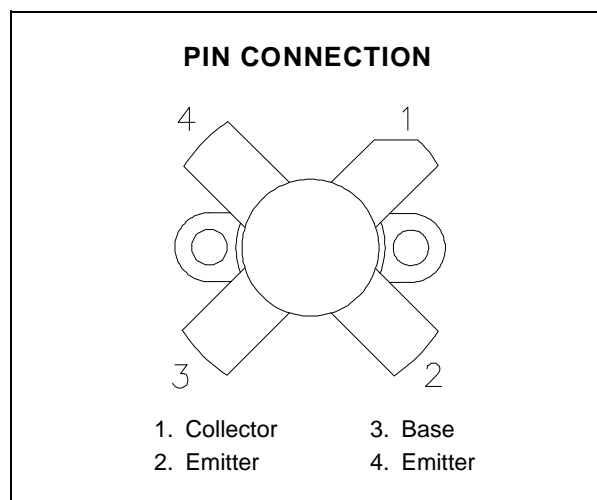
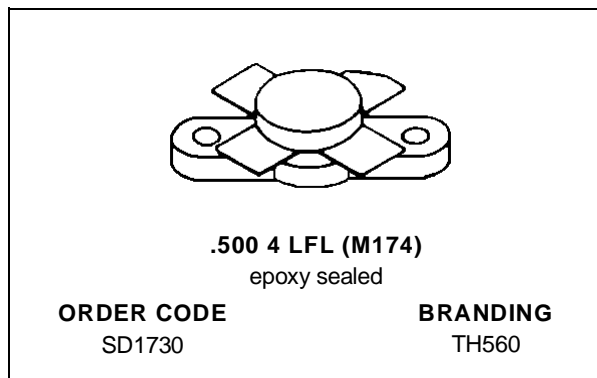


**RF & MICROWAVE TRANSISTORS
 HF SSB APPLICATIONS**

- OPTIMIZED FOR SSB
- 30 MHz
- 28 VOLTS
- IMD -30dB
- EFFICIENCY 40%
- COMMON EMITTER
- GOLD METALLIZATION
- P_{OUT} = 220 W PEP WITH 12 dB GAIN


DESCRIPTION

The SD1730 is a 28 V epitaxial silicon NPN planar transistor designed primarily for SSB and VHF communications. The device utilizes emitter ballasting for improved ruggedness and reliability.

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

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage	70	V
V _{CEO}	Collector-Emitter Voltage	35	V
V _{EBO}	Emitter-Base Voltage	4.0	V
I _C	Device Current	16	A
P _{DISS}	Power Dissipation	320	W
T _J	Junction Temperature	+200	°C
T _{STG}	Storage Temperature	- 65 to +150	°C

THERMAL DATA

R _{TH(j-c)}	Junction-Case Thermal Resistance	0.6	°C/W
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SD1730 (TH560)

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV _{CES}	I _C = 100 mA	V _{BE} = 0 V	70	—	—	V
BV _{CEO}	I _C = 200 mA	I _B = 0 mA	35	—	—	V
BV _{EBO}	I _E = 20 mA	I _C = 0 mA	4.0	—	—	V
I _{CEO}	V _{CE} = 30 V	I _E = 0 mA	—	—	5	mA
I _{CES}	V _{CE} = 35 V	I _E = 0 mA	—	—	5	mA
h _{FE}	V _{CE} = 5 V	I _C = 7 A	15	—	60	—

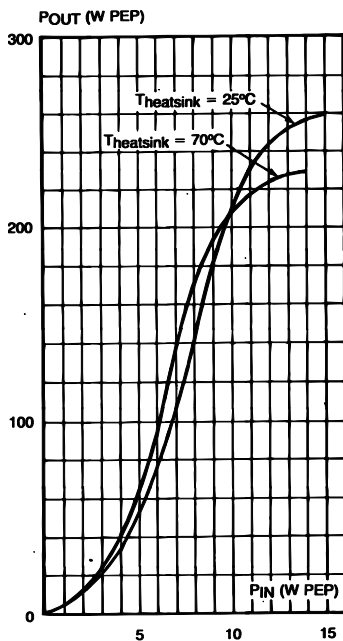
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P _{OUT}	f = 30 MHz	V _{CE} = 28 V	I _{CQ} = 750 mA	220	—	—	W
P _G *	P _{OUT} = 220 W PEP	V _{CE} = 28 V	I _{CQ} = 750 mA	12	—	—	dB
IMD*	P _{OUT} = 220 W PEP	V _{CE} = 28 V	I _{CQ} = 750 mA	—	—	-30	dBc
η _c *	P _{OUT} = 220 W PEP	V _{CE} = 28 V	I _{CQ} = 750 mA	40	—	—	%
C _{OB}	f = 1 MHz	V _{CB} = 28 V		—	450	—	pF
Load Mismatch	P _{OUT} = 220 W PEP	V _{CE} = 28 V	I _{CQ} = 750 mA	—	∞:1	—	VSWR

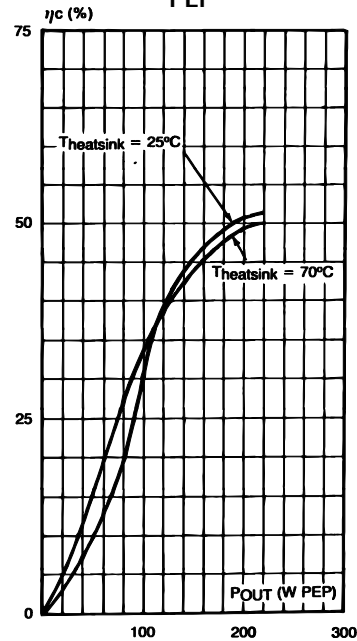
Note: * f₁ = 30.00 MHz, f₂ = 30.001 MHz

TYPICAL PERFORMANCE

POWER OUTPUT PEP vs POWER INPUT

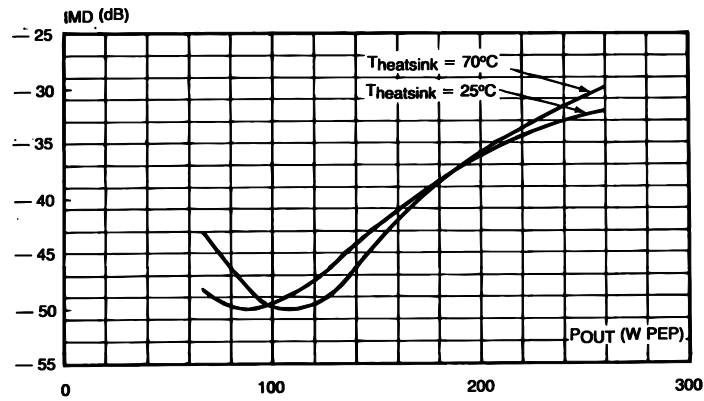


COLLECTOR EFFICIENCY vs POWER OUTPUT PEP

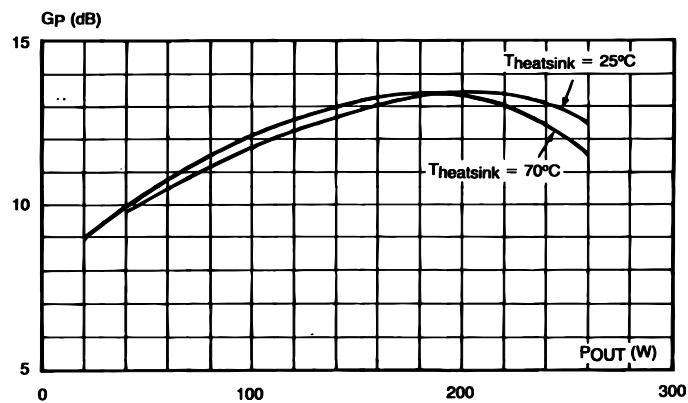


TYPICAL PERFORMANCE (cont'd)

INTERMODULATION DISTORTION vs POWER OUTPUT PEP



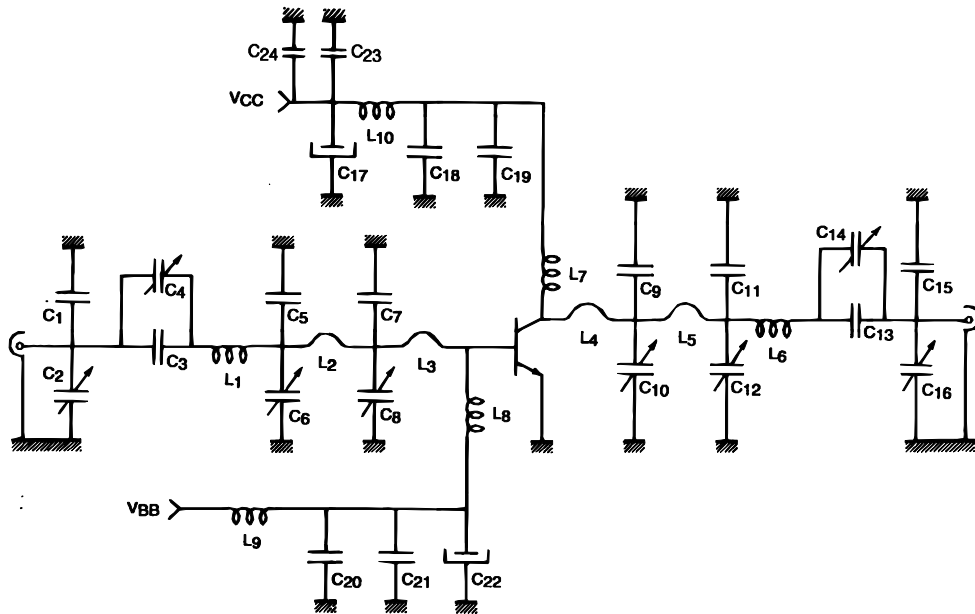
POWER GAIN vs POWER OUTPUT



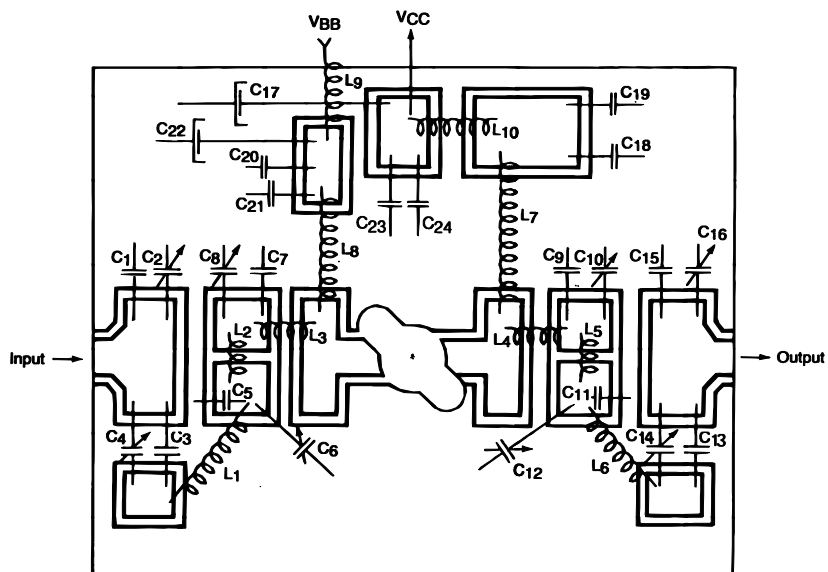
IMPEDANCE DATA

FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
30 MHz	$1.15 + j 0.41$	$1.25 + j 1.92$

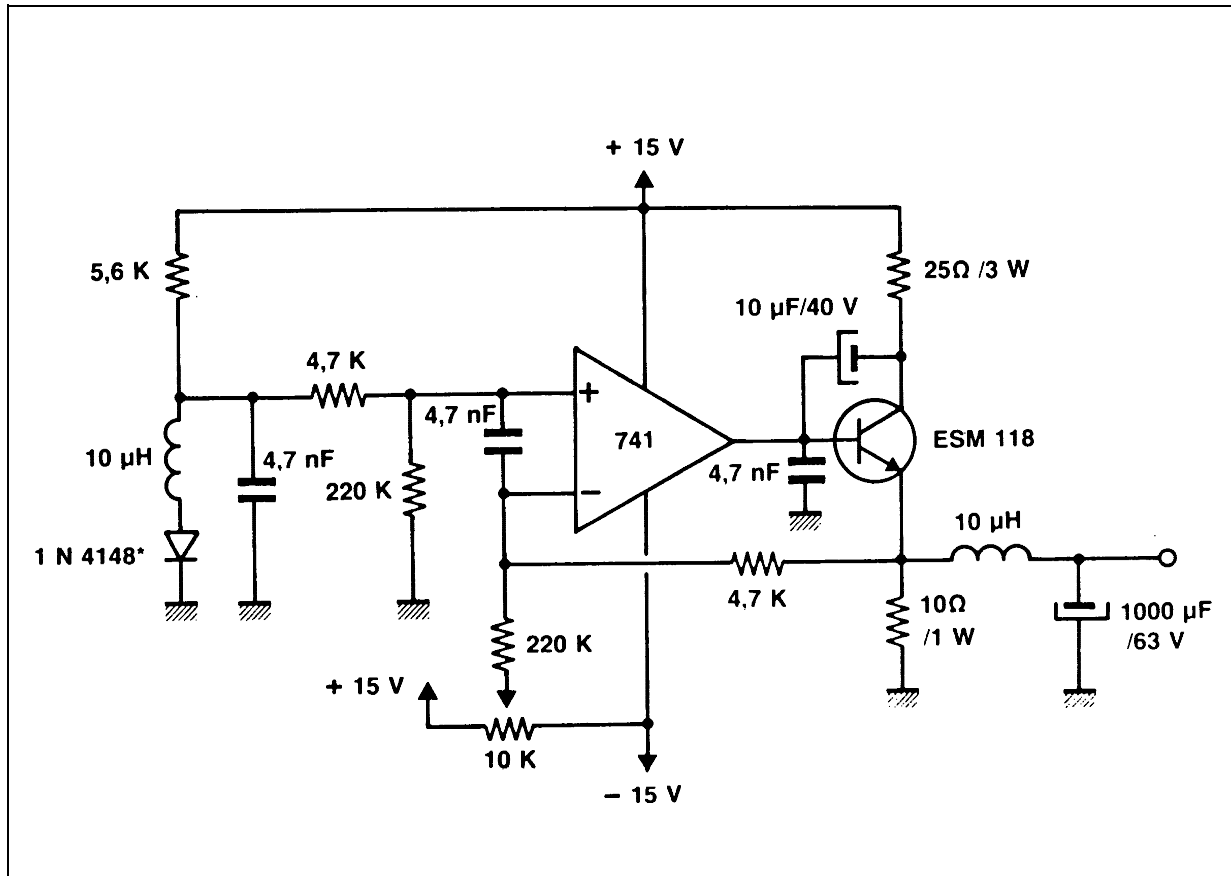
TEST CIRCUIT



- | | | | |
|--------------|--------------|--------|---|
| C1 | : 180pF | L1 | : 3 Turns, Diameter 10mm, 1.3mm Wire, Length 10mm |
| C2, C4, C6, | | L2, L5 | : Hair Pin Copper foil 40 x 5mm, 0.2mm Thick |
| C8, C10, C12 | | L3, L4 | : Hair Pin Copper Foil 10 x 5mm, 0.2mm Thick |
| C14, C16 | : Arco 428 | L6 | : 5 Turns, Diameter 10mm, 1.3mm Wire, Length 15mm |
| C3 | : 820pF | L7 | : 3 Turns, Diameter 10mm, 1.3mm Wire, Length 25mm |
| C5, C13 | : 680pF | L8 | : Choke |
| C7, C11 | : 1.2nF | L9 | : Choke |
| C9 | : 1.5nF | L10 | : Choke |
| C17, C22 | : 470μF, 40V | | |
| C18 | : 10nF | | |
| C19, C21 | | | |
| C23 | : 1nF | | |
| C20, C24 | : 100nF, 63V | | |



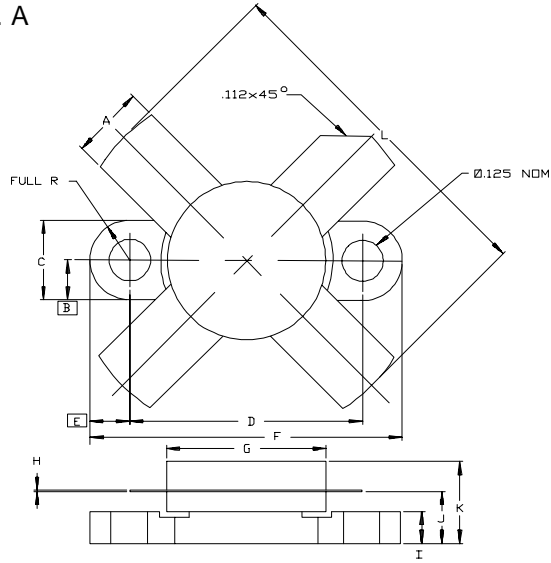
BIAS CIRCUIT



SD1730 (TH560)

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0174 rev. A



SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.220/5,59	.230/5,84	K		.280/7,11
B	.125/3,18		L		1.050/26,67
C	.245/6,22	.255/6,48			
D	.720/18,28	.730/18,54			
E	.125/3,18				
F	.970/24,64	.980/24,89			
G	.495/12,57	.505/12,83			
H	.003/0,08	.007/0,18			
I	.090/2,29	.110/2,79			
J	.160/4,06	.175/4,45			

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