1. Product Overview

This document presents the generic specification for the 40-channel 100GHz 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.

2. 极限条件/Absolute Maximum Ratings (unless otherwise specified)

参数/Parameters	条件/Conditions	规格/Specifications		单位/Units
		最小/Min.	最大/Max.	
工作温度/Operating Temperature	产品正常工作时/Operating	-5	65	℃
工作湿度/Operating Humidity	产品正常工作时/Operating	5	95	%RH
存储温度/Storage Temperature	产品不工作时/Non_Operating	-40	+85	℃
存储湿度/Storage Humidity	产品不工作时/Non_Operating	5	95	%RH

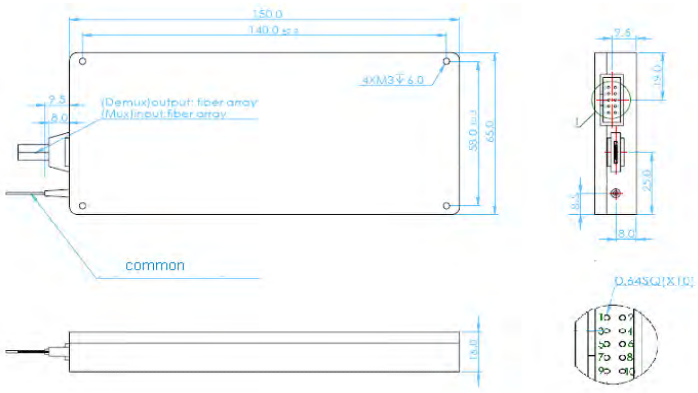
3. 光性能/Optical Specification （平顶 AWG/ Flattop AWG）

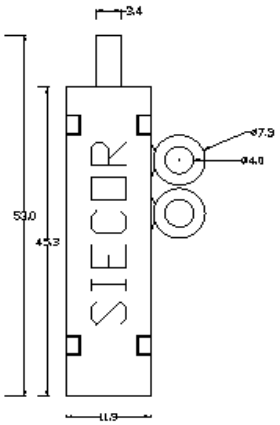
参数/Parameters	条件/Condition	规格/Specs			单位/Units
		Min	Typ	Max	
通道数/Number of Channels			40		
通道间距/Number Channel Spacing	100GHz		100		GHz
中心波长/Cha. Center Wavelength	ITU 频率/ITU frequency.		C -band		nm
通带频率/Clear Channel Passband			±0.1		nm
波长精度/Wavelength Stability	Maximum range of the wavelength error of all channels and temperatures in average polarization.		±0.05		nm
-1 dB 带宽/-1 dB Channel Bandwidth	Clear channel bandwidth defined by passband shape. For each channel	0.4			nm
-3 dB 带宽/-3 dB Channel Bandwidth	Clear channel bandwidth defined by passband shape. For each channel	0.6			nm
插损/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
相邻通道隔离度/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
非相邻通道隔离度/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
总隔离度/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
插损一致性/Insertion Loss Uniformity	Maximum range of the insertion loss variation within ITU across all channels, polarizations and temperatures.		1.0	1.5	dB
方向性 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
插损平坦度/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
回损/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
偏振模式色散/Polarization Mode Dispersion				0.5	ps
最大承受光功率/Maximum Optical Power				23	dBm
功率监控范围/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.

4. 机械尺寸/Mechanical Schematic and Dimensions

尺寸/Dimensions	150 x 65 x 16 (mm)											
安装孔/ Space between space between screws	140×58 (mm)											
光纤类型/Fiber Type	公共端 Common SMF-28e fiber with 900um loose tube, , 通道端 Channels G652D ribbons											
光纤编排/Fiber Format	4x 12 带纤/4x 12-fiber ribbons											
输入光纤长度/ Input fiber length	500mm ± 50mm with 900um loose tube											
输出光纤长度 Output fiber length	Ribbon200mm± 20 mm and Fan out 300mm± 30mm with 900um loose tube											
光纤标识/fiber Identification	光纤末端贴数码贴标识/ Label with channel number to be placed midway between fiber end-points											
连接器类型/Connector Options	Common	LC/UPC										
	Channels	LC/UPC										
带纤光纤标识/Fiber	1	蓝/Blue	2	橙/Orange	3	绿/Green	4	褐/Brown	5	灰/Grey	6	白/White
	7	红/Red	8	黑/Black	9	黄/Yellow	10	紫/Purple	11	粉/Pink	12	水/Aqua

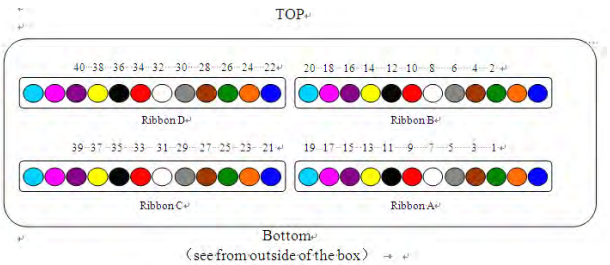


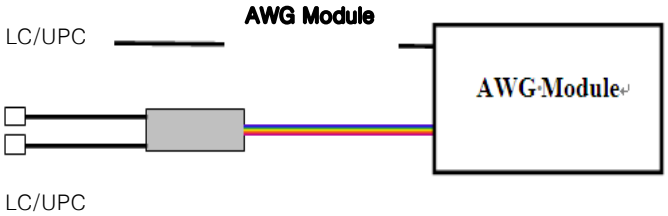


Fan-out

***可以按客户要求使用其他结构/Also available in other configuration**

Fiber Coding





5. 电子规格/Electrical Specifications

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

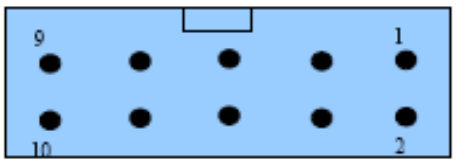
NO.	Parameters	Notes	Specifications			Units
			Min	Typ	Max	
2.23	Set-Point temperature of component	Optimum operating temperature section for thermal AWG The commands could only set current temperature and threshold in this range.	65		90	℃
2.24	Set-Point temperature stability	Over entire operating temperature range for thermal AWG			±0.5	℃
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

6. 电接口/Electric interface

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

Pin definition is as below:



NO.	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	※ 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	※ 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.

7. 可靠性说明/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.

8. 订购信息/Ordering Part Code Sequence

HAWG	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