

40-Channel 100GHz Athermal AWG Mux/Demux Module

Product Overview

This document presents the generic specification for the 40-channel 100GHz AWG MUX/DEMUX component supplied for use in DWDM system.

This component is designed for use within the C-band release of DWDM system. To decrease the power dissipation of the devices in different environmental conditions, the AWG package is special designed with selection of reliable thermal plastic with low thermal conduction, and the AWG operating temperature is controlled by using foil resist heater or Peltier TEC with thermistor temperature sensor. Different input and output fibers, such as SM fibers, MM fibers and PM fiber can be selected to meet different applications.



Absolute Maximum Ratings (unless otherwise specified)

Parameters	Conditions	Specifications		Units
		Min.	Max.	
Operating Temperature	Operating	-5	65	°C
Operating Humidity	Operating	5	95	%RH
Storage Temperature	Non_Operating	-40	+85	°C
Storage Humidity	Non_Operating	5	95	%RH

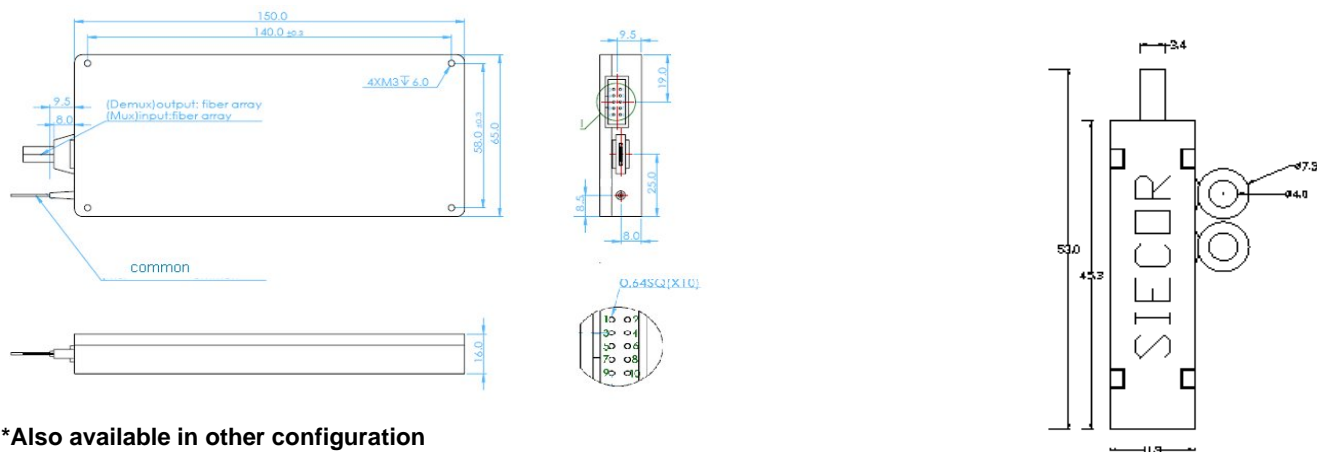
Optical Specification (Flattop Thermal AWG)

Parameters	Condition	Specs			Units
		Min	Typ	Max	
Number of Channels		40			
Number Channel Spacing	100GHz	100			GHz
Cha. Center Wavelength	ITU 频率/ITU frequency.	C-band			nm
Clear Channel Passband		±0.1			nm
Wavelength Stability	Maximum range of the wavelength error of all channels and temperatures in average polarization.	±0.05			nm
-1 dB Channel Bandwidth	Clear channel bandwidth defined by passband shape. For each channel	0.4			nm
-3 dB Channel Bandwidth	Clear channel bandwidth defined by passband shape. For each channel	0.6			nm
Optical Insertion Loss at ITU grid	Defined as the minimum transmission at ITU wavelength for all channels. For each channel, at all temperatures and polarizations.		4.5	6.0	dB
Adjacent Channel Isolation	Insertion loss difference from the mean transmission at the ITU grid wavelength to the highest power, all polarizations, within the ITU band of the adjacent channels.	25			dB
Non-Adjacent, Channel Isolation	Insertion loss difference from the mean transmission at the ITU grid wavelength to the highest power, all polarizations, within the ITU band of the nonadjacent channels.	30			dB
Total Channel Isolation	Total cumulative insertion loss difference from the mean transmission at the ITU grid wavelength to the highest power, all polarizations, within the ITU band of all other channels, including adjacent channels.	22			dB
Insertion Loss Uniformity	Maximum range of the insertion loss variation within ITU across all channels, polarizations and temperatures.		1.0	1.5	dB
Directivity(Mux Only)	Ratio of reflected power out of any channel(other than channel n)to power in from the input channel n	40			dB
Insertion Loss Ripple	Any maxima and any minima of optical loss across ITU band, excluding boundary points, for each channel at each port			0.5	dB
Optical Return loss	Input & output ports	40			dB
PDL/Polarization Dependent Loss in Clear Channel Band	Worst-case value measured in ITU band		0.3	0.5	dB
Polarization Mode Dispersion				0.5	ps
Maximum Optical Power				23	dBm
MUX/DEMUX input/ output Monitoring range		-35		+23	dBm

1. IL Represents the worst case over a +/-0.1nm window around the ITU wavelength.
2. PDL was measured on average polarization over a +/- 0.1nm window around the ITU wavelength.

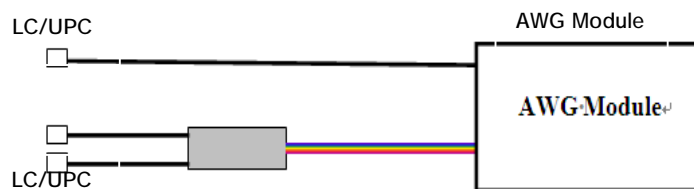
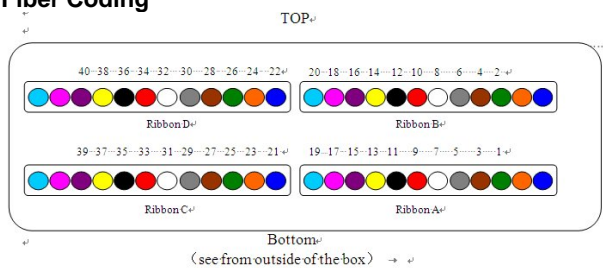
Mechanical Schematic and Dimensions

Dimensions	150 x 65 x 16 (mm)											
Space between space between screws	140x58 (mm)											
Fiber Type	Common SMF-28e fiber with 900um loose tube, Channels G652D ribbons											
Fiber Format	4x 12-fiber ribbons											
Input fiber length	500mm ± 50mm with 900um loose tube											
Output fiber length	Ribbon 200mm ± 20 mm and Fan out 300mm ± 30mm with 900um loose tube											
fiber Identification	Label with channel number to be placed midway between fiber end-points											
Connector Options	Common Channels						LC/UPC					
	LC/UPC						LC/UPC					
Fiber	1	Blue	2	Orange	3	Green	4	Brown	5	Grey	6	White
	7	Red	8	Black	9	Yellow	10	Purple	11	Pink	12	Aqua



*Also available in other configuration

Fiber Coding



Electrical Specifications

Only for the thermal AWG module which has an internal temperature control circuit.

NO.	Parameters	Notes	Specifications			Units
			Min	Typ	Max	
2.23	Set-Point temperature of component	Optimum operating temperature section for thermal AWG The commands could only set current temperature and threshold in this range.	65		90	°C
2.24	Set-Point temperature stability	Over entire operating temperature range for thermal AWG			±0.5	°C
2.25	Heater Drive Voltage			+5		V
2.26	Heater Drive Current				2.5	A
2.27	Heater Power Dissipation (maximum, stable)				12.5	W
2.28	Heater Power Dissipation (stable state)	25°C ambient temperature			6	W
2.29	AWG Temperature Settling Time	AWG warm up time from a cold start(25°C ambient temperature) to set point for thermal AWG			7	min
2.30	AWG Temperature Settling Time	AWG warm up time from a cold start(-5°C ambient temperature) to set point for thermal AWG			15	min

Temperature control IC build inside

Electric interface

Connector type: 10 pin FRC box type (2.54mm pitch) male connector.

Pin definition is as below:

	pin#	Signal Name	Type	Direction	Descriptions
2.31	1	+5V	Power	----	supply for Heater circuit
2.32	2	+5V	Power	----	supply for Heater circuit
2.33	3	+5V	Power	----	supply for control circuit
2.34	4	Ready	TTL	Output	※ Set HIGH when the internal temperature is at a set-point temperature. ※ Set LOW when the internal temperature is not at a set-point temperature (higher than the Upper Temperature Threshold or lower than the Under Temperature Threshold). ※ This signal should be 3.3V TTL level.

2.35	5	Alarm	TTL	Output	<ul style="list-style-type: none"> ※ Set HIGH when the internal temperature is higher than the set-point temperature. ※ Set LOW when the internal temperature is not higher than the set-point temperature. Pin4 and pin5 could be used to check the temperature's status. ※ This signal should be 3.3V TTL level.
2.36	6	Enable	TTL	Input	<ul style="list-style-type: none"> ※ If set HIGH, the heater circuit is activated. ※ If set LOW, the heater circuit is disabled. ※ This signal should be 3.3V TTL level.
2.37	7*	TX	TTL	Output	RS232 transmit signal This signal should be 3.3V TTL level.
2.38	8	GND	Power	----	Ground
2.39	9*	Rx	TTL	Input	RS232 receive signal This signal should be 3.3V TTL level.
2.40	10	GND	Power	----	Ground

*: Information available for inquiry includes Chip Temperature, Module Status, P/N & SN.

Reliability Specifications

The planar DWDM components described within this datasheet are fully qualified according to Telcordia reliability assurance requirements for fiber optic and opto-electronic components (GR-1221-CORE/UNC, Generic Reliability Assurance Requirements for Fiber Optic Branching Components, and Telcordia TR-NWT-000468, Reliability Assurance Practices for Opto-electronic Devices). The reliability report is available for request.

Ordering Information

AWG	X	XX	X	XXX	X	X	X	XX
	Band	Number of Channels	Spacing	1st Channel	Filter Shape	Package	Fiber Length	In/Out Connector
	C=C-Band L=L-Band D=C+L-Band X=Customize	16=16-CH 32=32-CH 40=40-CH 48=48-CH XX=Special	1=100G 2=200G 5=50G X=Special	C60=C60 H59=H59 C59=C59 H58=H58 XXX=special	G=Gaussian B=Broad Gaussiar F=Flat Top	M=Module R=Rack X=Special	1=0.5m 2=1m 3=1.5m 4=2m 5=2.5m 6=3m S=Specify	0=None 1=FC/APC 2=FC/PC 3=SC/APC 4=SC/PC 5=LC/APC 6=LC/PC 7=ST/UPC S=Specify

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