# **CWDM Single Channel Device for Pulse Power**

#### **FEATURES**

- High Isolation
- Low Insertion Loss
- Epoxy-Free Optical Path
- High Reliability and Stability

#### **APPLICATIONS**

- **Broadband Systems**
- Optical Add/Drop Multiplexing
- Metro/Access Networks
- CWDM Systems



### **SPECIFICATIONS**

Center Wavelength         nm         1270-1610, 1271-1611           Channel Spacing         nm         20           Channel Passband Width         nm         +/-6.5           Configuration         D Type         -         2-port Bandpass Filter           Pass Channel Insertion Loss         dB         ≤1.0           Ref. Channel Insertion Loss (Only for Y Type)         dB         ≤0.8           Ref. Channel Insertion Loss (Only for Y Type)         dB         ≤0.8           Pass Channel Ripple         dB         ≤0.3           Pass Channel Adjacent Channel Isolation         dB         ≥30           Pass Channel Isolation (Only for Y Type)         dB         ≥40           Ref. Channel Isolation (Only for Y Type)         dB         ≥45           Optical Return Loss         dB         ≥45           Directivity         dB         ≥50           Polarization Dependent Loss         dB         ≤0.1           Polarization Mode Dispersion         ps         ≤0.1           Fiber Type         -         SMF-28 Fiber or 10/130um DC Fiber (O)           Fiber Tensile Load         N         5           Max. Average Optical Power         W         0.3, 0.5, 1, 2, 3, 5, 10, 15, 20, 25, 30, 40, 50, 60	Parameters			Value		
Channel Passband Width       nm       +/-6.5         Configuration       D Type       -       2-port Bandpass Filter         Y Type       -       3-port WDM Filter         Pass Channel Insertion Loss       dB       ≤1.0         Ref. Channel Insertion Loss (Only for Y Type)       dB       ≤0.8         Pass Channel Ripple       dB       ≤0.3         Pass Channel Adjacent Channel Isolation       dB       ≥30         Pass Channel Non-adjacent Channel Isolation       dB       ≥40         Ref. Channel Isolation (Only for Y Type)       dB       ≥12         Optical Return Loss       dB       ≥45         Directivity       dB       ≥50         Polarization Dependent Loss       dB       ≤0.1         Polarization Mode Dispersion       ps       ≤0.1         Fiber Type       -       12/130um DC Fiber (T) or 20/130um DC Fiber (O)         Fiber Tensile Load       N       5         Max. Average Optical Power       W       0.3, 0.5, 1, 2, 3, 5, 10, 15, 20, 25, 30, 40, 50, 60         Max. Peak Power for Pulse       kW       0.1, 1, 2, 3, 5, 10, 15, 20         Operating Temperature       °C       -40~85         Package Dimension       Stainless Steel Tube (SST)       mm	Center Wavelength		nm	1270-1610, 1271-1611		
Configuration       D Type       -       2-port Bandpass Filter         Y Type       -       2-port Bandpass Filter         Y Type       -       3-port WDM Filter         Pass Channel Insertion Loss (Only for Y Type)       dB       ≤0.3         Pass Channel Ripple       dB       ≤0.3         Pass Channel Adjacent Channel Isolation       dB       ≥30         Pass Channel Non-adjacent Channel Isolation       dB       ≥40         Ref. Channel Isolation (Only for Y Type)       dB       ≥40         Ref. Channel Isolation (Only for Y Type)       dB       ≥21         Optical Return Loss       dB       ≥45         Directivity       dB       ≥50         Polarization Dependent Loss       dB       ≥50         Polarization Mode Dispersion       ps       ≤0.1         SMF-28 Fiber or 10/130um DC Fiber (O)         12/130um DC Fiber (T) or 20/130um DC Fiber (G)         Pass Channe	-			20		
Y Type         -         3-port WDM Filter           Pass Channel Insertion Loss         dB         ≤1.0           Ref. Channel Insertion Loss (Only for Y Type)         dB         ≤0.8           Pass Channel Ripple         dB         ≤0.3           Pass Channel Adjacent Channel Isolation         dB         ≥30           Pass Channel Non-adjacent Channel Isolation         dB         ≥40           Ref. Channel Isolation (Only for Y Type)         dB         ≥12           Optical Return Loss         dB         ≥45           Directivity         dB         ≥50           Polarization Dependent Loss         dB         ≤0.1           Polarization Mode Dispersion         ps         ≤0.1           SMF-28 Fiber or 10/130um DC Fiber (O)         12/130um DC Fiber (T) or 20/130um DC Fiber (Q)           25/250um DC Fiber (R) or 25/300um DC Fiber (G)         25/2550um DC Fiber (R) or 25/300um DC Fiber (G)           Fiber Tensile Load         N         5           Max. Average Optical Power         W         0.3, 0.5, 1, 2, 3, 5, 10, 15, 20, 25, 30, 40, 50, 60           Max. Peak Power for Pulse         kW         0.1, 1, 2, 3, 5, 10, 15, 20           Operating Temperature         °C         0~70           Stainless Steel Tube (SST)         mm         *5.5x+35 (≤5W); *6.0	Channel Passband Wid	dth	nm	+/-6.5		
Pass Channel Insertion Loss       dB       ≤1.0         Ref. Channel Insertion Loss (Only for Y Type)       dB       ≤0.8         Pass Channel Ripple       dB       ≤0.3         Pass Channel Adjacent Channel Isolation       dB       ≥30         Pass Channel Non-adjacent Channel Isolation       dB       ≥40         Ref. Channel Isolation (Only for Y Type)       dB       ≥12         Optical Return Loss       dB       ≥45         Directivity       dB       ≥50         Polarization Dependent Loss       dB       ≤0.1         Polarization Mode Dispersion       ps       ≤0.1         SMF-28 Fiber or 10/130um DC Fiber (O)       12/130um DC Fiber (T) or 20/130um DC Fiber (Q)         25/250um DC Fiber (R) or 25/300um DC Fiber (Q)       25/250um DC Fiber (R) or 25/300um DC Fiber (G)         Fiber Tensile Load       N       5         Max. Average Optical Power       W       0.3, 0.5, 1, 2, 3, 5, 10, 15, 20, 25, 30, 40, 50, 60         Max. Peak Power for Pulse       kW       0.1, 1, 2, 3, 5, 10, 15, 20         Operating Temperature       °C       0~70         Stainless Steel Tube (SST)       mm       °5.5x*35 (≤5W); °6.0x*50 (5~10W)	Configuration	D Type	-	2-port Bandpass Filter		
Ref. Channel Insertion Loss (Only for Y Type)  Pass Channel Ripple  Pass Channel Ripple  Pass Channel Adjacent Channel Isolation  Pass Channel Non-adjacent Channel Isolation  Ref. Channel Isolation (Only for Y Type)  Ref. Channel Isolation  Ref. Channel Isolation		Y Type	-	3-port WDM Filter		
Pass Channel Ripple       dB       ≤0.3         Pass Channel Adjacent Channel Isolation       dB       ≥30         Pass Channel Non-adjacent Channel Isolation       dB       ≥40         Ref. Channel Isolation (Only for Y Type)       dB       ≥12         Optical Return Loss       dB       ≥45         Directivity       dB       ≥50         Polarization Dependent Loss       dB       ≤0.1         Polarization Mode Dispersion       ps       ≤0.1         SMF-28 Fiber or 10/130um DC Fiber (O)       12/130um DC Fiber (T) or 20/130um DC Fiber (Q)         25/250um DC Fiber (R) or 25/300um DC Fiber (G)       25/250um DC Fiber (R) or 25/300um DC Fiber (G)         Fiber Tensile Load       N       5         Max. Average Optical Power       W       0.3, 0.5, 1, 2, 3, 5, 10, 15, 20, 25, 30, 40, 50, 60         Max. Peak Power for Pulse       kW       0.1, 1, 2, 3, 5, 10, 15, 20         Operating Temperature       °C       0~70         Storage Temperature       °C       -40~85         Package Dimension       Stainless Steel Tube (SST)       mm       *55.5x+35 (≤5W); *6.0x+50 (5~10W)	Pass Channel Insertion	n Loss	dB	≤1.0		
Pass Channel Adjacent Channel Isolation       dB       ≥30         Pass Channel Non-adjacent Channel Isolation       dB       ≥40         Ref. Channel Isolation (Only for Y Type)       dB       ≥12         Optical Return Loss       dB       ≥45         Directivity       dB       ≥50         Polarization Dependent Loss       dB       ≤0.1         Polarization Mode Dispersion       ps       ≤0.1         Fiber Type       -       12/130um DC Fiber (T) or 20/130um DC Fiber (Q)         Fiber Tensile Load       N       5         Max. Average Optical Power       W       0.3, 0.5, 1, 2, 3, 5, 10, 15, 20, 25, 30, 40, 50, 60         Max. Peak Power for Pulse       kW       0.1, 1, 2, 3, 5, 10, 15, 20         Operating Temperature       °C       0~70         Storage Temperature       °C       -40~85         Package Dimension       Stainless Steel Tube (SST)       mm       *5.5x+35 (≤5W); *6.0x+50 (5~10W)	Ref. Channel Insertion	Loss (Only for Y Type)	dB	≤0.8		
Pass Channel Non-adjacent Channel Isolation       dB       ≥40         Ref. Channel Isolation       (Only for Y Type)       dB       ≥12         Optical Return Loss       dB       ≥45         Directivity       dB       ≥50         Polarization Dependent Loss       dB       ≤0.1         Polarization Mode Dispersion       ps       ≤0.1         SMF-28 Fiber or 10/130um DC Fiber (O)       12/130um DC Fiber (T) or 20/130um DC Fiber (Q)         25/250um DC Fiber (R) or 25/300um DC Fiber (G)       25/250um DC Fiber (R) or 25/300um DC Fiber (G)         Fiber Tensile Load       N       5         Max. Average Optical Power       W       0.3, 0.5, 1, 2, 3, 5, 10, 15, 20, 25, 30, 40, 50, 60         Max. Peak Power for Pulse       kW       0.1, 1, 2, 3, 5, 10, 15, 20         Operating Temperature       °C       0~70         Storage Temperature       °C       -40~85         Package Dimension       Stainless Steel Tube (SST)       mm       °5.5xL35 (≤5W); °6.0xL50 (5~10W)	Pass Channel Ripple		dB	≤0.3		
Ref. Channel Isolation (Only for Y Type)         dB         ≥12           Optical Return Loss         dB         ≥45           Directivity         dB         ≥50           Polarization Dependent Loss         dB         ≤0.1           Polarization Mode Dispersion         ps         ≤0.1           SMF-28 Fiber or 10/130um DC Fiber (O)         SMF-28 Fiber or 10/130um DC Fiber (O)           Fiber Type         -         12/130um DC Fiber (T) or 20/130um DC Fiber (Q)           25/250um DC Fiber (R) or 25/300um DC Fiber (G)         Storage Temperature           Max. Average Optical Power         W         0.3, 0.5, 1, 2, 3, 5, 10, 15, 20, 25, 30, 40, 50, 60           Max. Peak Power for Pulse         kW         0.1, 1, 2, 3, 5, 10, 15, 20           Operating Temperature         °C         0~70           Storage Temperature         °C         -40~85           Package Dimension         Stainless Steel Tube (SST)         mm         *5.5xL35 (≤5W); *6.0xL50 (5~10W)	Pass Channel Adjacen	t Channel Isolation	dB	≥30		
Optical Return Loss         dB         ≥45           Directivity         dB         ≥50           Polarization Dependent Loss         dB         ≤0.1           Polarization Mode Dispersion         ps         ≤0.1           SMF-28 Fiber or 10/130um DC Fiber (O)           Fiber Type         - 12/130um DC Fiber (T) or 20/130um DC Fiber (Q)           25/250um DC Fiber (R) or 25/300um DC Fiber (G)           Fiber Tensile Load         N         5           Max. Average Optical Power         W         0.3, 0.5, 1, 2, 3, 5, 10, 15, 20, 25, 30, 40, 50, 60           Max. Peak Power for Pulse         kW         0.1, 1, 2, 3, 5, 10, 15, 20           Operating Temperature         °C         0~70           Storage Temperature         °C         -40~85           Package Dimension         Stainless Steel Tube (SST)         mm         °5.5xL35 (≤5W); °6.0xL50 (5~10W)	Pass Channel Non-adj	acent Channel Isolation	dB	≥40		
Directivity         dB         ≥50           Polarization Dependent Loss         dB         ≤0.1           Polarization Mode Dispersion         ps         ≤0.1           SMF-28 Fiber or 10/130um DC Fiber (O)           Fiber Type         -         12/130um DC Fiber (T) or 20/130um DC Fiber (Q)           25/250um DC Fiber (R) or 25/300um DC Fiber (G)         25/250um DC Fiber (R) or 25/300um DC Fiber (G)           Fiber Tensile Load         N         5           Max. Average Optical Power         W         0.3, 0.5, 1, 2, 3, 5, 10, 15, 20, 25, 30, 40, 50, 60           Max. Peak Power for Pulse         kW         0.1, 1, 2, 3, 5, 10, 15, 20           Operating Temperature         °C         0~70           Storage Temperature         °C         -40~85           Package Dimension         Stainless Steel Tube (SST)         mm         *05.5xL35 (≤5W); *6.0xL50 (5~10W)	Ref. Channel Isolation	(Only for Y Type)	dB	≥12		
Polarization Dependent Loss dB ≤0.1  Polarization Mode Dispersion ps ≤0.1  SMF-28 Fiber or 10/130um DC Fiber (O)  Fiber Type - 12/130um DC Fiber (T) or 20/130um DC Fiber (Q)  25/250um DC Fiber (R) or 25/300um DC Fiber (G)  Fiber Tensile Load N 5  Max. Average Optical Power W 0.3, 0.5, 1, 2, 3, 5, 10, 15, 20, 25, 30, 40, 50, 60  Max. Peak Power for Pulse kW 0.1, 1, 2, 3, 5, 10, 15, 20  Operating Temperature °C 0~70  Storage Temperature °C -40~85  Package Dimension Stainless Steel Tube (SST) mm $^{\circ}$ 5.5xL35 (≤5W); $^{\circ}$ 6.0xL50 (5~10W)	Optical Return Loss		dB	≥45		
Polarization Mode Dispersion         ps         ≤0.1           SMF-28 Fiber or 10/130um DC Fiber (O)           Fiber Type         - 12/130um DC Fiber (T) or 20/130um DC Fiber (Q)           25/250um DC Fiber (R) or 25/300um DC Fiber (G)           Fiber Tensile Load         N           Max. Average Optical Power         W           Max. Peak Power for Pulse         kW           Operating Temperature         °C           Storage Temperature         °C           Package Dimension         Stainless Steel Tube (SST)           mm         °5.5xL35 (≤5W); °6.0xL50 (5~10W)	Directivity		dB	≥50		
SMF-28 Fiber or 10/130um DC Fiber (O)	Polarization Dependent Loss			≤0.1		
Fiber Type       -       12/130um DC Fiber (T) or 20/130um DC Fiber (Q) 25/250um DC Fiber (R) or 25/300um DC Fiber (G)         Fiber Tensile Load       N       5         Max. Average Optical Power       W       0.3, 0.5, 1, 2, 3, 5, 10, 15, 20, 25, 30, 40, 50, 60         Max. Peak Power for Pulse       kW       0.1, 1, 2, 3, 5, 10, 15, 20         Operating Temperature       °C       0~70         Storage Temperature       °C       -40~85         Package Dimension       Stainless Steel Tube (SST)       mm       °5.5xL35 (≤5W); °6.0xL50 (5~10W)	Polarization Mode Dispersion			≤0.1		
Max. Average Optical Power       W       0.3, 0.5, 1, 2, 3, 5, 10, 15, 20, 25, 30, 40, 50, 60         Max. Peak Power for Pulse       kW       0.1, 1, 2, 3, 5, 10, 15, 20         Operating Temperature       °C       0~70         Storage Temperature       °C       -40~85         Package Dimension       Stainless Steel Tube (SST)       mm       Ø5.5xL35 (≤5W); Ø6.0xL50 (5~10W)	Fiber Type			12/130um DC Fiber (T) or 20/130um DC Fiber (Q)		
Max. Peak Power for PulsekW0.1, 1, 2, 3, 5, 10, 15, 20Operating Temperature°C $0 \sim 70$ Storage Temperature°C $-40 \sim 85$ Package DimensionStainless Steel Tube (SST)mm $^{\circ}$ 5.5xL35 (≤5W); $^{\circ}$ 6.0xL50 (5~10W)	Fiber Tensile Load			5		
Operating Temperature       °C       0~70         Storage Temperature       °C       -40~85         Package Dimension       Stainless Steel Tube (SST)       mm       Ø5.5xL35 (≤5W); Ø6.0xL50 (5~10W)	Max. Average Optical Power			0.3, 0.5, 1, 2, 3, 5, 10, 15, 20, 25, 30, 40, 50, 60		
Storage Temperature  °C  -40~85  Stainless Steel Tube (SST) mm  °5.5x <sup>L</sup> 35 (≤5W); °6.0x <sup>L</sup> 50 (5~10W)	Max. Peak Power for Pulse			0.1, 1, 2, 3, 5, 10, 15, 20		
Package Dimension  Stainless Steel Tube (SST) mm	Operating Temperature			0~70		
Package Dimension	Storage Temperature			-40~85		
Metal Box mm H: L90xW12xH10 (>10W); M: L120xW12xH10 (≤10W)	Packago Dimonsion	Stainless Steel Tube (SST)	mm	<sup>∅</sup> 5.5x <sup>L</sup> 35 (≤5W); <sup>∅</sup> 6.0x <sup>L</sup> 50 (5~10W)		
		Metal Box	mm	H: $^{\text{L}}90x^{\text{W}}12x^{\text{H}}10$ (>10W); M: $^{\text{L}}120x^{\text{W}}12x^{\text{H}}10$ (≤10W)		

Note: 1. Specifications are for device without connectors; Specifications may change without notice.

- 2. To add connectors, IL is 0.3dB higher, RL is 5dB lower.
- 3. Only guarantee 1W continuous wave (CW) power thru testing for connectors added.
- 4. Devices for higher optical power or with other type fiber or consigned fiber are also available; Devices can only work in the core of Double Cladding (DC) Fiber, Cladding Power must be stripped before connecting the device.
  - 5. Package size may be different for different optical power and configurations.

## **ORDERING INFORMATION (PN)**

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FCWS-NN	INN	- ((	<b>;</b> )	-H NN	P NN	- ( <mark>C</mark> )	( <b>C</b> )	C	NN	- CC/CCC
Center Wa	rvelength	Config	uration	Average Power	Peak Power	Package	Fiber Type	Fiber Sleeve	Fiber Length	Connector Type
1471- 1	471 nm	D=D	Туре	<mark>03</mark> =300mW	01=100W	M=Metal Box	0=10/130 DC Fiber	B= Bare fiber	05=0.5m	N=Without Connector
1510-1	510nm	<i>Blank</i> fo	r Y Type	1= 1W	1= 1kW	<i>Blank</i> for SST	T=12/130 DC Fiber	L= Loose Tube	10=1.0m	FC/APC=FC/APC Connector
1550= 1	550nm			5= 5W	10=10kW	or >10W	G=25/300 DC Fiber	2= 2mm Cable	15=1.5m	LC/PC=LC/PC Connector
1611-1	611nm			10-10W	20= 20kW		<i>Blank</i> for SMF-28 Fiber	3= 3mm Cable	<mark>20=</mark> 2.0m	SC/UPC=SC/UPC Connector