

## W7100-Type 100 GHz Thin-Film Multiplexers and Demultiplexers

---



The W7100-type 100 GHz thin-film multiplexers (MUXs) and demultiplexers (deMUXs) are characterized by high adjacent and nonadjacent channel isolation, excellent directivity, and very low optical loss values.

### Features

- Excellent band shape
- High channel isolation
- Low insertion loss
- Epoxy-free optical path
- High reliability
- Thermal stability
- Compact design
- High economy

### Applications

- DWDM transmission
- DWDM-based add/drop multiplexing
- Wavelength-selective routing

### Description

The W7100-type 100 GHz thin-film filter multiplexers (MUXs) and demultiplexers (deMUXs) are part of a family of high-performance, cost-effective MUX/deMUX modules offered by Agere Systems for use in DWDM systems.

Agere Systems' manufacturing capability, which spans filter processing through module and rack-mount assembly, ensures quality and total supply line control. Proprietary, automated, deterministic process control of filter manufacturing enables high-volume production and ensures precise optical performance at the module level.

The thin-film filters used in the MUX/deMUX modules possess very low, uniform insertion and reflection loss, excellent band shape and thermal stability, and low polarization-dependent loss (PDL). When combined with a packaging capability that emphasizes high thermal and mechanical stability, the resulting MUX/deMUX modules exhibit high adjacent and nonadjacent channel isolation, excellent directivity, and very low optical loss values. Devices and modules conform to *Telcordia Technologies*<sup>®</sup> GR-1221 and GR-63 criteria.

Designed to be customized, the modules can be configured to meet customer-specific channel and wavelength plans as well as unique packaging requirements.

## Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

**Table 1. Absolute Maximum Ratings**

Parameter	Symbol	Min	Max	Unit
Operating Case Temperature Range	T <sub>OP</sub>	0	70	°C
Storage Temperature Range	T <sub>stg</sub>	-40	85	°C

## Characteristics

**Table 2. W7100 -Type 100 GHz MUX/DeMUX Optical Characteristic<sup>1</sup>**

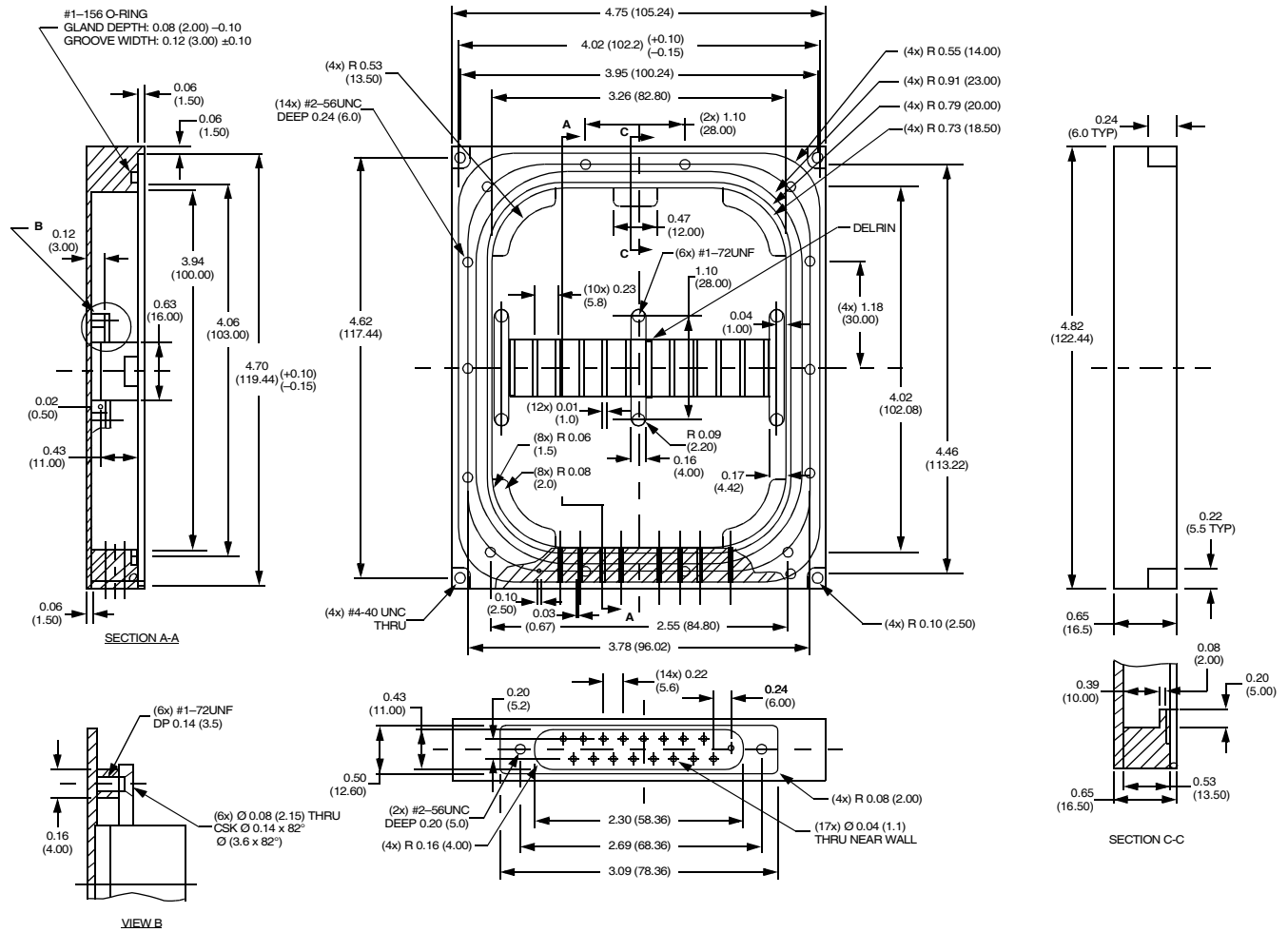
Parameter	Number of Channels				Unit
	1 x 8	1 x 16	1 x 32	1 x 40	
Channel Spacing	100				GHz
Center Wavelength Accuracy	±0.1				nm
Channel Pass Band, 0.5 dB Bandwidth (min)	0.4				nm
Insertion Loss (typ)	2.6	3.5	4.7	5.1	dB
Insertion Loss (max)	2.8	4.0	5.2	5.5	dB
Pass Band Flatness (ripple) (max)	0.5				dB
Channel Uniformity	1.0	1.0	1.0	1.5	dB
Adjacent Channel Isolation (min)	28				dB
Nonadjacent Channel Isolation (min)	40				dB
Directivity (min)	55				dB
Optical Return Loss (min)	45				dB
Polarization-dependent Loss (PDL) (max)	0.1				dB
Thermal Stability (max)	0.004				dB/°C
Thermal Wavelength Drift (max)	0.001				nm/°C
Optical Power Handling Capability (max)	500				mW
Module Dimensions	105 x 89 x 12	105 x 122 x 16.5	149 x 122 x 16.5	171 x 122 x 16.5	mm

1. Values are referenced without connector loss.

## Outline Diagrams

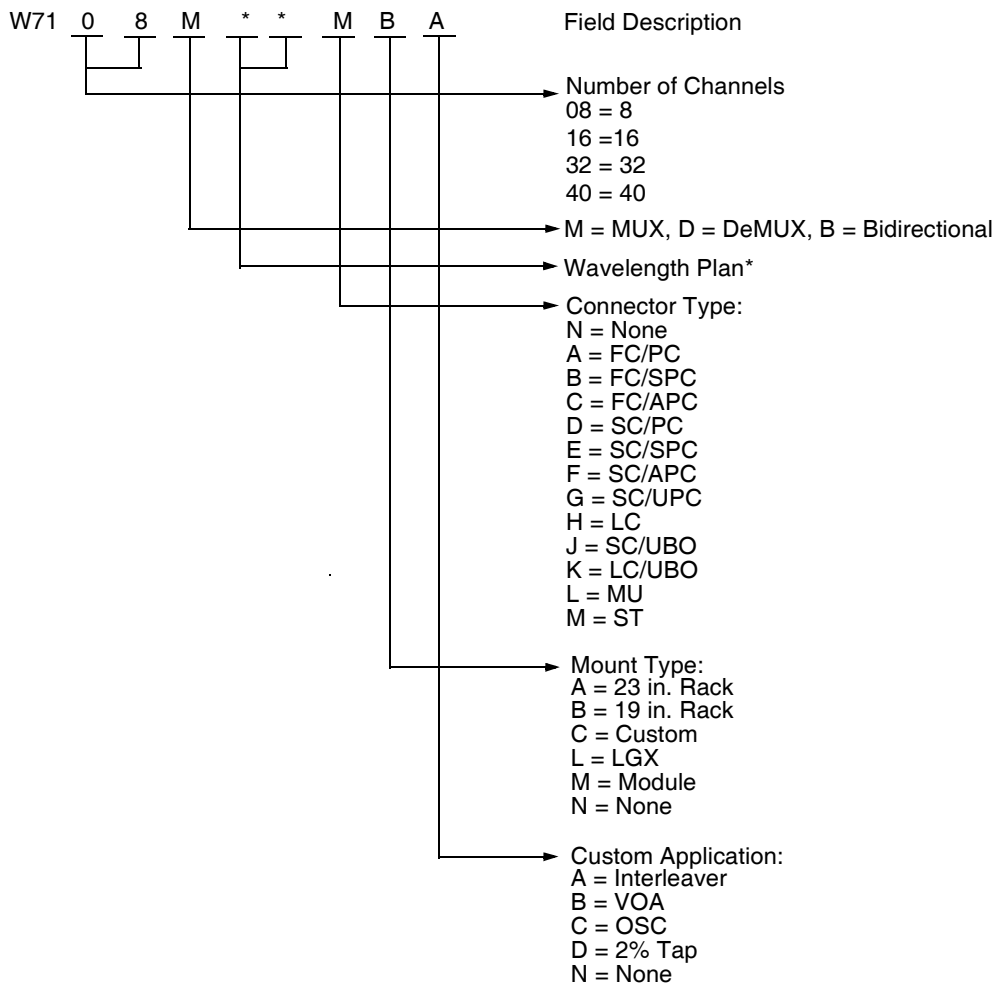
### W7100-Type 1 x 16 MUX and DeMUX Mechanical Dimensions

Dimensions are in inches and (millimeters).



**Ordering Information**

**Product Code Definitions**



Example: W7108M\*\*MBA represents an eight-channel multiplexer with custom wavelength plan, ST connector, and 19 in. mounting rack; intended for interleaver applications.

\* Wavelength plan subcode is generated from customer specifications. Please contact your Agere Systems account manager for further information.

Telcordia Technologies is registered trademark of Telcordia Technologies, Inc.

For additional information, contact your Agere Systems Account Manager or the following:

INTERNET: <http://www.agere.com>

E-MAIL: [docmaster@agere.com](mailto:docmaster@agere.com)

N. AMERICA: Agere Systems Inc., 555 Union Boulevard, Room 30L-15P-BA, Allentown, PA 18109-3286

1-800-372-2447, FAX 610-712-4106 (In CANADA: 1-800-553-2448, FAX 610-712-4106)

ASIA: Agere Systems Hong Kong Ltd., Suites 3201 & 3210-12, 32/F, Tower 2, The Gateway, Harbour City, Kowloon

Tel. (852) 3129-2000, FAX (852) 3129-2020

CHINA: (86) 21-5047-1212 (Shanghai), (86) 10-6522-5566 (Beijing), (86) 755-695-7224 (Shenzhen)

JAPAN: (81) 3-5421-1600 (Tokyo), KOREA: (82) 2-767-1850 (Seoul), SINGAPORE: (65) 778-8833, TAIWAN: (886) 2-2725-5858 (Taipei)

EUROPE: Tel. (44) 7000 624624, FAX (44) 1344 488 045

Agere Systems Inc. reserves the right to make changes to the product(s) or information contained herein without notice. No liability is assumed as a result of their use or application.