

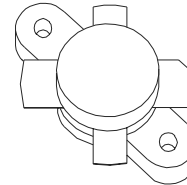


SD1726 (THA15)

RF & MICROWAVE TRANSISTORS HF SSB APPLICATIONS

FEATURES

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



M174
epoxy sealed

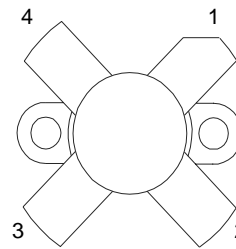
ORDER CODE
SD1726

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-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 $T_{CASE} = 70^\circ\text{C}$	0.75	$^\circ\text{C/W}$
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SD1726 (THA15)

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

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

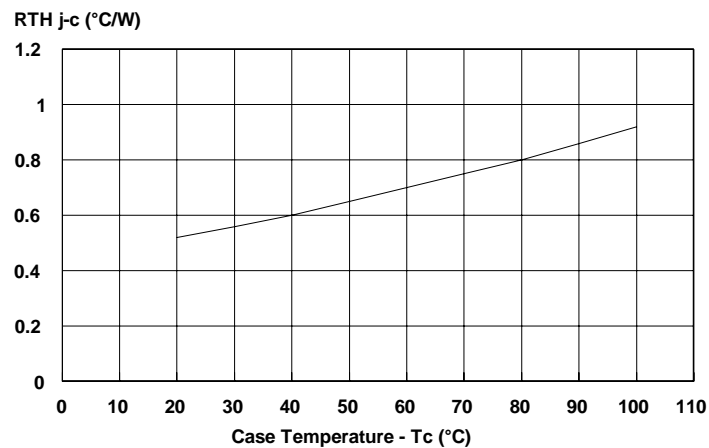
Symbol	Test Conditions	Min.	Typ.	Max.	Unit
P_{OUT}	$V_{CE} = 50\text{ V}$ $I_{CQ} = 100\text{ mA}$ $f = 30\text{ MHz}$	150			W
G_P^*	$V_{CE} = 50\text{ V}$ $I_{CQ} = 100\text{ mA}$ $P_{OUT} = 150\text{ W PEP}$	14			dB
IMD^*	$V_{CE} = 50\text{ V}$ $I_{CQ} = 100\text{ mA}$ $P_{OUT} = 150\text{ W PEP}$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

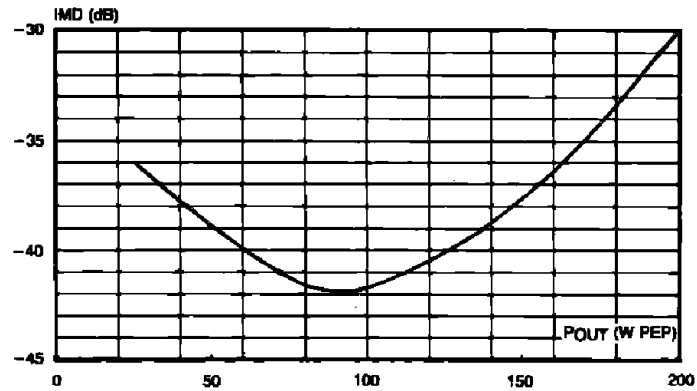
$P_{OUT} = 30\text{ W PEP}$, $G_P = 14\text{ dB}$, $IMD = -40\text{ dBc}$

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

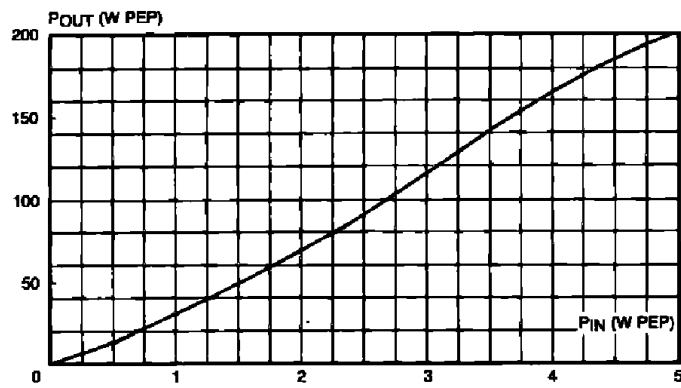
Thermal Resistance versus Case Temperature



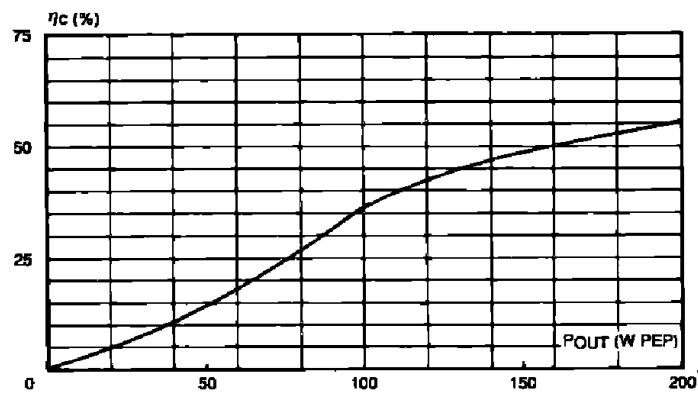
TYPICAL PERFORMANCE

INTERMODULATION DISTORTION vs POWER
OUTPUT PEP

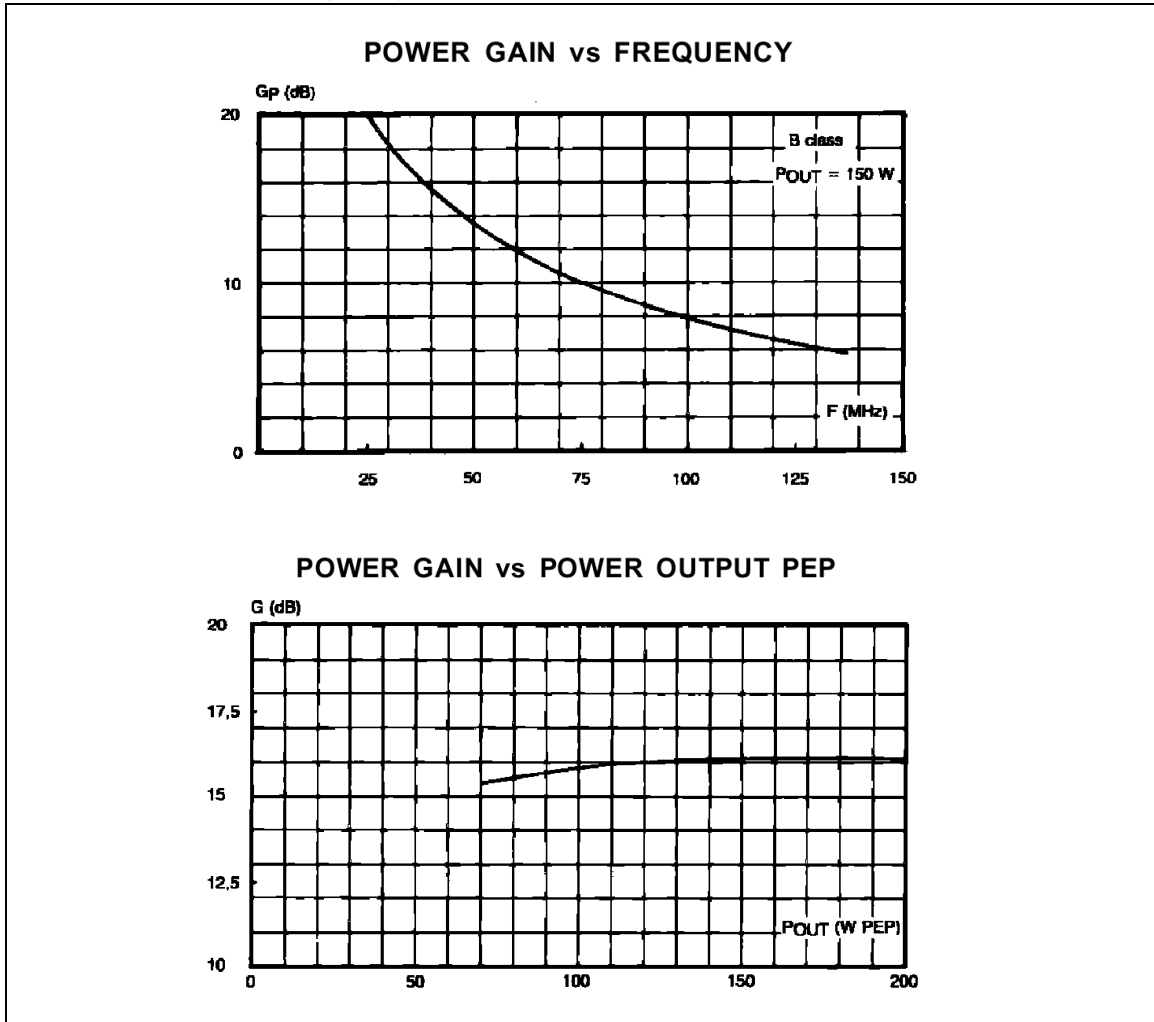
POWER OUTPUT PEP vs POWER INPUT



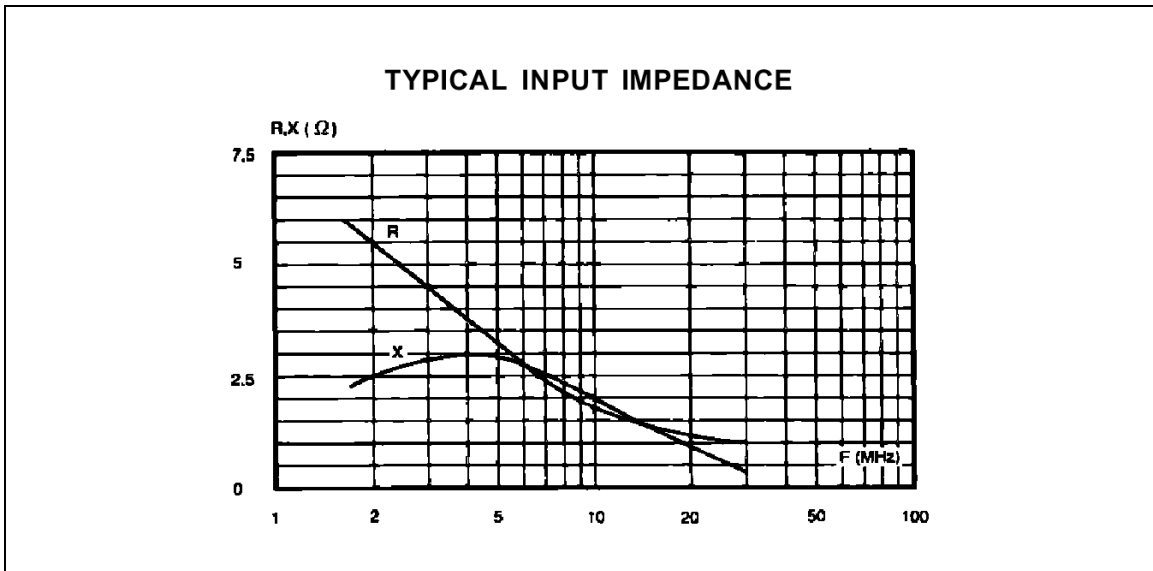
COLLECTOR EFFICIENCY vs POWER OUTPUT PEP



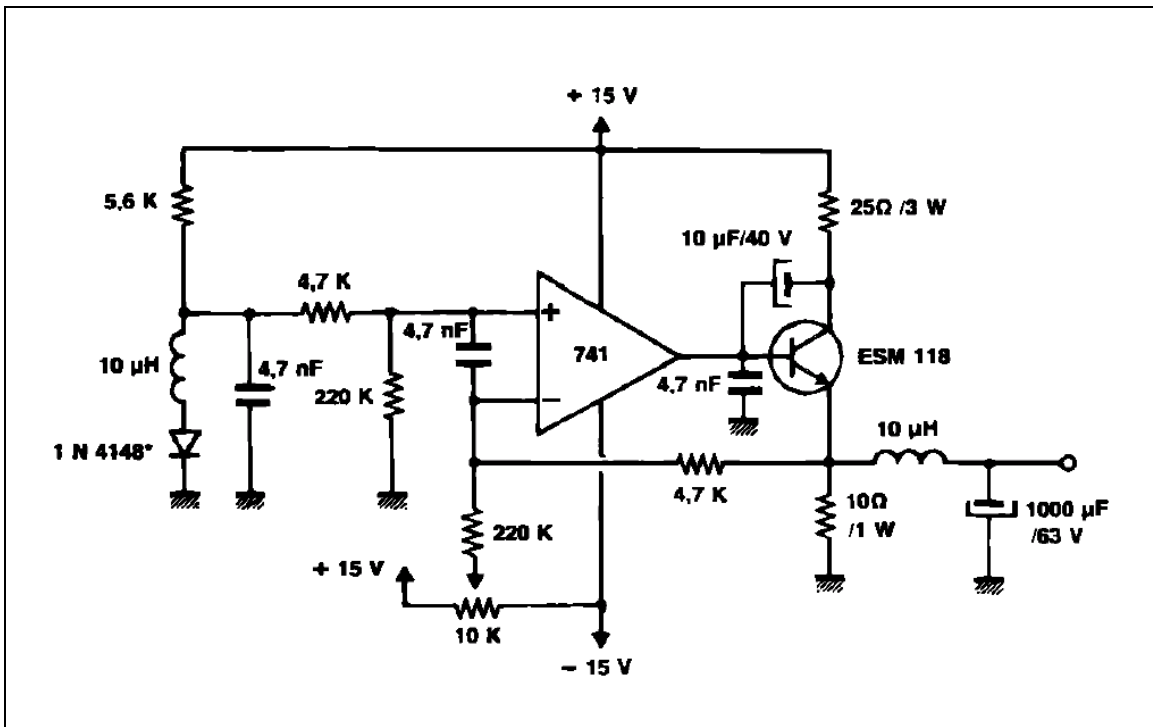
TYPICAL PERFORMANCE (cont'd)



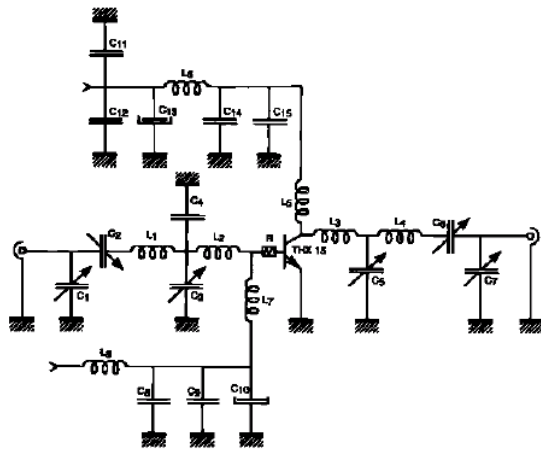
IMPEDENCE DATA



BIAS CIRCUIT

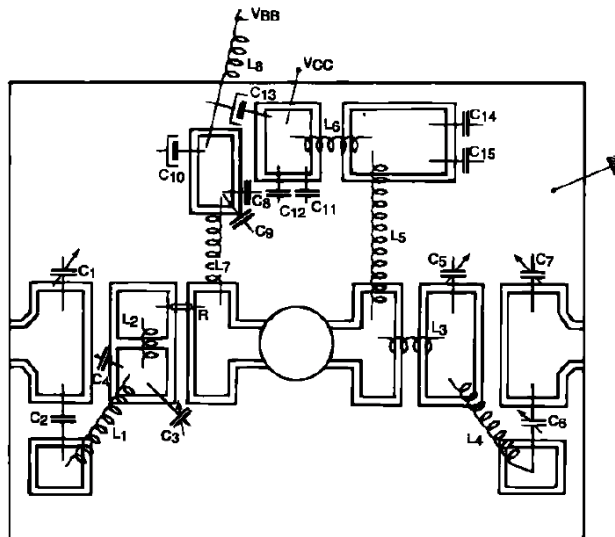


TEST CIRCUIT - CLASS AB - 30 MHz



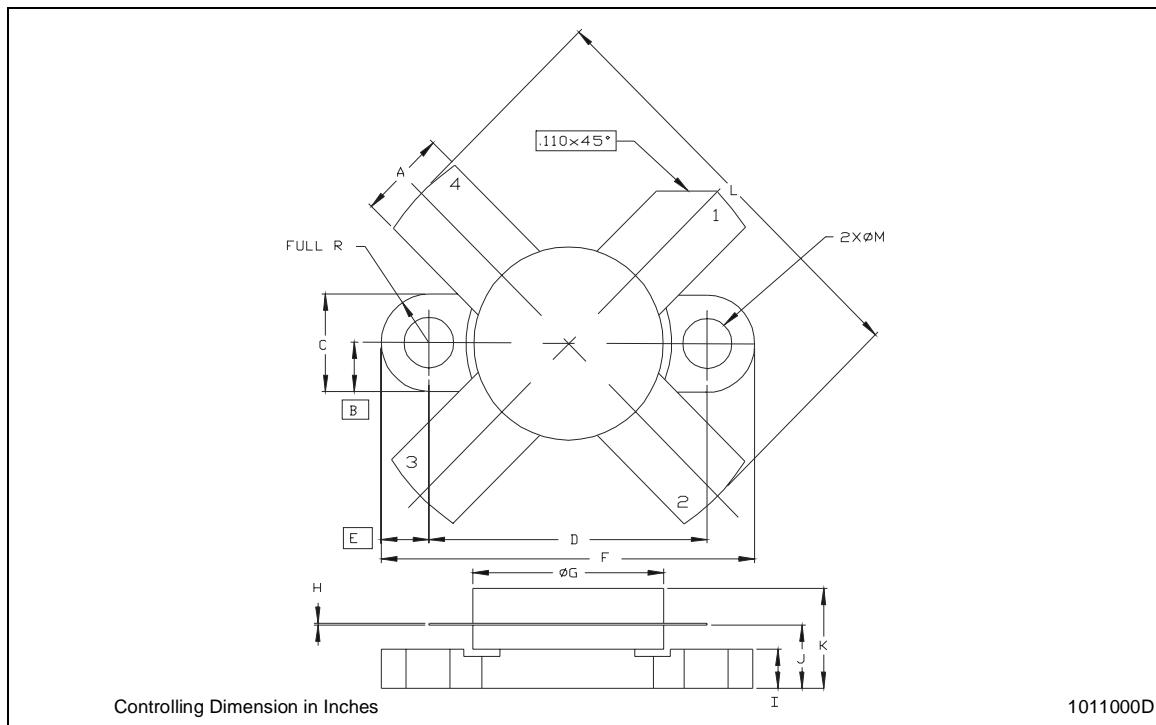
C1	: Arco 427	L1	: 5 Turns Diameter 8mm, 1.3mm Wire, Length 15mm
C2	: Arco 4611	L2	: Hair Pin Copper Foil 20 x 5mm, 0.2mm Thick
C3	: Arco 4615	L3	: 1 Turn Diameter 10mm, 1.3mm Wire, Length 8mm
C4	: 220pF	L4	: 6 Turns Diameter 8mm, 1.3mm Wire, Length 25mm
C5, C6	: Arco 4215	L5	: 4 Turns Diameter 12mm,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