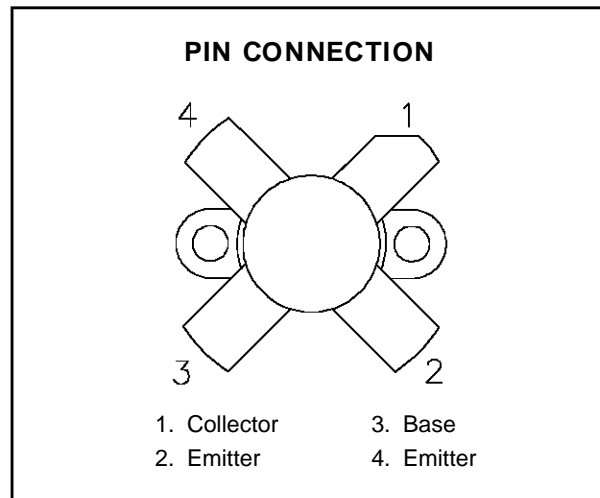
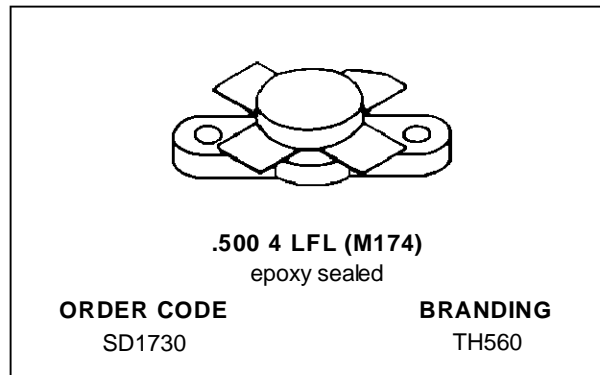


## RF & MICROWAVE TRANSISTORS HF SSB APPLICATIONS

- OPTIMIZED FOR SSB
- 30 MHz
- 28 VOLTS
- IMD -30dB
- EFFICIENCY 40%
- COMMON EMITTER
- GOLD METALLIZATION
- P<sub>OUT</sub> = 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<sub>case</sub> = 25°C)

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	70	V
V <sub>CEO</sub>	Collector-Emitter Voltage	35	V
V <sub>EBO</sub>	Emitter-Base Voltage	4.0	V
I <sub>c</sub>	Device Current	16	A
P <sub>DISS</sub>	Power Dissipation	320	W
T <sub>J</sub>	Junction Temperature	+200	°C
T <sub>STG</sub>	Storage Temperature	- 65 to +150	°C

### THERMAL DATA

R <sub>TH(j-c)</sub>	Junction-Case Thermal Resistance	0.6	°C/W
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# SD1730 (TH560)

## ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)

### STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV <sub>CES</sub>	I <sub>C</sub> = 100 mA	V <sub>BE</sub> = 0 V	70	—	—	V
BV <sub>CEO</sub>	I <sub>C</sub> = 200 mA	I <sub>B</sub> = 0 mA	35	—	—	V
BV <sub>EBO</sub>	I <sub>E</sub> = 20 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> = 35 V	I <sub>E</sub> = 0 mA	—	—	5	mA
h <sub>FE</sub>	V <sub>CE</sub> = 5 V	I <sub>C</sub> = 7 A	15	—	60	—

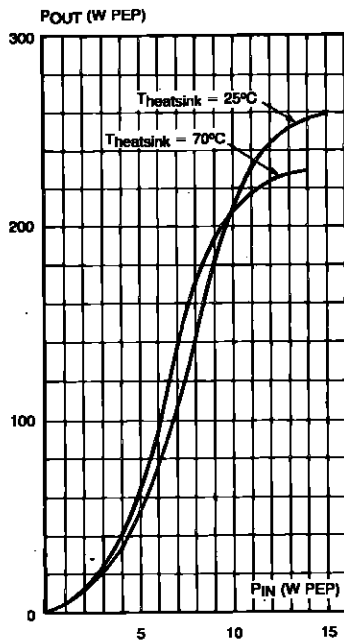
### DYNAMIC

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

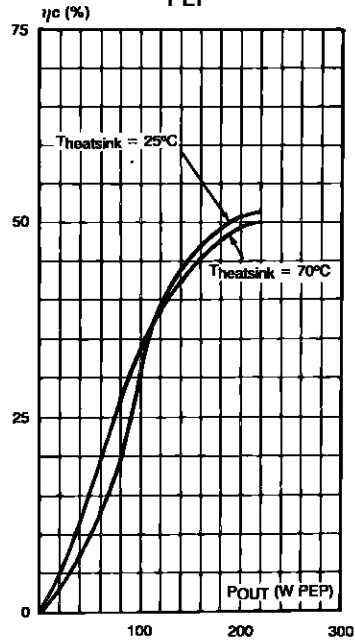
Note: \* f<sub>1</sub> = 30.00 MHz, f<sub>2</sub> = 30.001 MHz

### TYPICAL PERFORMANCE

POWER OUTPUT PEP vs POWER INPUT

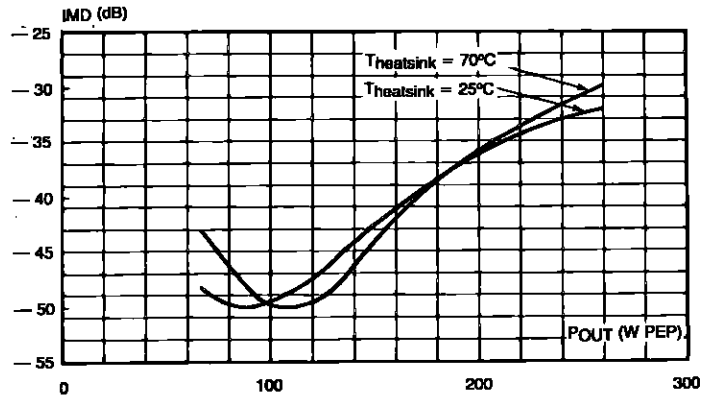


COLLECTOR EFFICIENCY vs POWER OUTPUT PEP

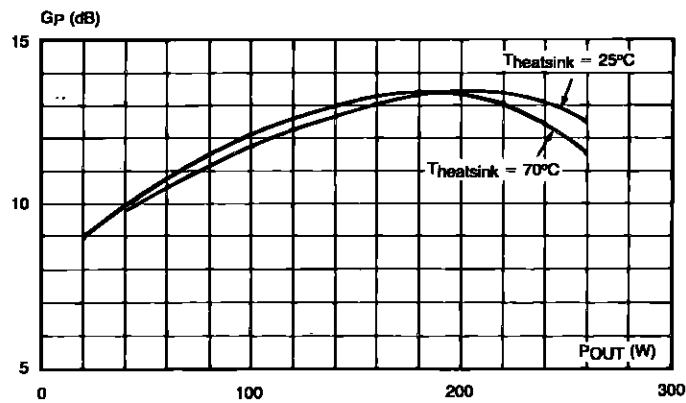


## TYPICAL PERFORMANCE (cont'd)

INTERMODULATION DISTORTION vs POWER OUTPUT PEP



POWER GAIN vs POWER OUTPUT

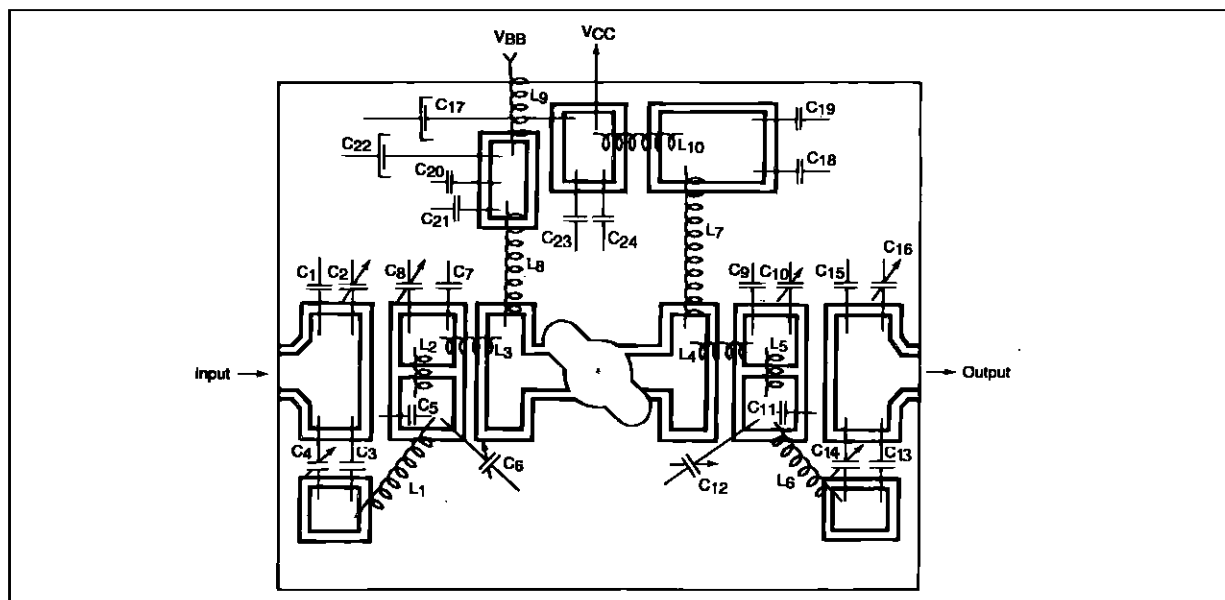
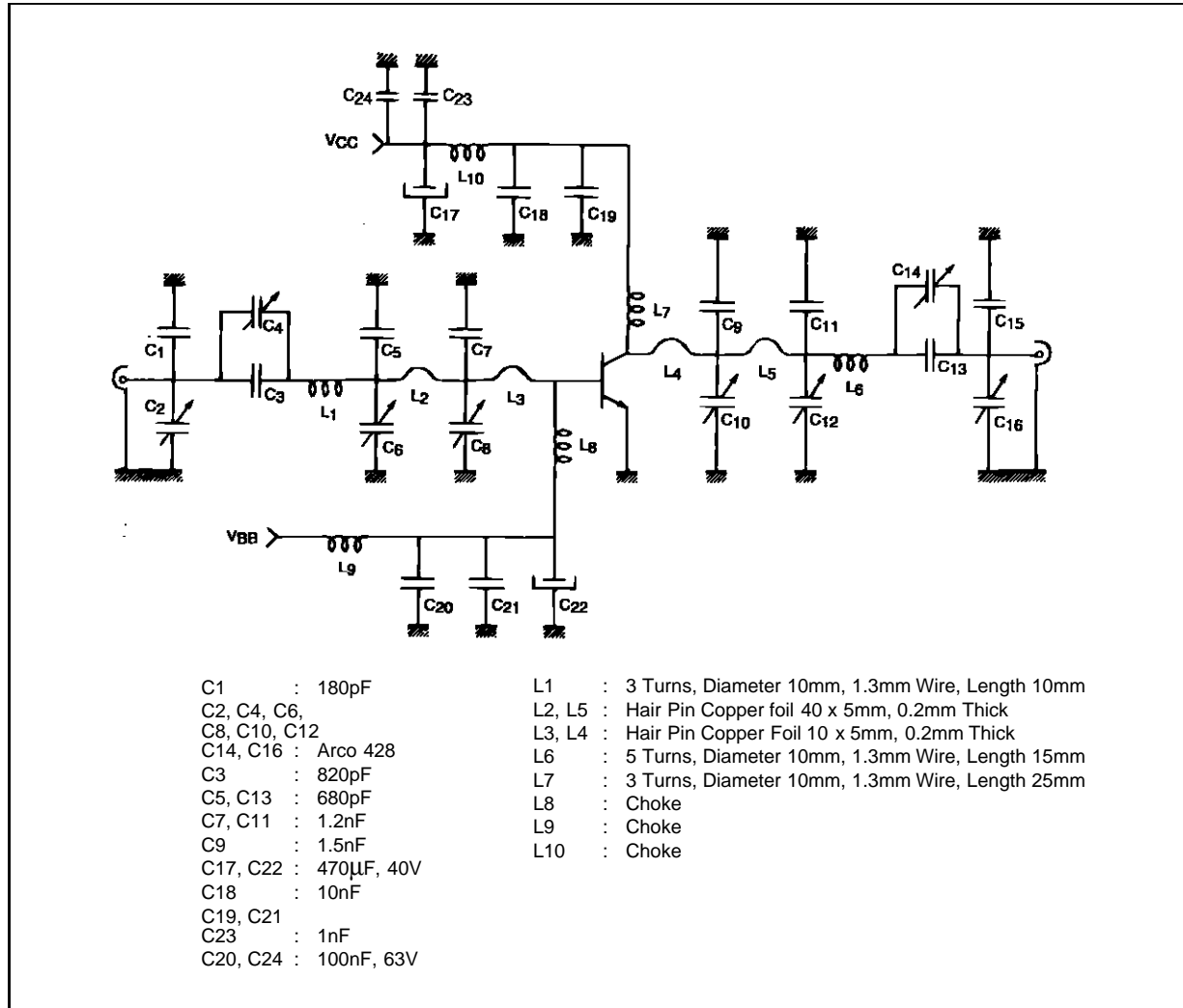


## IMPEDANCE DATA

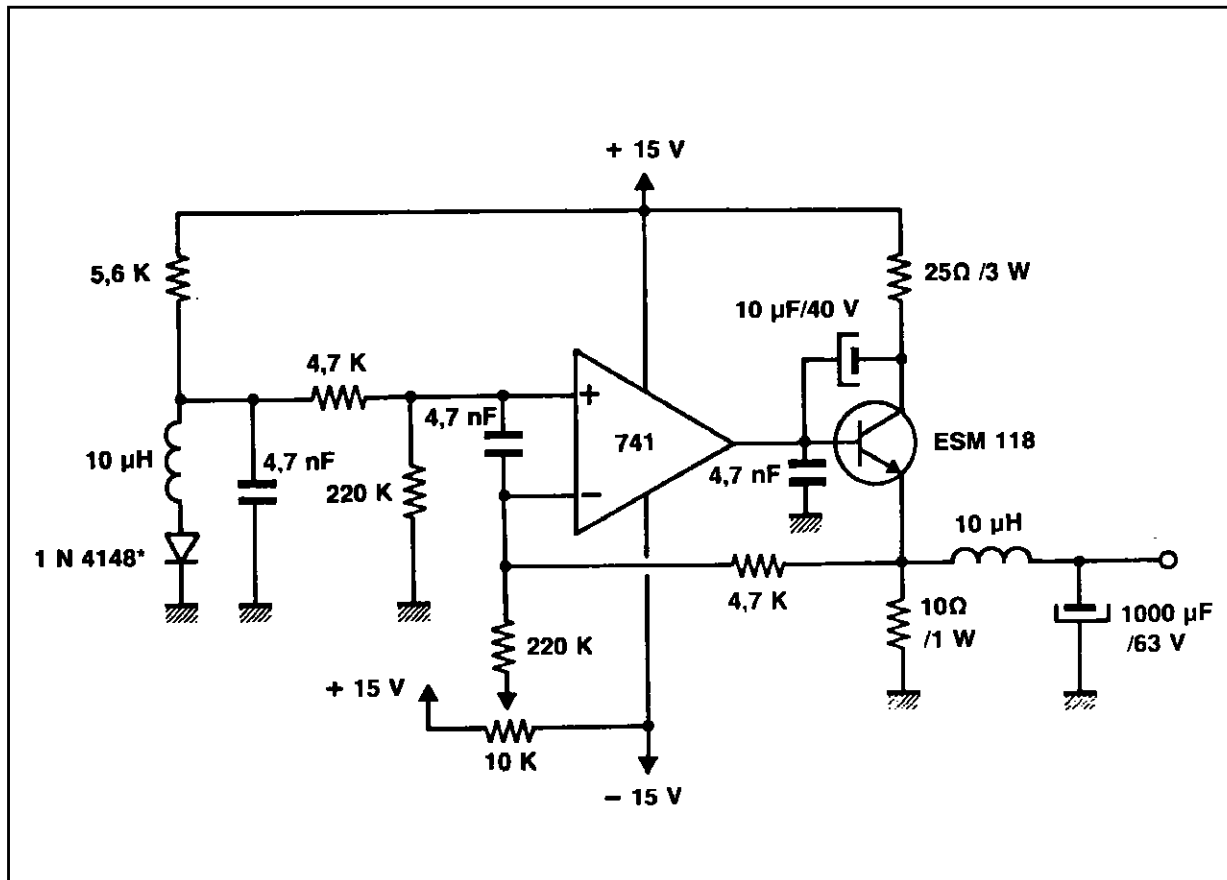
FREQ.	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
30 MHz	1.15 + j 0.41	1.25 + j 1.92

# SD1730 (TH560)

## TEST CIRCUIT



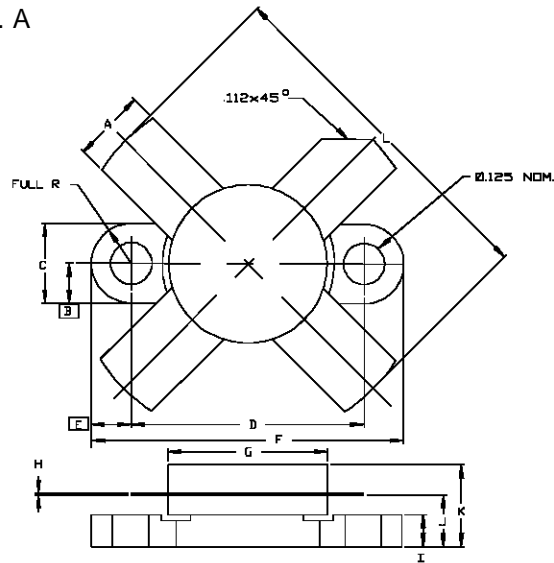
## BIAS CIRCUIT



# 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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