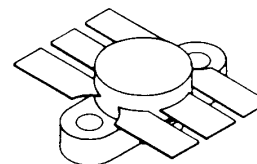


RF & MICROWAVE TRANSISTORS VHF APPLICATIONS

- 136 - 175 MHz
- 28 VOLTS
- EFFICIENCY 55%
- COMMON EMITTER
- GOLD METALLIZATION
- INTERNAL INPUT MATCHING
- $P_{OUT} = 125 \text{ W MIN. WITH } 9.2 \text{ dB GAIN}$



.500 6LFL (M111)
epoxy sealed

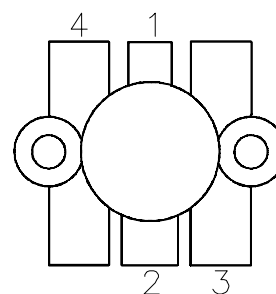
ORDER CODE
SD1480

BRANDING
SD1480

DESCRIPTION

The SD1480 is a common emitter 28 V Class C epitaxial silicon NPN planar transistor designed primarily for VHF communications applications. This internally matched device incorporates diffused emitter ballasting resistors and provides high gain and stable operation across the entire 136 - 175 MHz VHF communications 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	65	V
V_{CEO}	Collector-Emitter Voltage	36	V
V_{CES}	Collector-Emitter Voltage	65	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	$^{\circ}\text{C/W}$
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SD1480

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

STATIC

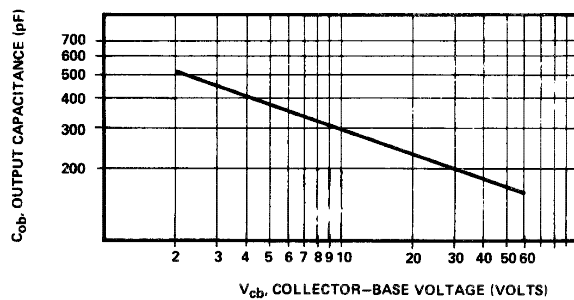
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 100 \text{ mA}$	$I_{\text{E}} = 0 \text{ mA}$	65	—	—	V
BV_{CES}	$I_{\text{C}} = 100 \text{ mA}$	$V_{\text{BE}} = 0 \text{ V}$	65	—	—	V
BV_{CEO}	$I_{\text{C}} = 100 \text{ mA}$	$I_{\text{B}} = 0 \text{ mA}$	35	—	—	V
BV_{EBO}	$I_{\text{E}} = 10 \text{ mA}$	$I_{\text{C}} = 0 \text{ mA}$	4.0	—	—	V
I_{CES}	$V_{\text{CE}} = 30 \text{ V}$	$I_{\text{E}} = 0 \text{ mA}$	—	—	15	mA
h_{FE}	$V_{\text{CE}} = 5 \text{ V}$	$I_{\text{C}} = 5 \text{ A}$	20	—	200	—

DYNAMIC

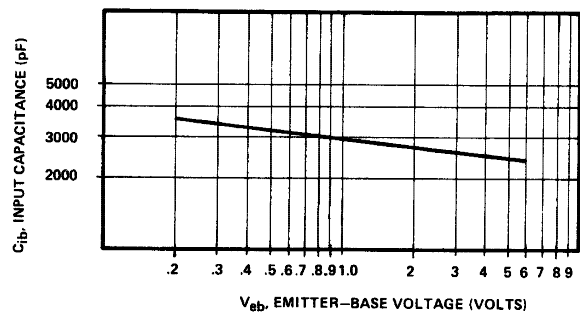
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 150 \text{ MHz}$	$P_{\text{IN}} = 15 \text{ W}$	$V_{\text{CE}} = 28 \text{ V}$	125	—	—	W
P_{G}	$f = 150 \text{ MHz}$	$P_{\text{OUT}} = 125 \text{ W}$	$V_{\text{CE}} = 28 \text{ V}$	9.2	—	—	dB
η_{c}	$f = 150 \text{ MHz}$	$P_{\text{OUT}} = 125 \text{ W}$	$V_{\text{CE}} = 28 \text{ V}$	55	—	—	%
C_{OB}	$f = 1 \text{ MHz}$	$V_{\text{CB}} = 28 \text{ V}$		—	—	250	pF
Load Mismatch	$f = 150 \text{ MHz}$	$P_{\text{IN}} = 15 \text{ W}$	$V_{\text{CE}} = 28 \text{ V}$	20:1	—	—	VSWR

TYPICAL PERFORMANCE

OUTPUT CAPACITANCE vs COLLECTOR BASE VOLTAGE

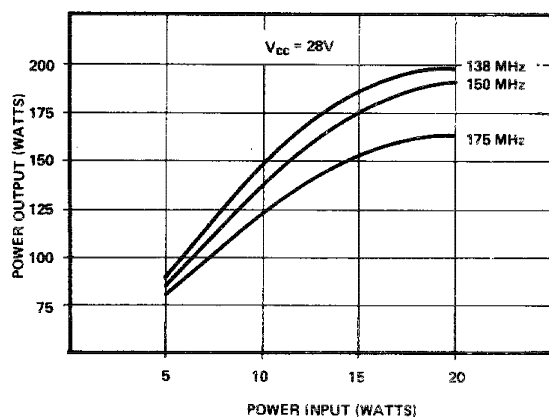


INPUT CAPACITANCE vs EMITTER BASE VOLTAGE

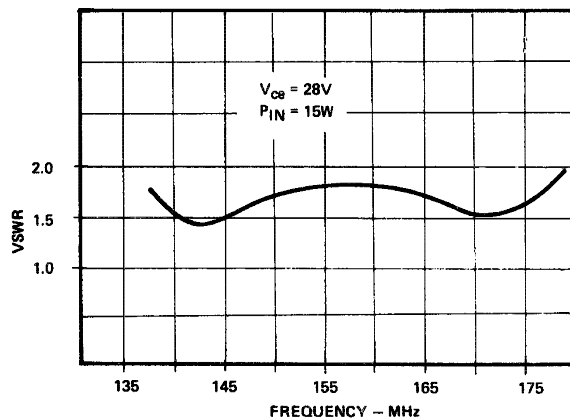


TYPICAL PERFORMANCE (cont'd)

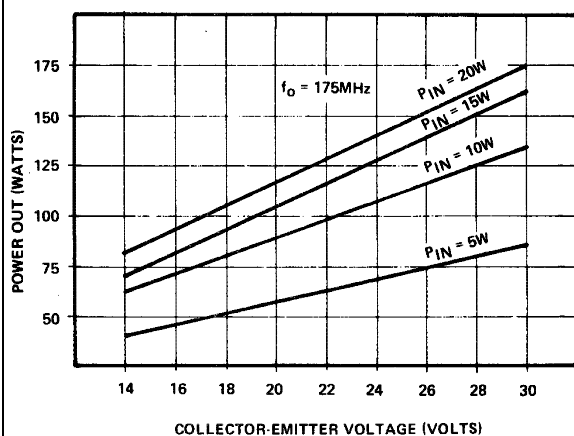
POWER OUTPUT vs POWER INPUT



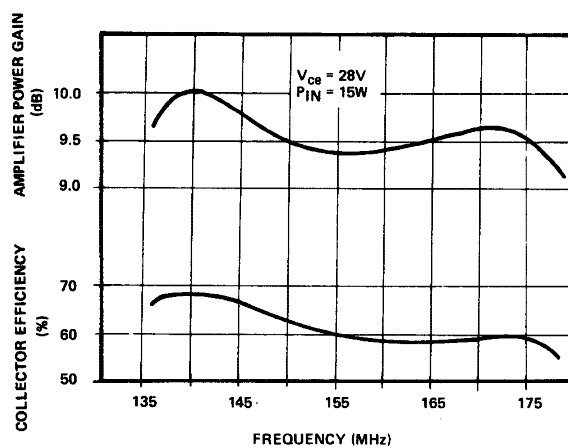
INPUT VSWR vs FREQUENCY



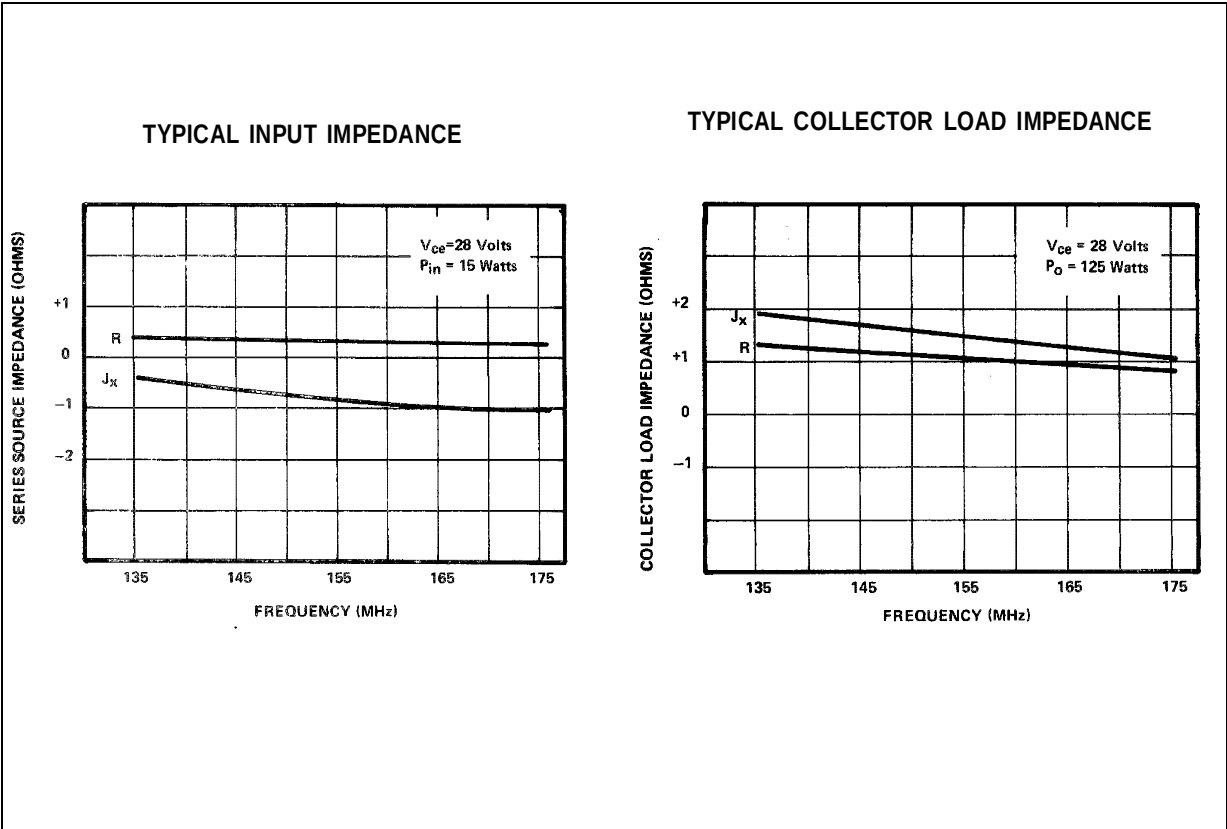
POWER OUTPUT vs COLLECTOR EMITTER VOLTAGE



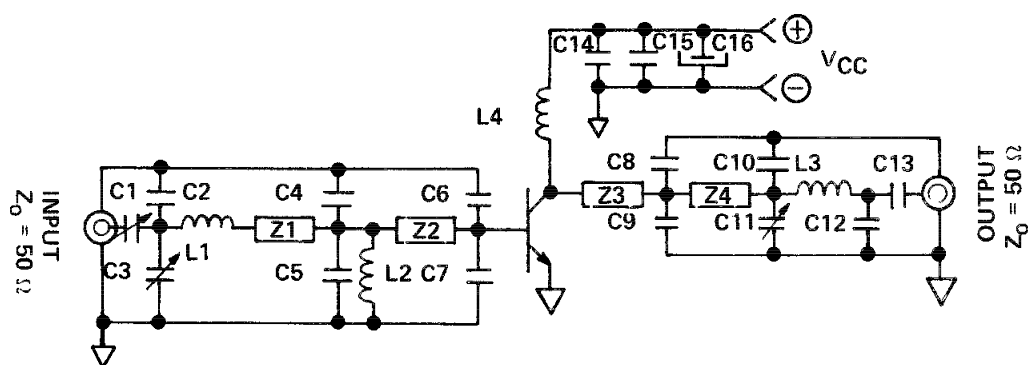
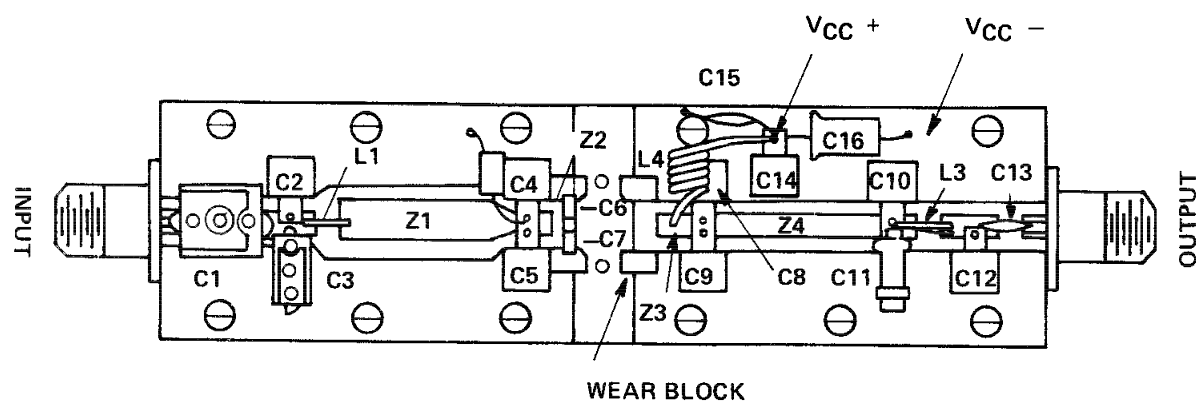
POWER GAIN & COLLECTOR EFFICIENCY vs FREQUENCY



IMPEDANCE DATA



TEST CIRCUIT



C1 : .080pF Arco 462
 C2 : 25mF Underwood
 C3 : 2.020pF Arco 402
 C4, C5 : 15pF Underwood
 C6 : 240pF ATC Chip Capacitor
 C7 : 270pF ATC Chip Capacitor
 C8 : 150pF Underwood
 C9 : 180pF Underwood
 C10 : 100pF Underwood
 C11 : 8.20pF Johanson JMC5501
 C12 : 33pF Underwood
 C13, C15 : .15μF Disc Capacitor
 C14 : 100pF Underwood
 C16 : 10μF Electrolytic

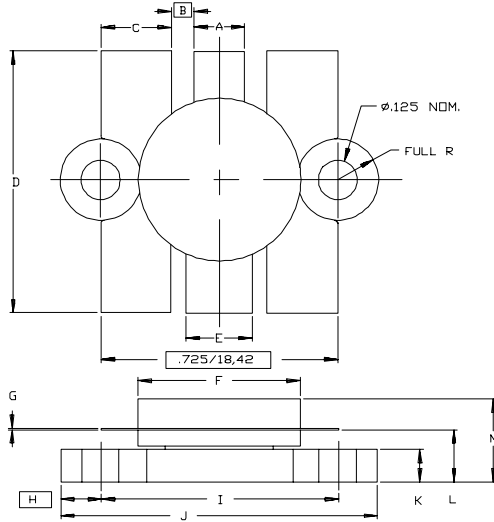
L1 : See Detail A
 L2 : Ferroxcube VK200 19/4B
 L3 : 1 Turn #16 AWG 250 I.D. Close Wound
 L4 : 5 Turns #16 AWG 250 I.D. Close Wound

Z1 : Microstrip, .330" W x 1.600" L
 Z2 : Microstrip, .200" W x .400" L
 Z3 : Microstrip, .200" W x .600" L
 Z4 : Microstrip, .200" W x 1.600" L

PCB: 3M 1oz. Double Sided 1/16" Teflon-Glass, Er = 2.5

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0111 rev. D



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	.160/4.06	.180/4.58
C	.210/5.33	.220/5.59	M		.285/7.24
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			

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