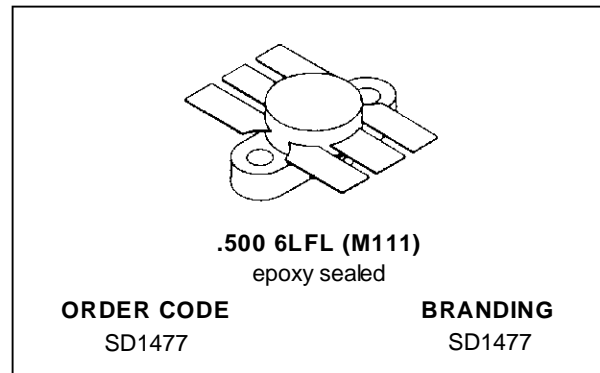
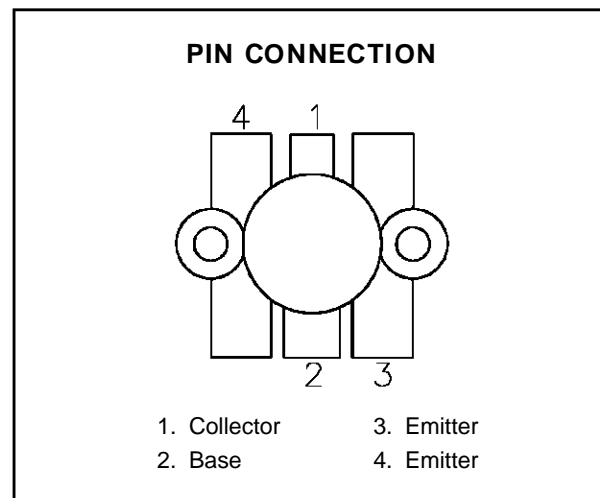


**RF & MICROWAVE TRANSISTORS  
VHF MOBILE APPLICATIONS**

- 175 MHz
- 12.5 VOLTS
- COMMON EMITTER
- P<sub>OUT</sub> = 100 W MIN. WITH 6.0 dB GAIN


**DESCRIPTION**

The SD1477 is a 12.5 V Class C epitaxial silicon NPN planar transistor designed primarily for VHF FM communications. This device utilizes diffused emitter resistors to withstand extremely high VSWR under rated operating conditions, and is internally input matched to optimize power gain and efficiency over the 136 - 175 MHz band.


**ABSOLUTE MAXIMUM RATINGS** (T<sub>case</sub> = 25°C)

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	36	V
V <sub>CEO</sub>	Collector-Emitter Voltage	18	V
V <sub>CES</sub>	Collector-Emitter Voltage	36	V
V <sub>EBO</sub>	Emitter-Base Voltage	4.0	V
I <sub>c</sub>	Device Current	20	A
P <sub>DISS</sub>	Power Dissipation	270	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	0.65	°C/W
----------------------	----------------------------------	------	------

# SD1477

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

### STATIC

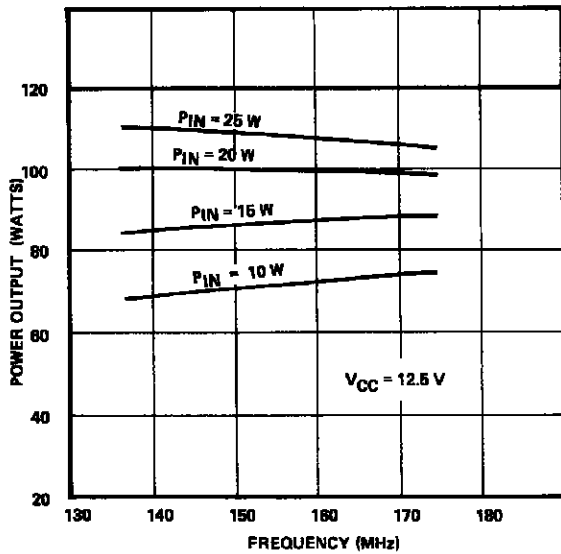
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV <sub>CBO</sub>	I <sub>C</sub> = 50mA	I <sub>E</sub> = 0mA	36	—	—	V
BV <sub>CES</sub>	I <sub>C</sub> = 100mA	V <sub>BE</sub> = 0V	36	—	—	V
BV <sub>CEO</sub>	I <sub>C</sub> = 100mA	I <sub>B</sub> = 0mA	18	—	—	V
BV <sub>EBO</sub>	I <sub>E</sub> = 10mA	I <sub>C</sub> = 0mA	4.0	—	—	V
I <sub>CES</sub>	V <sub>CE</sub> = 15V	I <sub>E</sub> = 0mA	—	—	15	mA
h <sub>FE</sub>	V <sub>CE</sub> = 5V	I <sub>C</sub> = 5A	10	—	—	—

### DYNAMIC

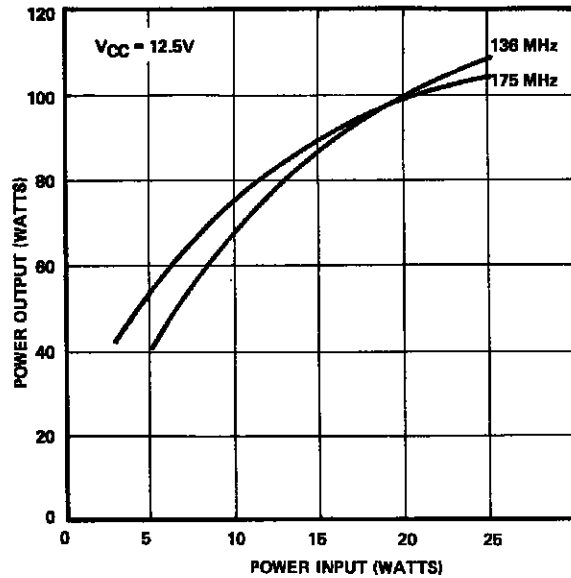
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P <sub>OUT</sub>	f = 175 MHz	P <sub>IN</sub> = 25 W	V <sub>CC</sub> = 12.5 V	100	—	—	W
G <sub>P</sub>	f = 175 MHz	P <sub>IN</sub> = 25 W	V <sub>CC</sub> = 12.5 V	6.0	—	—	dB
C <sub>OB</sub>	f = 1 MHz	V <sub>CB</sub> = 12.5 V		—	350	—	pF

### TYPICAL PERFORMANCE

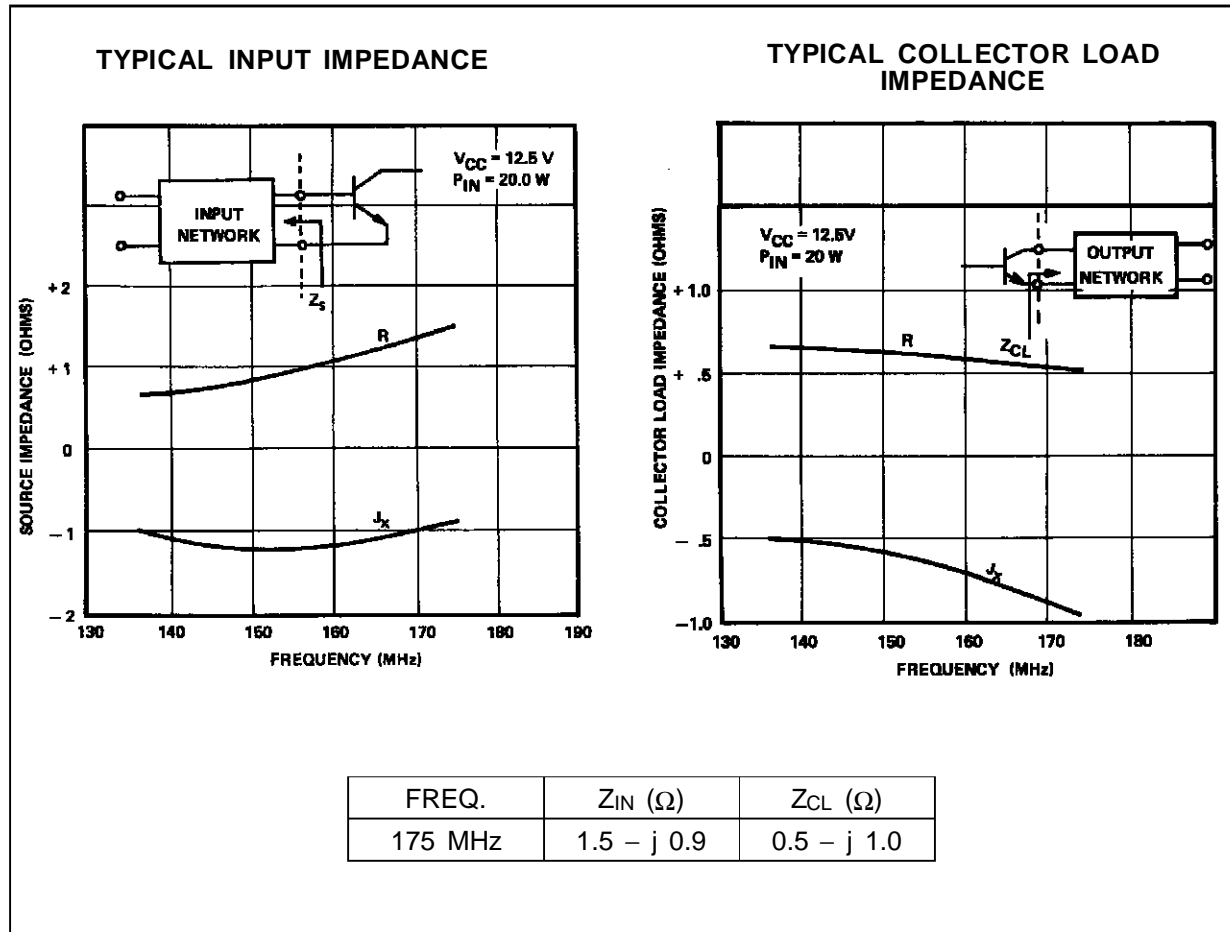
POWER OUTPUT vs FREQUENCY



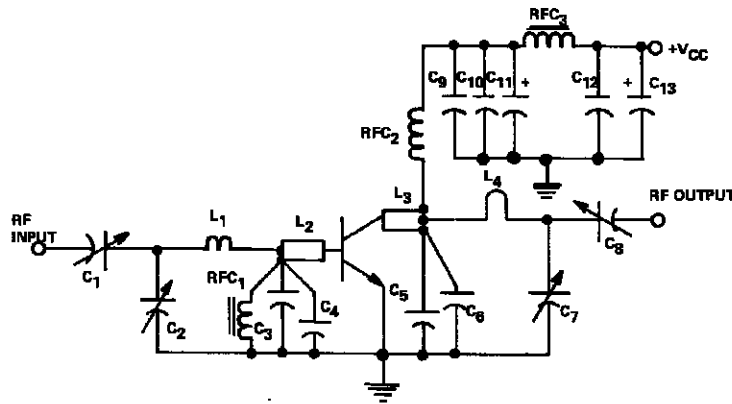
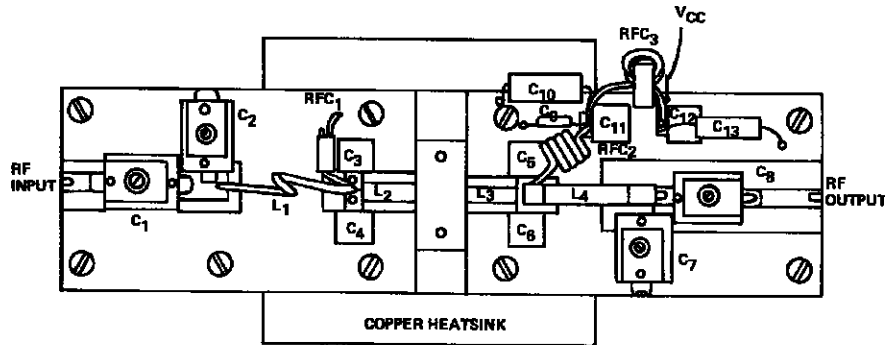
POWER OUTPUT vs POWER INPUT



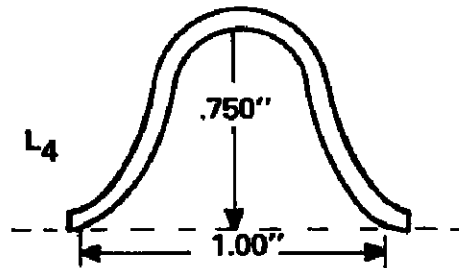
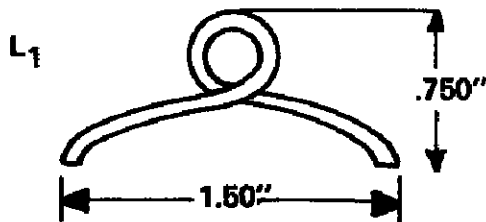
## IMPEDANCE DATA



TEST CIRCUIT

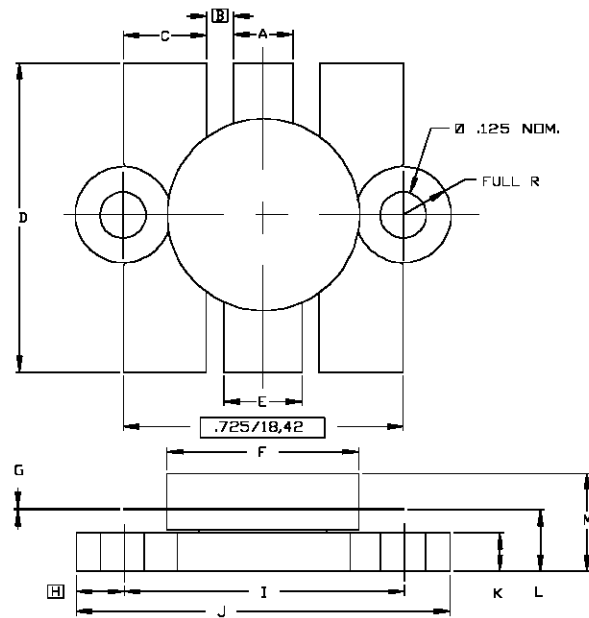


- |                                |  |
|--------------------------------|--|
| C1, C2 : Arco 462 5 - 80pF     | L1 : 1 Turn, #12, 1/4" I.D.                    |
| C3, C4 : Unelco 100pF, 350V    | L2, L3 : 1/2" 50Ω Stripline (.180" Wide)       |
| C5, C6 : Unelco 120pF, 350V    | L4 : 1/8" Thick Copper Strap 1/4" Wide         |
| C7, C8 : Arco 463 9 - 180pF    | RFC1 : 1 1/2 Turns on Ferroxcube VK200/19-B    |
| C9, C12 : Unelco 1000pF, 350V  | RFC2 : 4 Turn #16 Enamel, 3/8" I.D., 3/8" Long |
| C10 : Erie .15μF, 200V Red Cap | RFC3 : 4 Turns #16 Enamel on T50-2 Torroid     |
| C11 : 25μF, 25V Electrolytic   |  |
| C13 : 10μF, 25V Electrolytic   |  |
|                                | Board Material: 3M-K6098, 1/16" Thick          |



## PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0111



SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.150/3,43	.160/4,06	K	.095/2,41	.105/2,67
B	.045/1,14		L	.150/3,81	.170/4,32
C	.210/5,33	.220/5,59	M		.280/7,11
D	.835/21,21	.865/21,97			
E	.200/5,08	.210/5,33			
F	.490/12,45	.510/12,95			
G	.003/0,08	.007/0,18			
H	.125/3,18				
I	.720/18,29	.730/18,54			
J	.970/24,64	.980/24,89			

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1994 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES  
Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands -  
Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A