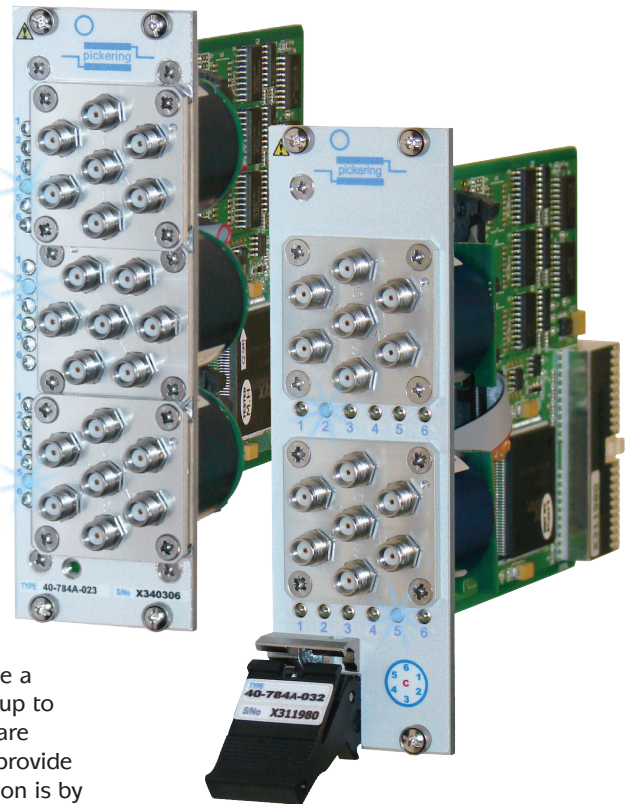


40-784A

Microwave Multiplexer Module

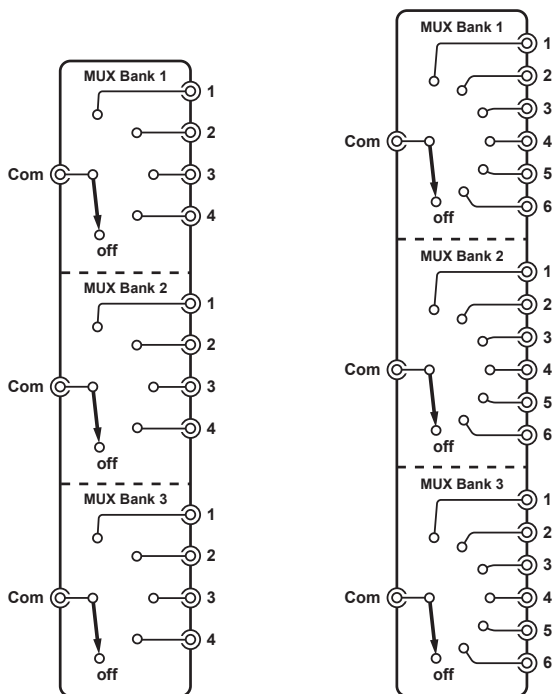
- Single, Dual or Triple Subminiature SP6T & SP4T Multiplexers
- 6GHz, 18GHz, 26.5GHz and 40GHz Bandwidths
- Custom Versions Available
- Excellent RF & Repeatability Characteristics
- Extended Life For 6GHz/18GHz/26.5GHz Models – 10M Operations Guaranteed & Typically >25M!
- Faster Operate Time than Conventional Microwave Relay Solutions (Typically <10.5ms)
- LED Indication
- VISA, IVI & Kernel Drivers Supplied for Windows XP/Vista/7/8
- Supported by PXI, PXIe Hybrid and Pickering LXI Modular Chassis
- 3 Year Warranty



Pickering Interfaces' 40-784A PXI Microwave Multiplexer Modules have a characteristic impedance of 50Ω and are capable of switching signals up to 40GHz. Available in single, dual or triple, SP6T or SP4T formats, they are suitable for constructing complex microwave switching networks and provide a range of switching configurations to suit most applications. Connection is by high performance front panel mounted SMA or SMA-2.9 connectors.

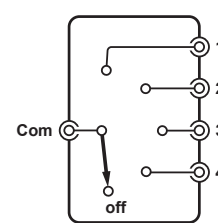
These modules provide a high performance solution for RF and microwave switching, the performance at low frequencies providing superior isolation, insertion loss and VSWR to EMR or solid state designs.

For applications where PXI slot space is even more critical, users should consider the remote relay versions of the 40-785A which support up to 3 remotely mounted multiplexers from a single PXI slot.

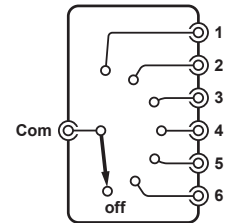


40-784A Triple
SP4T MUX

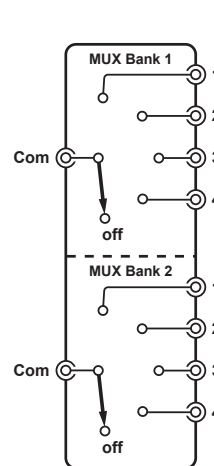
40-784A Triple
SP6T MUX



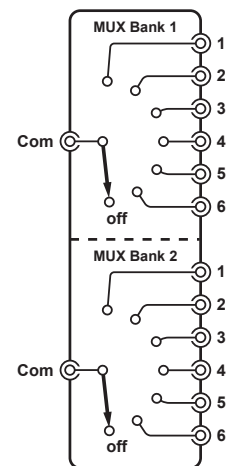
40-784A Single
SP4T MUX



40-784A Single
SP6T MUX



40-784A Dual
SP4T MUX



40-784A Dual
SP6T MUX



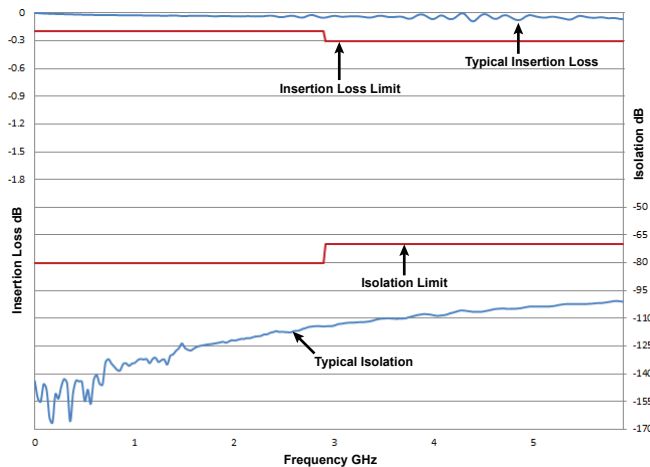
Specification

General Multiplexer Information

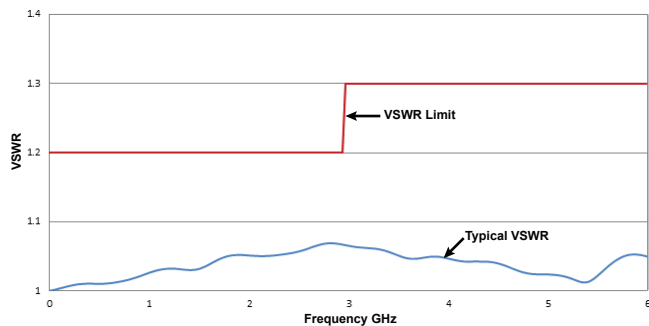
Relay Manufacturer:	Radiall
Configuration:	SP6T or SP4T Microwave Multiplexer with 1, 2 or 3 independent banks.
LED Indicators:	Single and dual multiplexers have blue LEDs to indicate a closed RF path.
Operate Time:	Typically <10.5ms
Maximum Cold Switch Voltage:	100V
Maximum Carry Current:	1A

Multiplexer Specification - 6GHz Versions

Characteristic Impedance:	50Ω
Connectors:	SMA
Bandwidth	DC to 6GHz
Maximum RF Carry Power:	150W (0-3GHz) 95W (3-6GHz)
Isolation:	>80dB (0-3GHz) >70dB (3-6GHz)
Insertion Loss:	<0.2dB (0-3GHz) <0.3dB (3-6GHz)
VSWR:	<1:1.2 (0-3GHz) <1:1.3 (3-6GHz)
Expected Life (low power):	>10 million operations per position guaranteed (typically >25 million)
Insertion Loss Repeatability:	Within 0.01dB



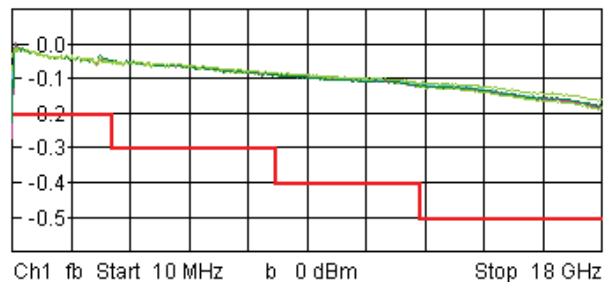
Typical Insertion Loss and Isolation Plots for 6GHz Versions



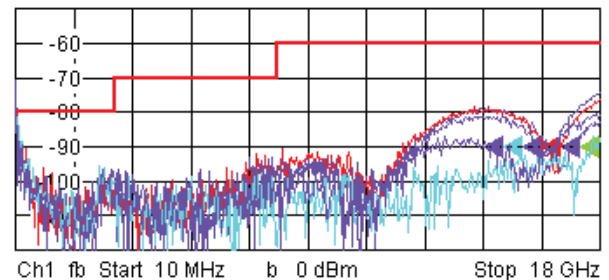
Typical VSWR Plot for 6GHz Versions

Multiplexer Specification - 18GHz Versions

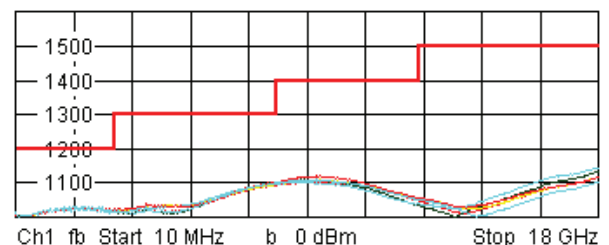
Characteristic Impedance:	50Ω
Connectors:	SMA
Bandwidth	DC to 18GHz
Maximum RF Carry Power:	240W (0-3GHz) 150W (3-8GHz) 120W (8-12.4GHz) 100W (12.4-18GHz)
Isolation:	>80dB (0-3GHz) >70dB (3-8GHz) >60dB (8-12.4GHz) >60dB (12.4-18GHz)
Insertion Loss:	<0.2dB (0-3GHz) <0.3dB (3-8GHz) <0.4dB (8-12.4GHz) <0.5dB (12.4-18GHz)
VSWR:	<1:1.2 (0-3GHz) <1:1.3 (3-8GHz) <1:1.4 (8-12.4GHz) <1:1.5 (12.4-18GHz)
Expected Life (low power):	>10 million operations per position guaranteed (typically >25 million)
Insertion Loss Repeatability:	Within 0.025dB
Propagation Delay Variation (between channels):	<1ps



Typical Insertion Loss Plot for 18GHz Versions



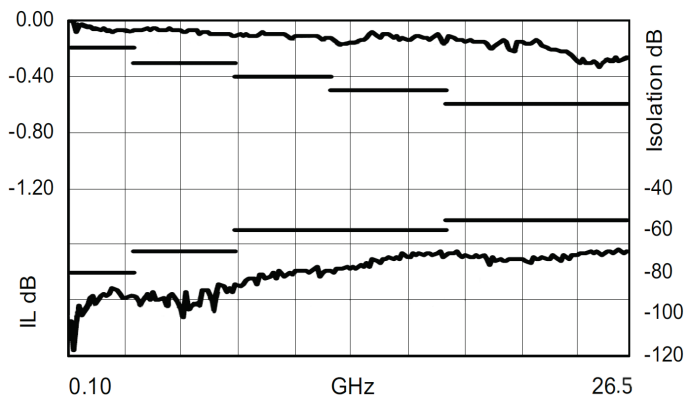
Typical Isolation Plot for 18GHz Versions



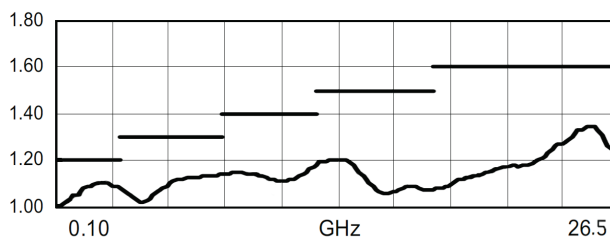
Typical VSWR Plot for 18GHz Versions

Multiplexer Specification - 26.5GHz Versions

Characteristic Impedance:	50Ω
Connectors:	SMA
Bandwidth	DC to 26.5GHz
Maximum RF Carry Power:	150W (0-3GHz) 95W (3-8GHz) 75W (8-12.4GHz) 65W (12.4-18GHz) 25W (18-26.5GHz)
Isolation:	>80dB (0-3GHz) >70dB (3-8GHz) >60dB (8-12.4GHz) >60dB (12.4-18GHz) >55dB (18-26.5GHz)
Insertion Loss:	<0.2dB (0-3GHz) <0.3dB (3-8GHz) <0.4dB (8-12.4GHz) <0.5dB (12.4-18GHz) <0.6dB (18-26.5GHz)
VSWR:	<1:1.2 (0-3GHz) <1:1.3 (3-8GHz) <1:1.4 (8-12.4GHz) <1:1.5 (12.4-18GHz) <1:1.6 (18-26.5GHz)
Expected Life (low power):	>10 million operations per position guaranteed (typically >25 million)
Insertion Loss Repeatability:	Within 0.035dB



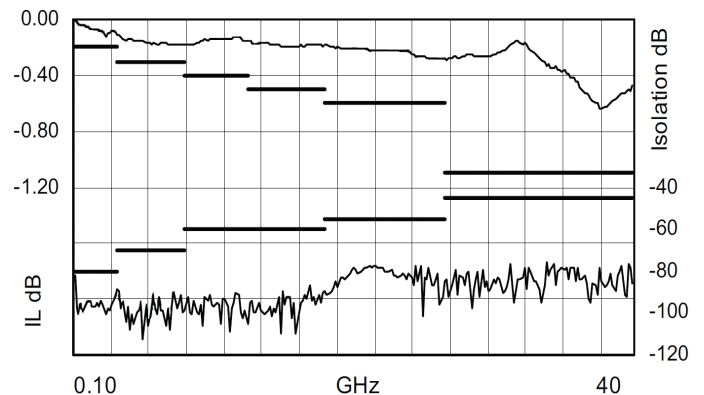
Typical Insertion Loss and Isolation Plots for 26.5GHz Versions



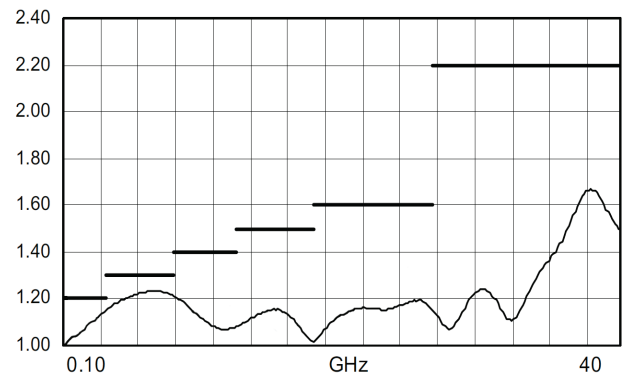
Typical VSWR Plot for 26.5GHz Versions

Multiplexer Specification - 40GHz Versions

Characteristic Impedance:	50Ω
Connectors:	SMA-2.9
Bandwidth	DC to 40GHz
Maximum RF Carry Power:	60W (0-3GHz) 35W (3-8GHz) 30W (8-12.4GHz) 25W (12.4-18GHz) 15W (18-26.5GHz) 5W (26.5-40GHz)
Isolation:	>80dB (0-3GHz) >70dB (3-8GHz) >60dB (8-12.4GHz) >60dB (12.4-18GHz) >55dB (18-26.5GHz) >45dB (26.5-40GHz)
Insertion Loss:	<0.2dB (0-3GHz) <0.3dB (3-8GHz) <0.4dB (8-12.4GHz) <0.5dB (12.4-18GHz) <0.7dB (18-26.5GHz) <1.1dB (26.5-40GHz)
VSWR:	<1:1.2 (0-3GHz) <1:1.3 (3-8GHz) <1:1.4 (8-12.4GHz) <1:1.5 (12.4-18GHz) <1:1.7 (18-26.5GHz) <1:2.2 (26.5-40GHz)
Expected Life (low power):	>2 million operations per position guaranteed (typically >5 million)
Insertion Loss Repeatability:	Within 0.05dB



Typical Insertion Loss and Isolation Plots for 40GHz Versions



Typical VSWR Plot for 40GHz Versions

Power Requirements

Power consumption from the backplane supply is as follows:

+3.3V	+5V	+12V	-12V
0	0.2A	0.75A	0

Mechanical Characteristics

2-slot 3U PXI (CompactPCI card).

3D models for all versions in a variety of popular file formats are available on request.

Connectors

PXI bus via 32-bit P1/J1 backplane connector.

Front panel signal connections:

6GHz, 18GHz & 26.5GHz versions: 50Ω SMA connectors.

40GHz versions: 50Ω SMA-2.9 connectors.

Mating Connectors & Cabling

For connection accessories for the 40-784A range please refer to the [90-011D](#) RF Cable Assemblies data sheet where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.



**40-784A Single SP6T
Microwave Multiplexer**

**40-784A Dual SP4T
Microwave Multiplexer**

Product Order Codes

		6GHz	18GHz	26.5GHz	40GHz
Single	SP4T Microwave MUX	40-784A-101	40-784A-121	40-784A-131	40-784A-141
	SP6T Microwave MUX	40-784A-001	40-784A-021	40-784A-031	40-784A-041
Dual	SP4T Microwave MUX	40-784A-102	40-784A-122	40-784A-132	40-784A-142
	SP6T Microwave MUX	40-784A-002	40-784A-022	40-784A-032	40-784A-042
Triple	SP4T Microwave MUX	40-784A-103	40-784A-123	40-784A-133	40-784A-143
	SP6T Microwave MUX	40-784A-003	40-784A-023	40-784A-033	40-784A-043

Custom Configurations

Pickering can also offer mixed configurations of SP4T and SP6T multiplexers with a mix of bandwidths as outlined in the table below. Please contact the sales office with your requirements.

	Frequency	Configuration
MUX Position 1	6GHz, 18GHz, 26.5GHz or 40GHz	SP4T or SP6T
MUX Position 2	6GHz, 18GHz, 26.5GHz or 40GHz	SP4T or SP6T
MUX Position 3	6GHz, 18GHz, 26.5GHz or 40GHz	SP4T or SP6T

Programming

Pickering provide kernel, IVI and VISA (NI and Agilent) drivers which are compatible with 32/64-bit versions of Windows including XP, Vista, 7 and 8 operating systems. The VISA driver is also compatible with Real-Time Operating Systems such as LabVIEW RT. For other RTOS support contact Pickering.

These drivers may be used with a variety of programming environments and applications including:

- **National Instruments** products (LabVIEW, LabWindows/CVI, Switch Executive, MAX, TestStand, etc.)
- **Microsoft Visual Studio** products (Visual Basic, Visual C++)
- **Agilent VEE**
- **Mathworks Matlab**
- **Geotest ATE Easy**
- **MTQ Testsolutions** Tecap

Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries.

Operating/Storage Conditions

Operating Conditions

Operating Temperature:	0°C to +55°C
Humidity:	Up to 90% non-condensing
Altitude:	5000m

Storage and Transport Conditions

Storage Temperature:	-20°C to +75°C
Humidity:	Up to 90% non-condensing
Altitude:	15000m

PXI & CompactPCI Compliance

The module is compliant with the PXI Specification 2.2. Local Bus, Trigger Bus and Star Trigger are not implemented. Uses 33MHz 32-bit backplane interface.

Safety & CE Compliance

All modules are fully CE compliant and meet applicable EU directives: Low-voltage safety EN61010-1:2001, EMC Immunity EN61000-6-1:2001, Emissions EN55011:1998.

PXI & LXI Chassis Compatibility

Compatible with all chassis conforming to the 3U PXI and 3U cPCI specification. Compatible with Legacy and Hybrid peripheral slots in a 3U PXI Express chassis.

Compatible with Pickering Interfaces LXI Modular Chassis. For information on driving your switching solution in an LXI environment refer to the LXI Product Catalog.



Latest Details

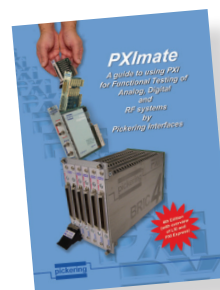
Please refer to our Web Site for Latest Product Details.
www.pickeringtest.com



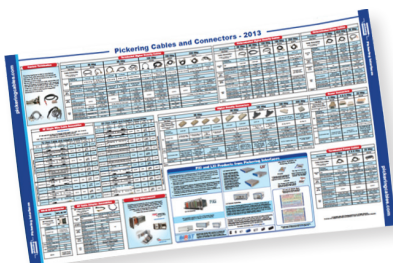
Please refer to the 200 page Pickering Interfaces "**Connection Solutions**" catalog for the full list of connector/cabling options, including drawings, photos and specifications. Available in either print or as a download. Alternatively our web site has dynamically linked connector/cabling options, including pricing, for all Pickering PXI modules.



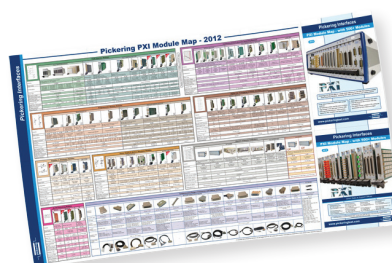
"**The Big PXI Catalog**" gives full details of Pickering's entire range of PXI switch modules, instrument modules and support products. At over 500 pages, the Big PXI Catalog is available on request or can be downloaded from the Pickering website.



Ever wondered what PXI is all about? Pickering Interfaces' "**PXImate**" explains the basics of PXI and provides useful data for engineers working on switch based test systems. The PXImate is available free on request from the Pickering website.



The "**Cables & Connectors Map**" - outlines the cable and connector options available for all PXI Modules.



The "**PXI Module Map**" - a simple fold-out selection guide to all Pickering's 600+ PXI Modules.

