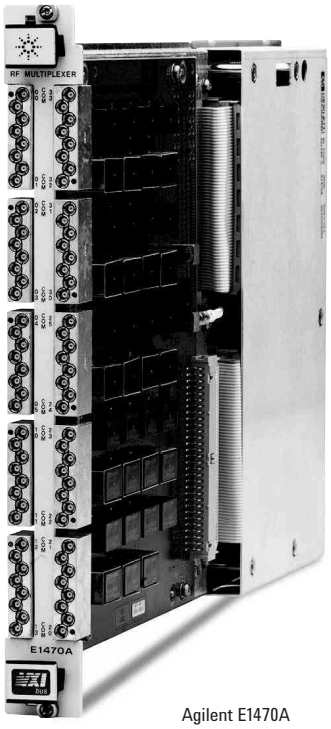
Agilent E1470A
60-Channel 50 Ω RF Cascade Multiplexer

Data Sheet

- **1-Slot, C-size, register based**
- **Twenty 3:1 multiplexer configurations**
- **3:1, 6:1, 9:1—up to 60:1 by cascading twenty multiplexers**
- **500 MHz bandwidth**
- **Simultaneous multiple cascade combinations**
- **Isolation 50 dB at 200 MHz**



Agilent E1470A

Description

The Agilent Technologies E1470A 50 Ω RF Multiplexer is a **C-size, 1-slot, register-based VXI module.** It is a high density multiplexer featuring twenty 3:1 multiplexers for maximum design flexibility. The twenty 3:1 multiplexers can be arranged in a cascade configuration to form a single 60-channel RF multiplexer, or they can be configured into multiple sets of cascade multiplexers.

The E1470A provides a reliable, high quality means of switching your RF system. High isolation is maintained over a wide bandwidth. The twenty independent 3:1 multiplexers can be configured to other multiplexer sizes by specifying a valid path from a COM to a channel in a different bank. Various sizes of multiplexers can be configured from a single E1470A module.

Refer to the Agilent Technologies Website for instrument driver availability and downloading instructions, as well as for recent product updates, if applicable.

Programming

The E1470A is programmable with SCPI commands or with register reads/writes, making programming and system configuration easy. For example, you can use SCPI commands to specify a source channel, as well as a destination or common connection i.e., PATH 01, 002 (SCPI). Switching is then done automatically.

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Configuration

The twenty independent 3:1 multiplexers can be configured to other multiplexer sizes by specifying a valid path from a COM to a channel in a different bank. Various sizes of multiplexers can be configured from a single E1470A module.

For example, a 6:1 multiplexer can be formed using COM 01 as the common for channels 000–002 and 010–012. A second 6:1 multiplexer can be configured using COM 11 for channels 100–102 and 110–112.

Cable and Connectors

Each module is shipped with kit Agilent E1470-80003 containing ten cable housing assemblies (P/N 1250-2563) and 80 cable jacks. You must use male jacks (P/N E1470-22101) in the supplied connector housing (P/N 1250-2563). These male jacks allow you to use all the connector sockets available on the E1470A. You can also use individual single jacks from Johnson Components (P/N 131-4304-011/020) or standard SMB male connector jacks. The standard SMB male connector jacks do not allow for adjacent slots to be used due to their outside diameter size.

Jacks are for use with double-shielded cables RG316 and RG188. Cable hex crimp size is 0.151. Individual jacks for single-shielded cables are available from Johnson Components, P/N 131-4303-011 for use with single-shielded cables RG174, RG188, and RG316.

Johnson Components:

U.S.A.Tel.:	1-800-247-8256
Outside U.S.A. Tel.:	(507) 835-6222
Fax.:	(507) 835-8356

Product Specifications

Input

Maximum voltage (center or shield-to-center, shield or chassis):	30 V
Maximum current (per channel or common):	
ac rms:	450 mA
Maximum power (per channel or common):	
ac:	10 VA

dc

Closed channel resistance (typical):	<1.5 Ω typ.

ac

Note: For ac performance, ZL=ZS=ZO, ≤40° C, RH ≤95% for C-size, RH ≤65% for B-size.

Characteristic impedance (Zo):	50 Ω
Insertion loss:	
<10 MHz:	<0.25 typ.
<100 MHz:	<0.6 typ.
<500 MHz:	<3 dB (3:1)
Crosstalk (channel-to-channel):	
<10 MHz:	<–80 dB
<100 MHz:	<–60 dB
Crosstalk (channel-to-channel, one channel closed or channel-to-common) (terminated):	
<200 MHz:	<–50 dB
<500 MHz:	<–40 dB
VSWR:	
<100 MHz:	(3:1) <1.4
<200 MHz:	(3:1) <1.45
<500 MHz:	(3:1) <1.7

Additional Specifications

3 dB bandwidth:	
500 MHz:	3:1
200 MHz:	30:1
100 MHz:	60:1
Terminated isolation:	
10 MHz:	<–80 dB
100 MHz:	<–60 dB
200 MHz:	<–50 dB
(CH000-132 to COM 05 or CH200-322 to COM 25):	
500 MHz:	<–40 dB
3:1 VSWR (CH000-132 to COM 05 or CH200-322 to COM 25):	
100 MHz:	<1.4
200 MHz:	<1.45
500 MHz:	<1.7
30:1 VSWR (CH000-132 to COM 05 or CH200-322 to COM 25):	
200 MHz:	<1.5
60:1 VSWR (CH000-132 to COM 05 or CH200-322 to COM 25):	
100 MHz:	<1.5

General Characteristics

Relays:	Non-latching armature
Power up/down state:	All open
Minimum relay life:	
No load:	5x10E6 operations
Rated load:	10E5 operations (10 W RF)

General Specifications

VXI Characteristics

VXI device type:	Register based, A16, slave only
Size:	C
Slots:	1
Connectors:	P1/2
Shared memory:	None
VXI buses:	None

Instrument Drivers - See the Agilent Technologies Website (http://www.agilent.com/find/inst_drivers) for driver availability and downloading.

Command module firmware:	Downloadable
Command module firmware rev:	A.08
I-SCPI Win 3.1:	Yes
I-SCPI Series 700:	Yes
C-SCPI LynxOS:	No
C-SCPI Series 700:	Yes
Panel Drivers:	No
VXI*plug&play* Win Framework:	No
VXI*plug&play* Win95/NT Framework:	No
VXI*plug&play* HP-UX Framework:	No

Module Current

	I_{PM}	I_{DM}
+5 V:	3.5	0.01
+12 V:	0	0
–12 V:	0	0
+24 V:	0	0
–24 V:	0	0
–5.2 V	0	0
–2 V:	0	0

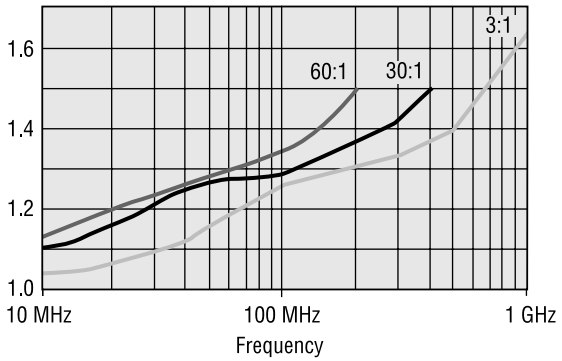
Cooling/Slot

Watts/slot:	17.50
ΔP mm H_2O:	0.25
Air Flow liter/s:	1.30

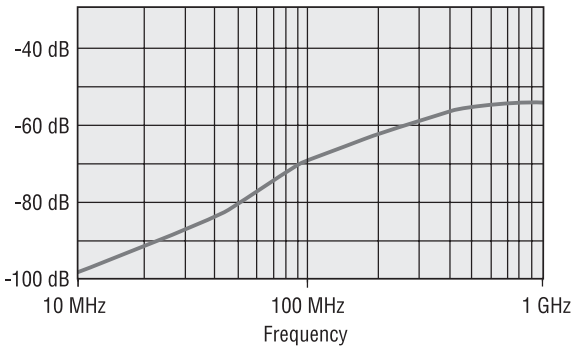
Ordering Information

Description	Product No.
60-Channel RF Cascade Multiplexer	E1470A

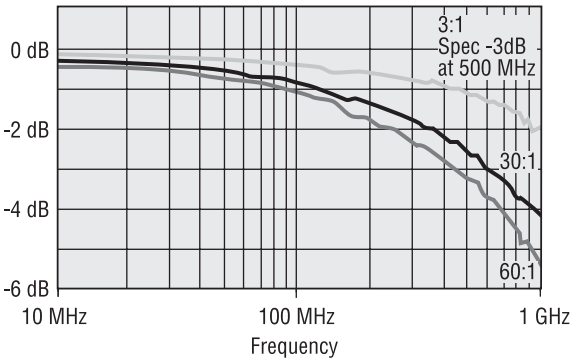
E1470A Typical VSWR

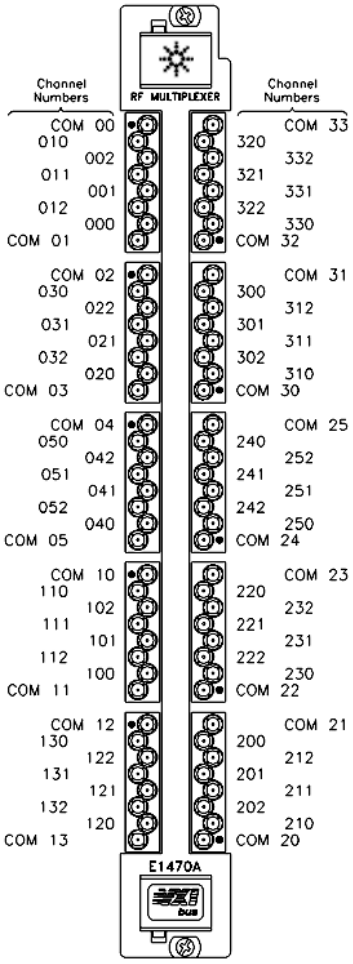


E1470A Typical Crosstalk (Ch-to-ch)

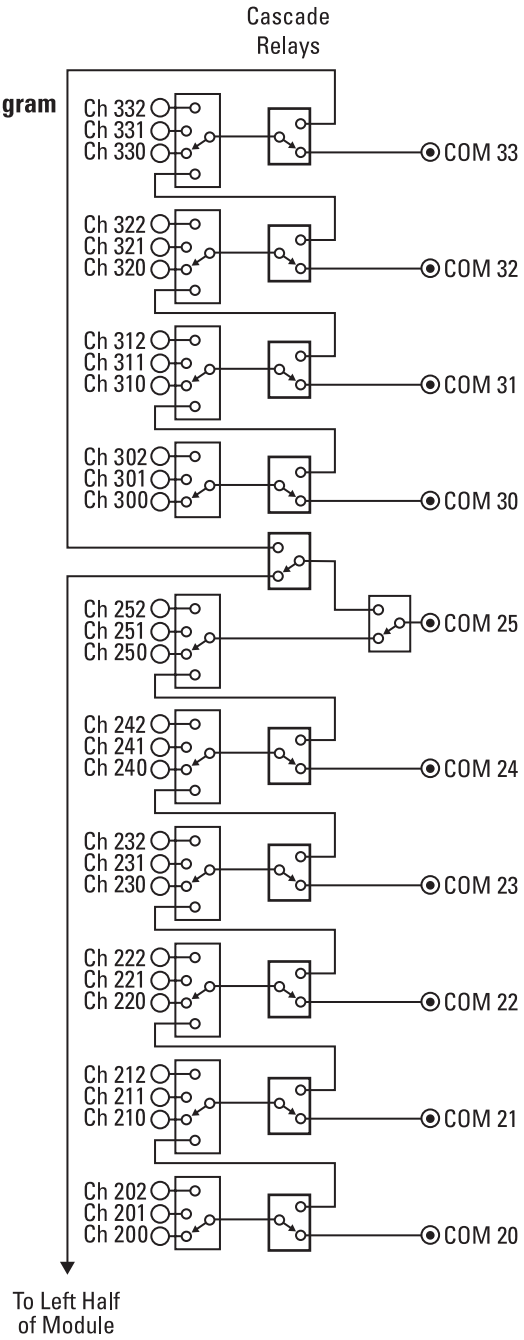


E1470A Typical Insertion Loss





E1470A Circuit Diagram



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