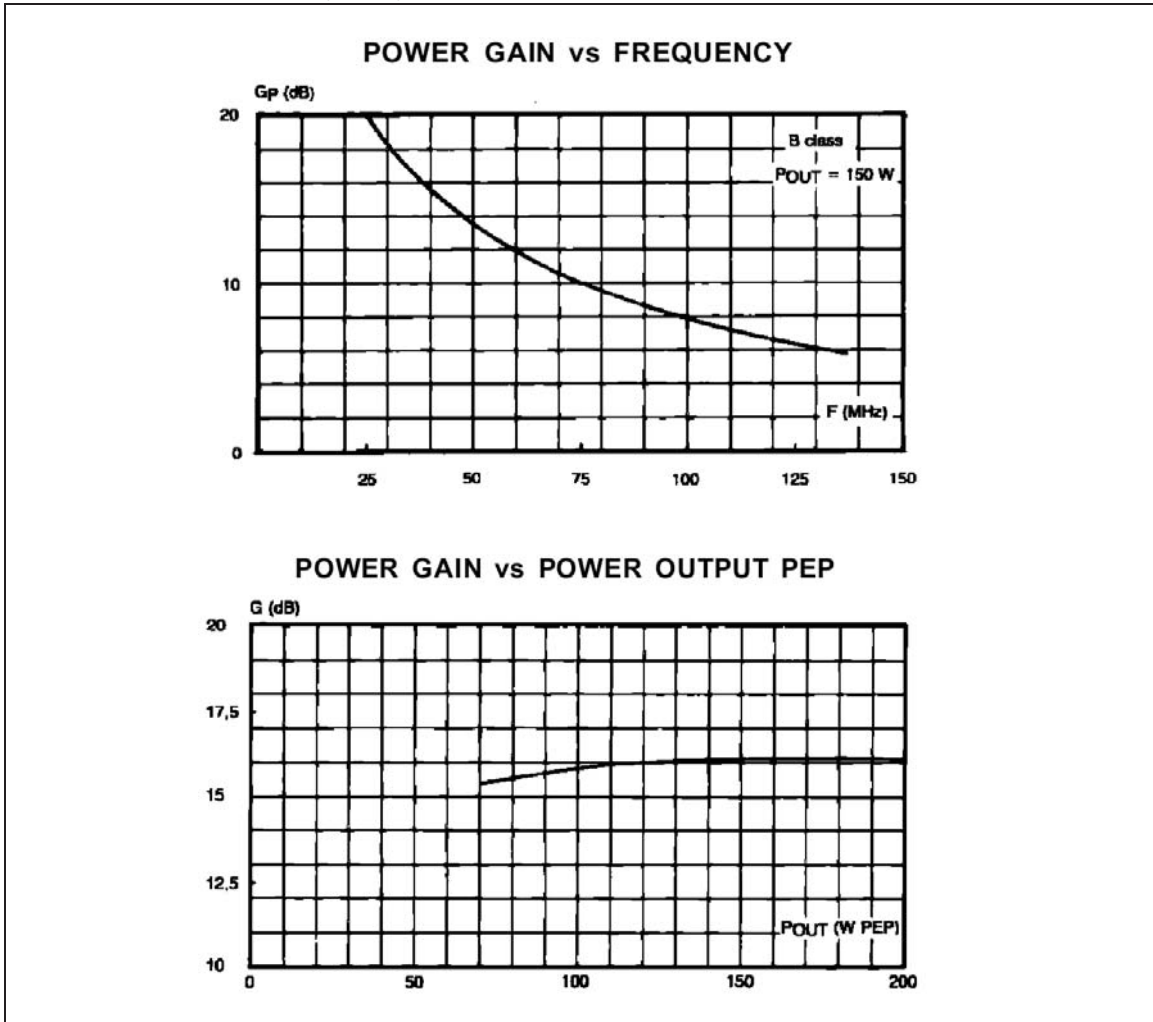
Thermal Resistance versus Case Temperature



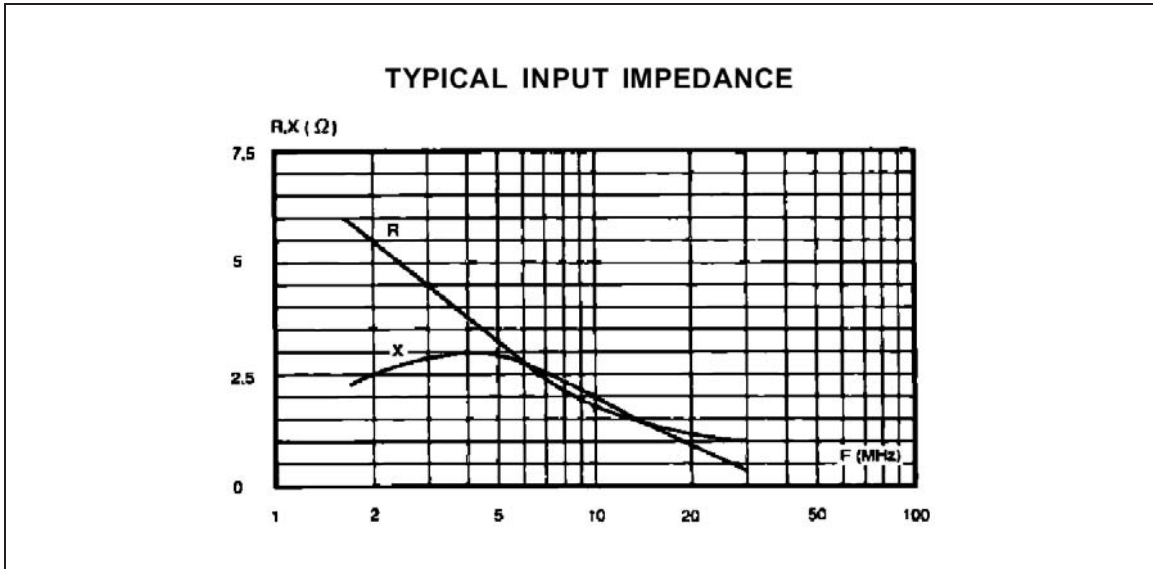
TYPICAL PERFORMANCE



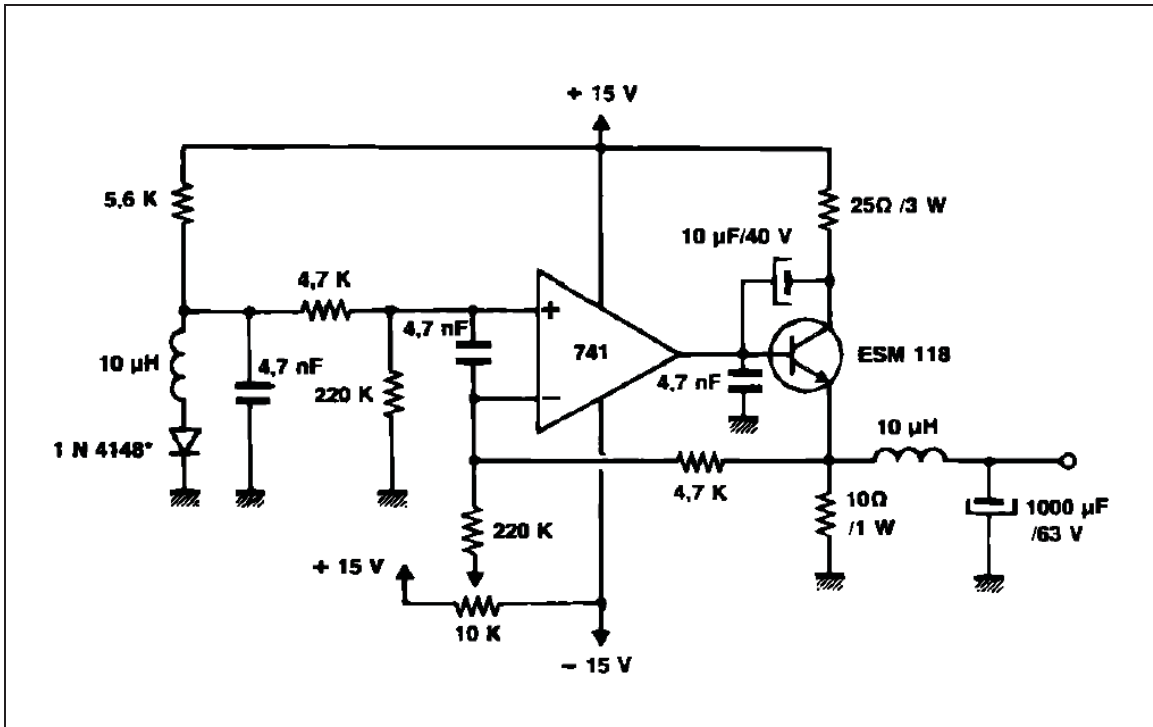
TYPICAL PERFORMANCE (cont'd)



IMPEDENCE DATA

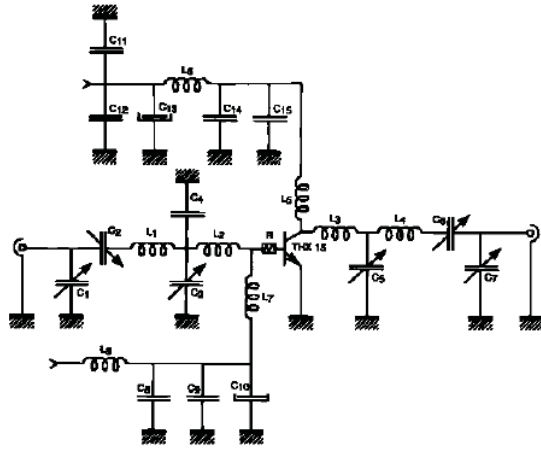


BIAS CIRCUIT



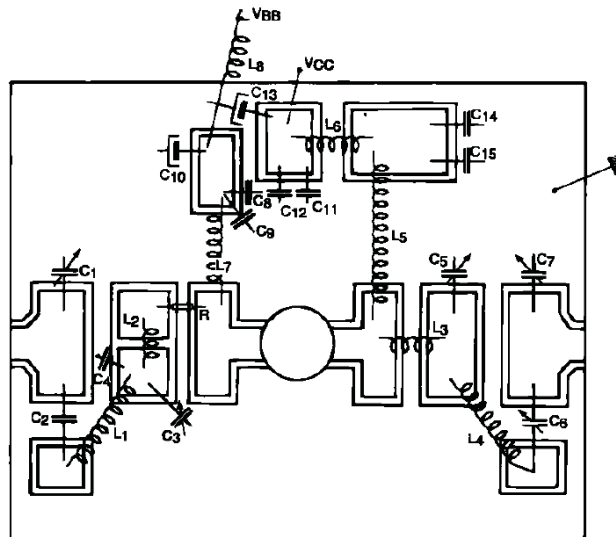
SD1726 (THA15)

TEST CIRCUIT - CLASS AB - 30 MHz



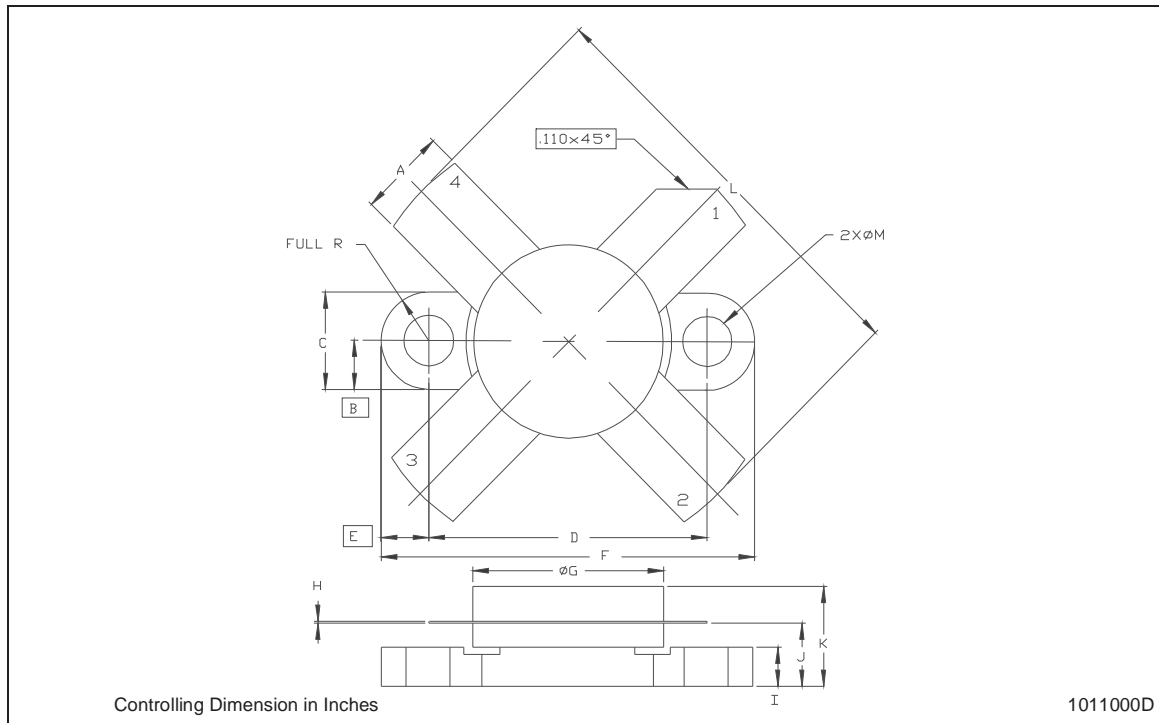
C1	: Arco 427	L1	: 5 Turns Diameter 8mm, 1.3mm Wire, Length 15mm
C2	: Arco 4611	L2	: Hair Pin Copper Foil 20 x 5mm, 0.2mm Thick
C3	: Arco 4615	L3	: 1 Turn Diameter 10mm, 1.3mm Wire, Length 8mm
C4	: 220pF	L4	: 6 Turns Diameter 8mm, 1.3mm Wire, Length 25mm
C5, C6	: Arco 4215	L5	: 4 Turns Diameter 12mm, 2mm Wire, Length 25mm
C7	: Arco 426	L6, L7	: Choke
C8, C12	: 100nF 63V	R	: 0.6Ω
C9, C11			
C15	: 1nF		
C10	: 470μF 40V		
C13	: 220μF 63V		
C14	: 10nF		

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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