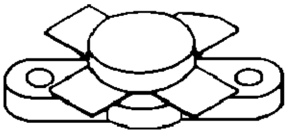
SD1487

RF & MICROWAVE TRANSISTORS
HF SSB APPLICATIONS

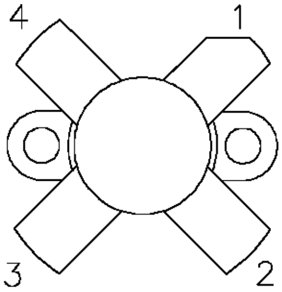
- 30 MHz
- 12.5 VOLTS
- IMD –30 dB
- COMMON EMITTER
- GOLD METALLIZATION
- P_{OUT} = 100 W MIN. WITH 12.0 dB GAIN



.500 4LFL (M174)
epoxy sealed

ORDER CODE	**BRANDING**
SD1487	SD1487

PIN CONNECTION



1. Collector
2. Emitter
3. Base
4. Emitter

DESCRIPTION

The SD1487 is a 12.5 V Class C epitaxial silicon NPN planar transistor designed primarily for HF communications. This device utilizes state-of-the-art diffused emitter ballasting to achieve extreme ruggedness under severe operating conditions.

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	36	V
V_{CEO}	Collector-Emitter Voltage	18	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	20	A
P_{DISS}	Power Dissipation	290	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

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

STATIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	I_C = 100mA I_E = 0mA	36	—	—	V
BV_{CES}	I_C = 100mA V_{BE} = 0V	36	—	—	V
BV_{CEO}	I_C = 100mA I_B = 0mA	18	—	—	V
BV_{EBO}	I_E = 20mA I_C = 0mA	4.0	—	—	V
I_{CES}	V_{CE} = 15V I_E = 0mA	—	—	20	mA
h_{FE}	V_{CE} = 5V I_C = 5A	10	—	200	—

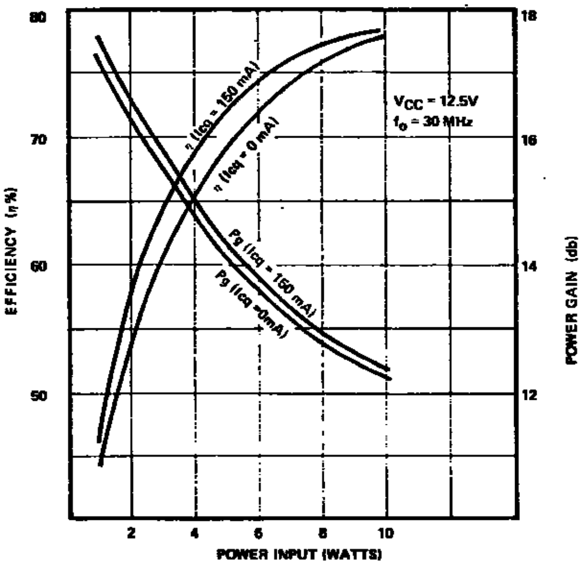
DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	f = 30 MHz V_{CE} = 12.5 V I_{CQ} = 150mA	100	—	—	W
G_P	f = 30 MHz V_{CE} = 12.5 V I_{CQ} = 150mA	11	13	—	dB
IMD_3*	P_{OUT} = 100WPEP V_{CE} = 12.5 V I_{CQ} = 150mA	—	—	−30	dBc
C_{OB}	f = 1 MHz V_{CB} = 12.5 V	—	400	—	pF

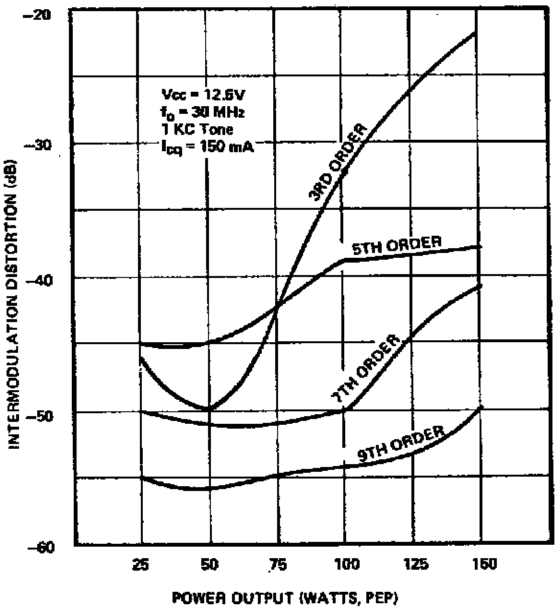
*Note: f = 30 + 30.001MHz

TYPICAL PERFORMANCE

POWER GAIN & COLLECTOR EFFICIENCY vs POWER INPUT

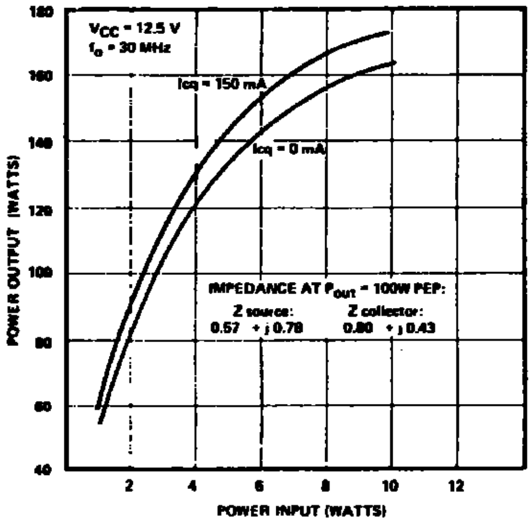


IMD vs POWER OUTPUT, PEP



TYPICAL PERFORMANCE (cont'd)

POWER OUTPUT vs POWER INPUT

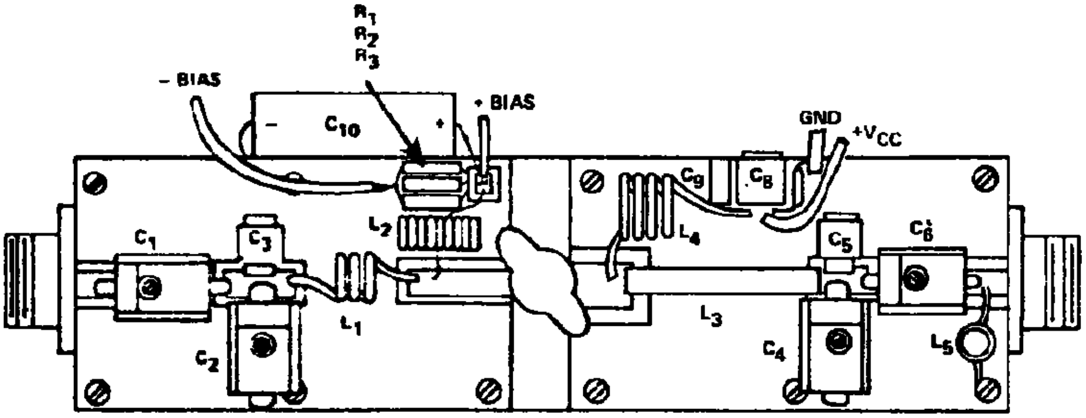


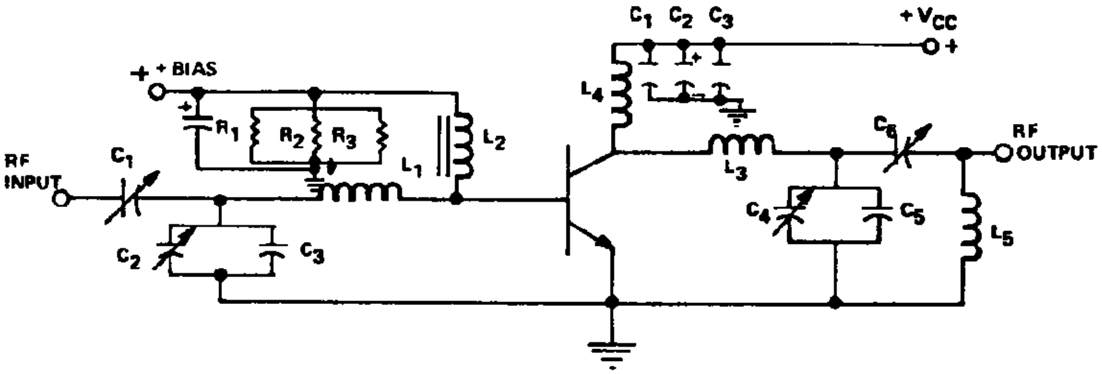
IMPEDANCE DATA

FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
30 MHz	0.57 + j 0.78	0.80 + j 0.43

P_{OUT} = 100 W PEP
V_{CE} = 12.5 V

TEST CIRCUIT





C1 : 9 - 180pF Arco 463
C2 : 5 - 380pF Arco 465
C3 : 200pF Arco 465
C4, C6 : 170pF Arco 469
C7 : 0.1µF Ceramic Disc
C5, C8 : 1000pF Unelco
C9 : 10µF Electrolytic, 35Vdc
C10 : 1000µF Electrolytic, 35Vdc

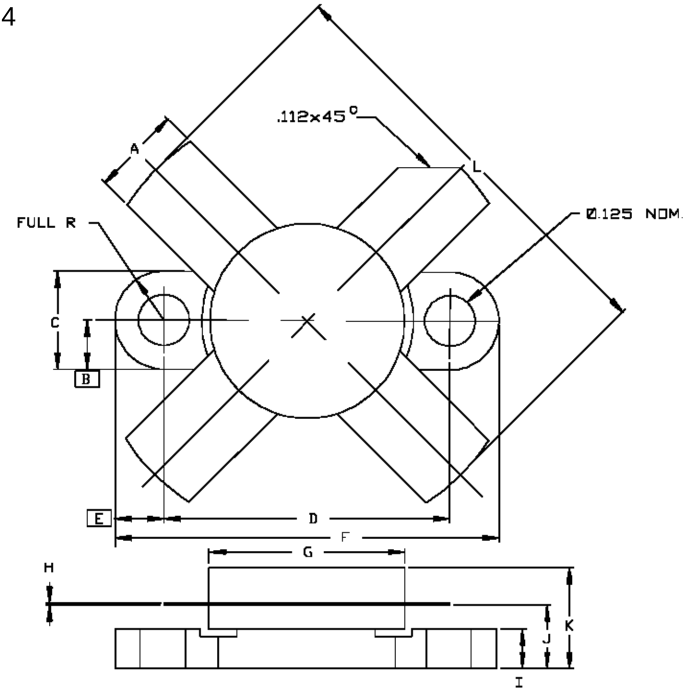
L1 : 2 1/2 Turns, #14 AWG, I.D. Loose Wound
L2 : 16 Turns, #16 AWG, Enameled Wire on Micrometals Torroid #T-94

L3 : Copper Strap 1/4” Widht, Length 1 1/2, Height 1/2”
L4 : 4 Turns, #16 AWG, Enameled Wire 3/8” I.D.
L5 : 5 Turns, #18 AWG on 1/4” I.D. Coil Form Length 1/2”, Ferrite Slug

R1, R2, R3 : 1.5 Ohm, 1 Watt Carbon

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0174



SGS-THOMSON MICROELECTRONICS		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.220/5,59	.230/5,84
B	.125/3,18	
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

CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
K		.280/7,11
L		1.050/26,67