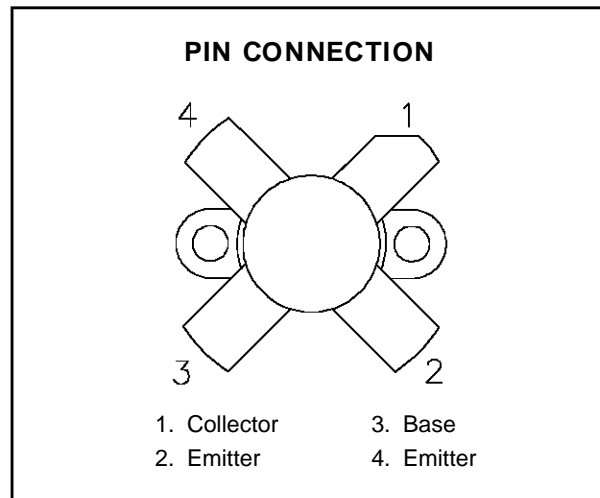
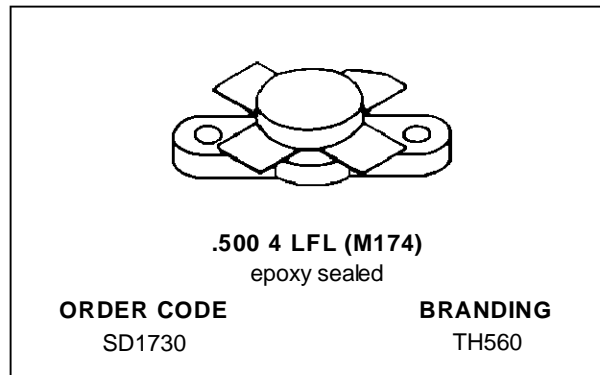


RF & MICROWAVE TRANSISTORS HF SSB APPLICATIONS

- 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 _{CB0}	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 ($T_{\text{case}} = 25^{\circ}\text{C}$)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CES}	$I_{\text{C}} = 100 \text{ mA}$	$V_{\text{BE}} = 0 \text{ V}$	70	—	—	V
BV_{CEO}	$I_{\text{C}} = 200 \text{ mA}$	$I_{\text{B}} = 0 \text{ mA}$	35	—	—	V
BV_{EBO}	$I_{\text{E}} = 20 \text{ mA}$	$I_{\text{C}} = 0 \text{ mA}$	4.0	—	—	V
I_{CEO}	$V_{\text{CE}} = 30 \text{ V}$	$I_{\text{E}} = 0 \text{ mA}$	—	—	5	mA
I_{CES}	$V_{\text{CE}} = 35 \text{ V}$	$I_{\text{E}} = 0 \text{ mA}$	—	—	5	mA
h_{FE}	$V_{\text{CE}} = 5 \text{ V}$	$I_{\text{C}} = 7 \text{ A}$	15	—	60	—

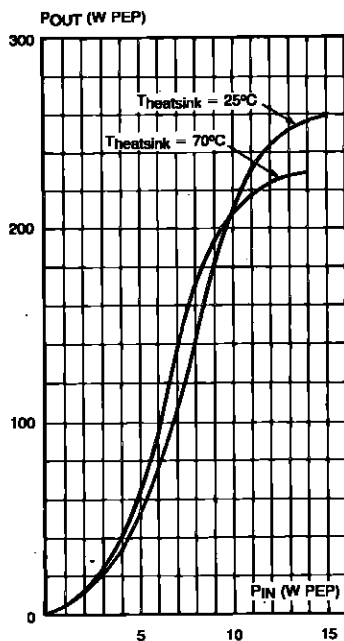
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 30 \text{ MHz}$	$V_{\text{CE}} = 28 \text{ V}$	$I_{\text{CQ}} = 750 \text{ mA}$	220	—	—	W
P_{G}^*	$P_{\text{OUT}} = 220 \text{ W PEP}$	$V_{\text{CE}} = 28 \text{ V}$	$I_{\text{CQ}} = 750 \text{ mA}$	12	—	—	dB
IMD^*	$P_{\text{OUT}} = 220 \text{ W PEP}$	$V_{\text{CE}} = 28 \text{ V}$	$I_{\text{CQ}} = 750 \text{ mA}$	—	—	-30	dBc
η_{c}^*	$P_{\text{OUT}} = 220 \text{ W PEP}$	$V_{\text{CE}} = 28 \text{ V}$	$I_{\text{CQ}} = 750 \text{ mA}$	40	—	—	%
C_{OB}	$f = 1 \text{ MHz}$	$V_{\text{CB}} = 28 \text{ V}$		—	450	—	pF
Load Mismatch	$P_{\text{OUT}} = 220 \text{ W PEP}$	$V_{\text{CE}} = 28 \text{ V}$	$I_{\text{CQ}} = 750 \text{ mA}$	—	$\infty:1$	—	VSWR

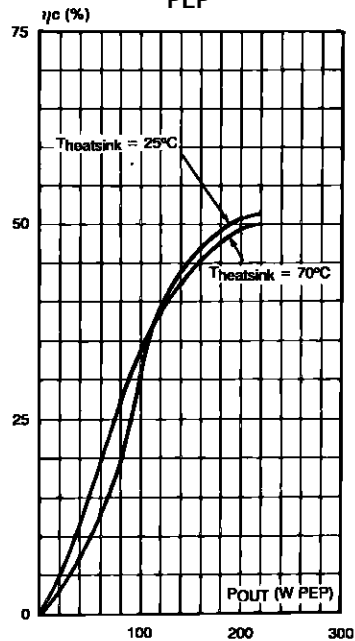
Note: * $f_1 = 30.00 \text{ MHz}$, $f_2 = 30.001 \text{ MHz}$

TYPICAL PERFORMANCE

POWER OUTPUT PEP vs POWER INPUT

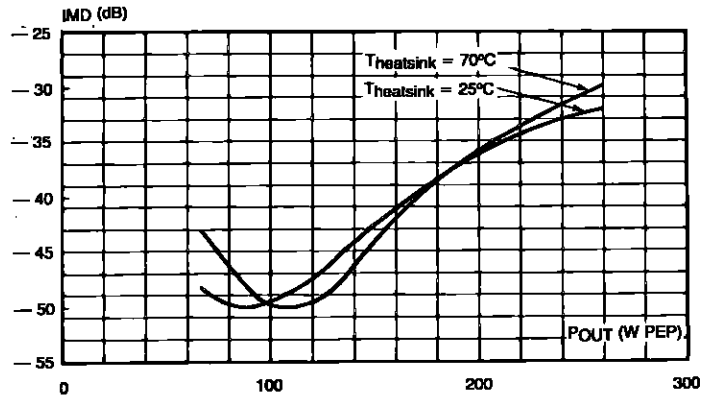


COLLECTOR EFFICIENCY vs POWER OUTPUT PEP

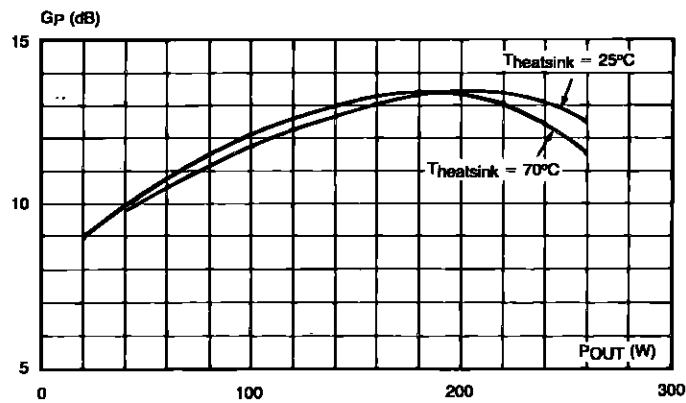


TYPICAL PERFORMANCE (cont'd)

INTERMODULATION DISTORTION vs POWER OUTPUT PEP



POWER GAIN vs POWER OUTPUT

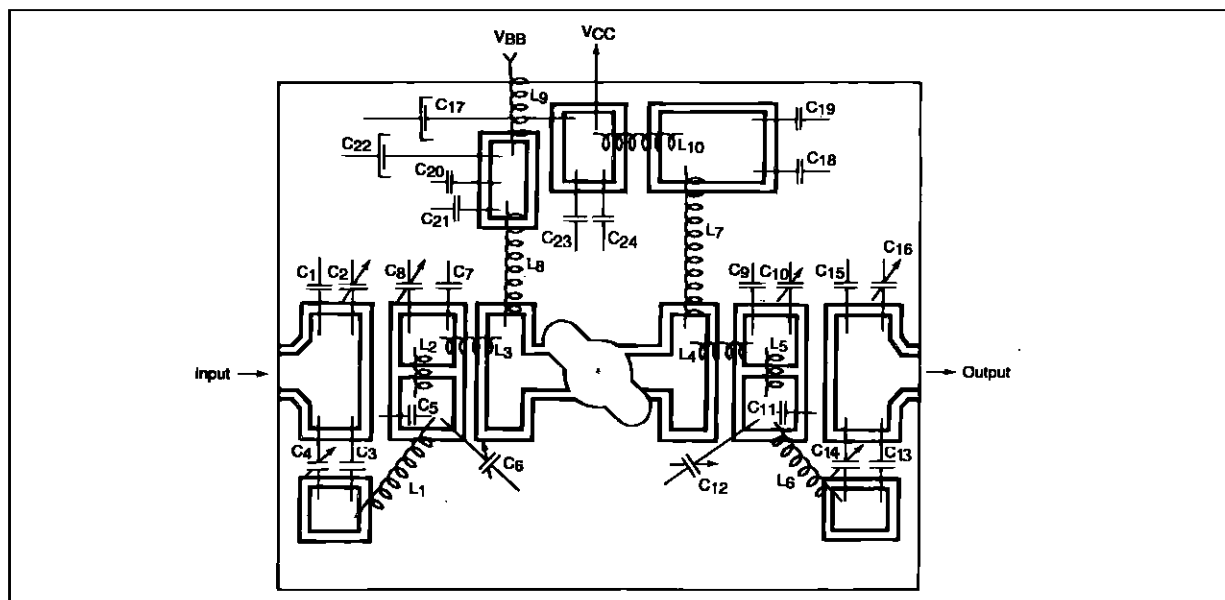
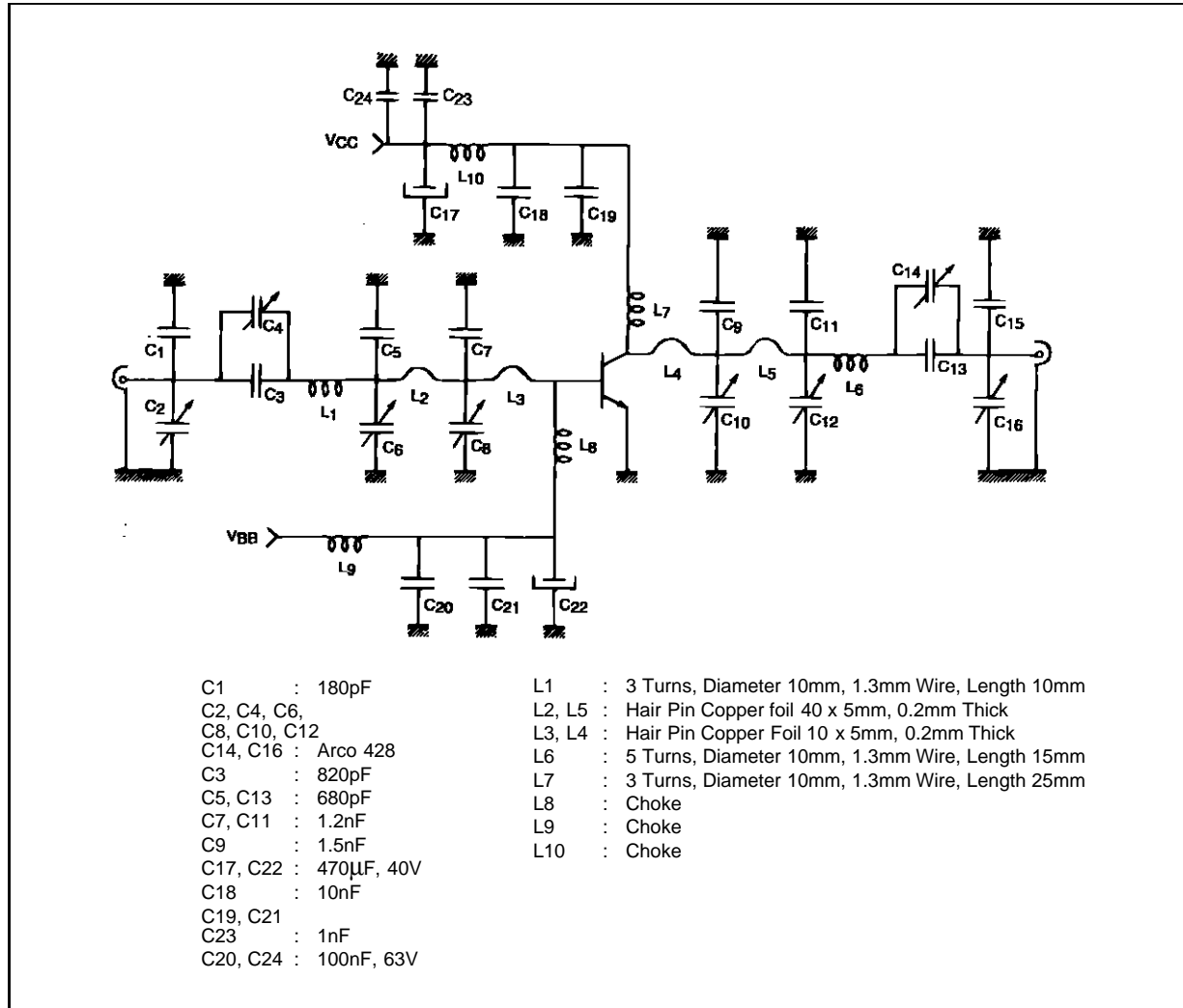


IMPEDANCE DATA

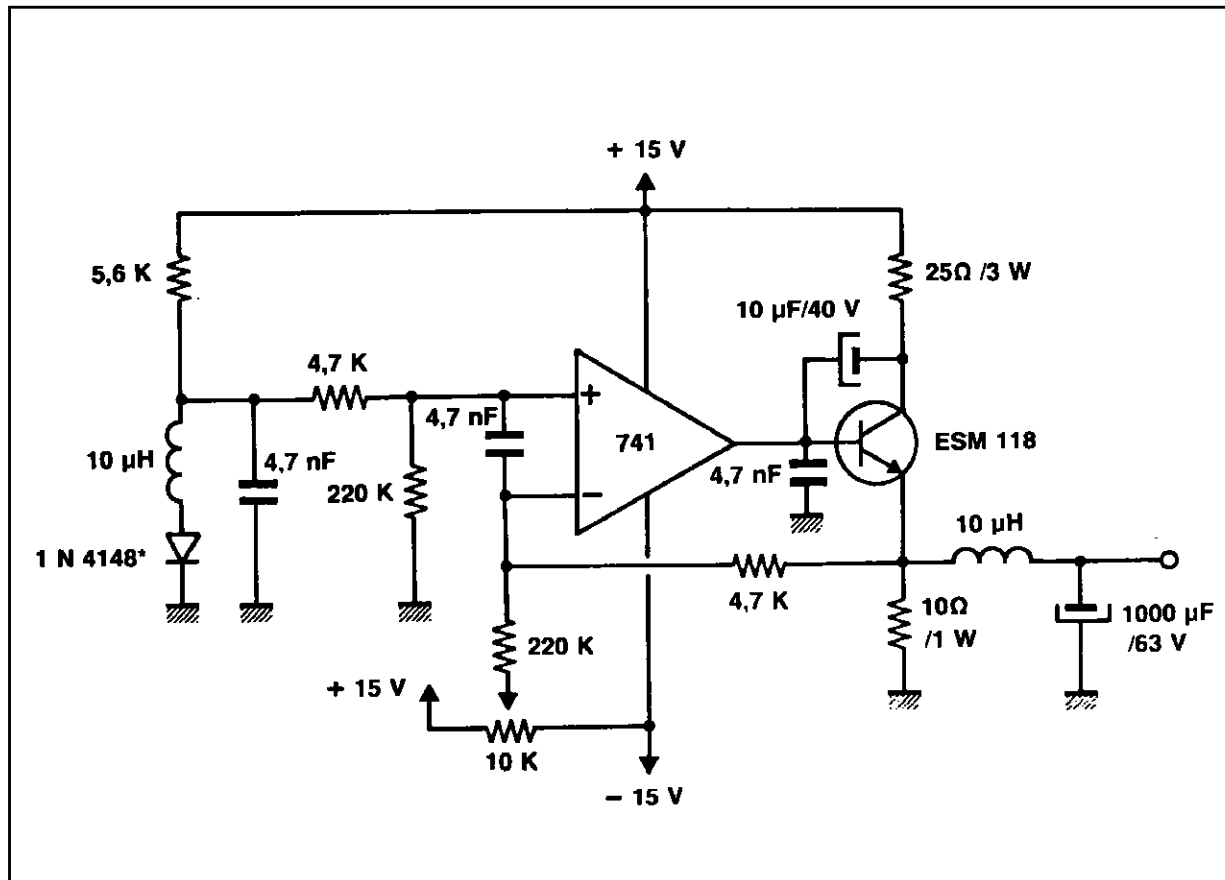
FREQ.	Z _{IN} (Ω)	Z _{CL} (Ω)
30 MHz	1.15 + j 0.41	1.25 + j 1.92

SD1730 (TH560)

TEST CIRCUIT



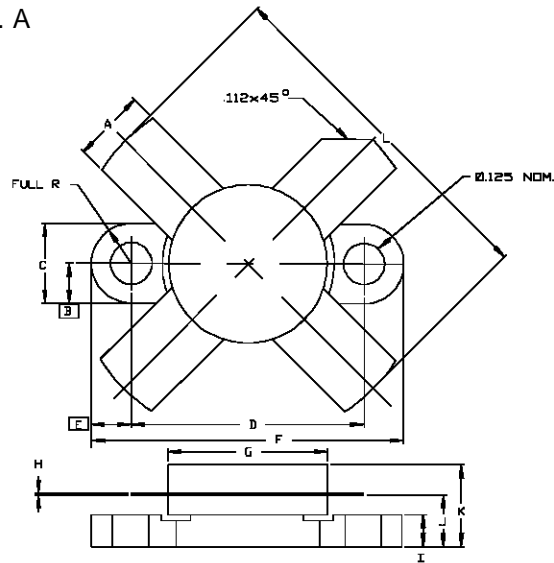
BIAS CIRCUIT



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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