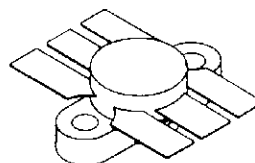


RF & MICROWAVE TRANSISTORS VHF MOBILE APPLICATIONS

- 175 MHz
- 12.5 VOLTS
- COMMON EMITTER
- $P_{OUT} = 100\text{ W MIN. WITH } 6.0\text{ dB GAIN}$



.500 6LFL (M111)
epoxy sealed

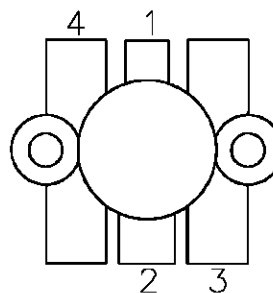
ORDER CODE
SD1477

BRANDING
SD1477

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.

PIN CONNECTION



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

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}\text{C}$)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	36	V
V_{CEO}	Collector-Emitter Voltage	18	V
V_{CES}	Collector-Emitter Voltage	36	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	20	A
P_{DISS}	Power Dissipation	270	W
T_J	Junction Temperature	+200	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	- 65 to +150	$^{\circ}\text{C}$

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	0.65	$^{\circ}\text{C/W}$
---------------	----------------------------------	------	----------------------

SD1477

ELECTRICAL SPECIFICATIONS ($T_{\text{case}} = 25^{\circ}\text{C}$)

STATIC

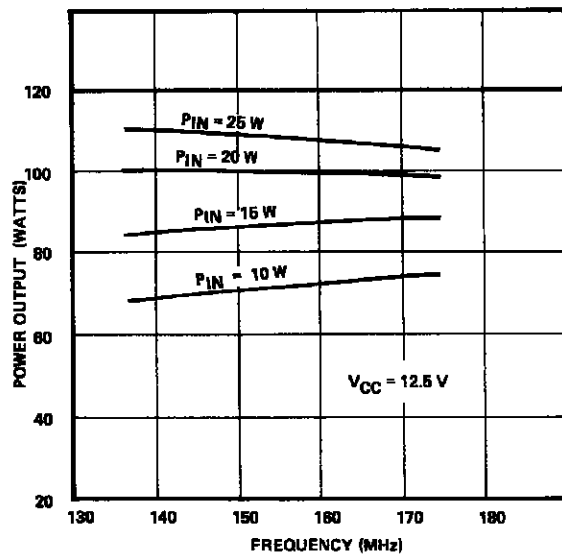
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 50\text{mA}$	$I_{\text{E}} = 0\text{mA}$	36	—	—	V
BV_{CES}	$I_{\text{C}} = 100\text{mA}$	$V_{\text{BE}} = 0\text{V}$	36	—	—	V
BV_{CEO}	$I_{\text{C}} = 100\text{mA}$	$I_{\text{B}} = 0\text{mA}$	18	—	—	V
BV_{EBO}	$I_{\text{E}} = 10\text{mA}$	$I_{\text{C}} = 0\text{mA}$	4.0	—	—	V
I_{CES}	$V_{\text{CE}} = 15\text{V}$	$I_{\text{E}} = 0\text{mA}$	—	—	15	mA
h_{FE}	$V_{\text{CE}} = 5\text{V}$	$I_{\text{C}} = 5\text{A}$	10	—	—	—

DYNAMIC

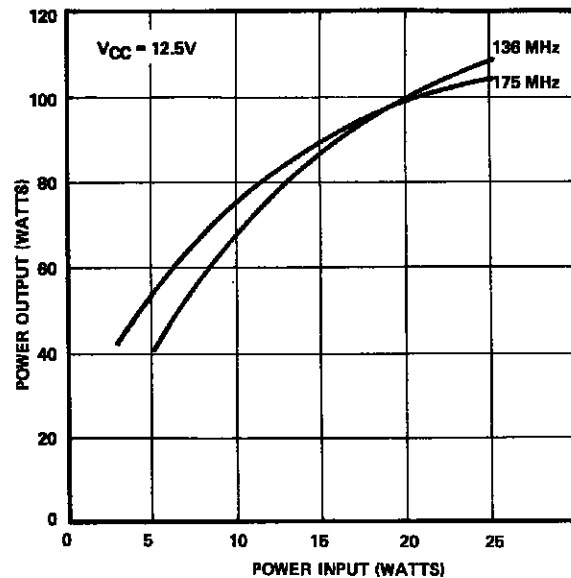
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 175\text{ MHz}$	$P_{\text{IN}} = 25\text{ W}$	$V_{\text{CC}} = 12.5\text{ V}$	100	—	—	W
G_{P}	$f = 175\text{ MHz}$	$P_{\text{IN}} = 25\text{ W}$	$V_{\text{CC}} = 12.5\text{ V}$	6.0	—	—	dB
C_{OB}	$f = 1\text{ MHz}$	$V_{\text{CB}} = 12.5\text{ V}$		—	350	—	pF

TYPICAL PERFORMANCE

POWER OUTPUT vs FREQUENCY

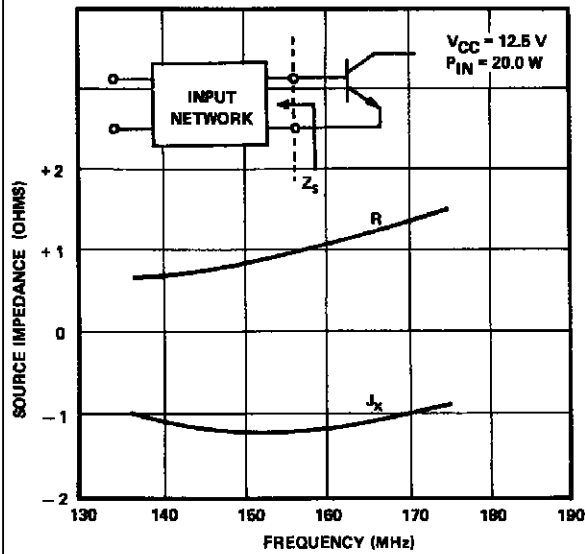


POWER OUTPUT vs POWER INPUT

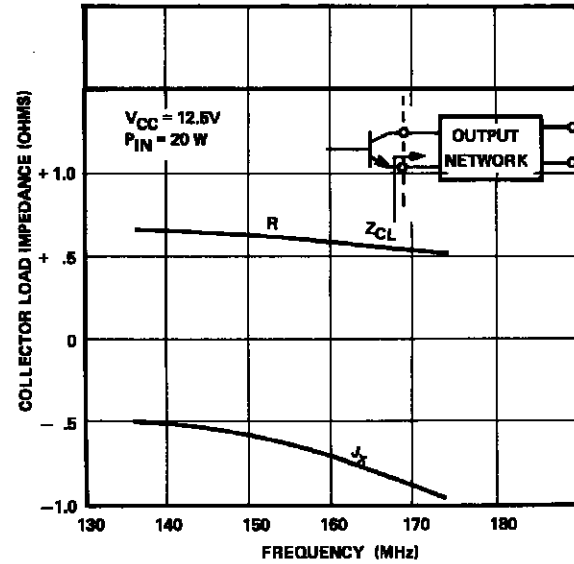


IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

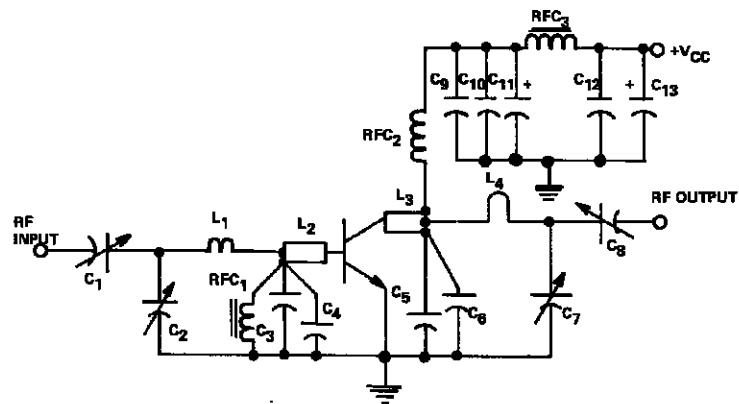
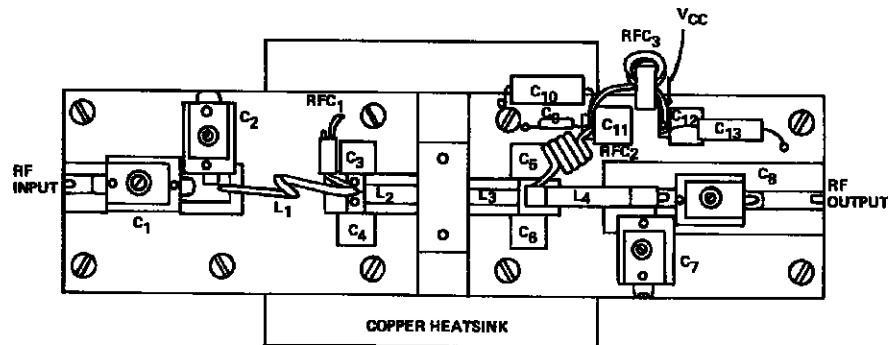


TYPICAL COLLECTOR LOAD IMPEDANCE



FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
175 MHz	$1.5 - j\ 0.9$	$0.5 - j\ 1.0$

TEST CIRCUIT

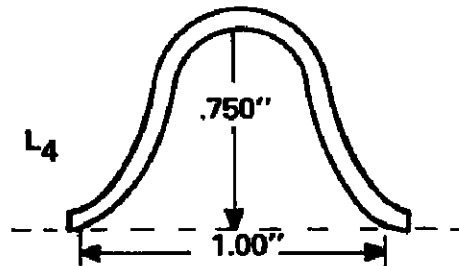
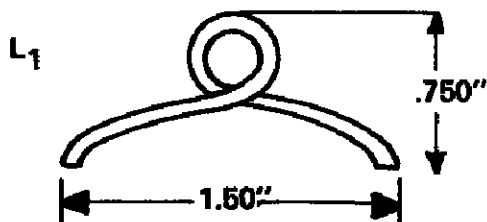


C1, C2 : Arco 462 5 - 80pF
 C3, C4 : Unelco 100pF, 350V
 C5, C6 : Unelco 120pF, 350V
 C7, C8 : Arco 463 9 - 180pF
 C9, C12 : Unelco 1000pF, 350V
 C10 : Erie .15 μ F, 200V Red Cap
 C11 : 25 μ F, 25V Electrolytic
 C13 : 10 μ F, 25V Electrolytic

L1 : 1 Turn, #12, 1/4" I.D.
 L2, L3 : 1/2" 50 Ω Stripline (.180" Wide)
 L4 : 1/8" Thick Copper Strap 1/4" Wide

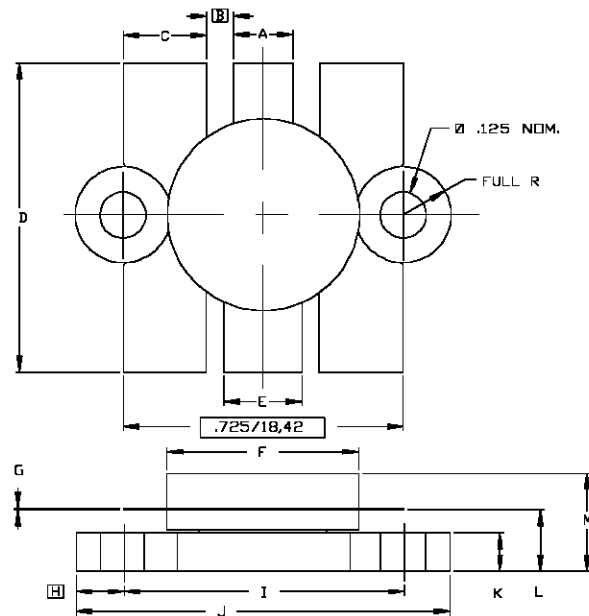
RFC1 : 1 1/2 Turns on Ferroxcube VK200/19-B
 RFC2 : 4 Turn #16 Enamel, 3/8" I.D., 3/8" Long
 RFC3 : 4 Turns #16 Enamel on T50-2 Torroid

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