

# Datasheet Live WDM

1060/1550nm, 980/1550nm and 1480/1550nm EDFA WDM

1310/1500nm Singlemode WDM

980/1550nm Filter WDM

1310/1550nm Filter WDM

1480/1550nm Filter WDM

4-Channel Coarse WDM

Multi-Channel Fused Pump Combiner

# 1060/1550NM, 980/1550NM AND 1480/1550NM EDFA WDM

## Features

- Low excess loss
- High isolation over bandwidth
- Compact size
- Excellent environmental and mechanical stability

## Applications

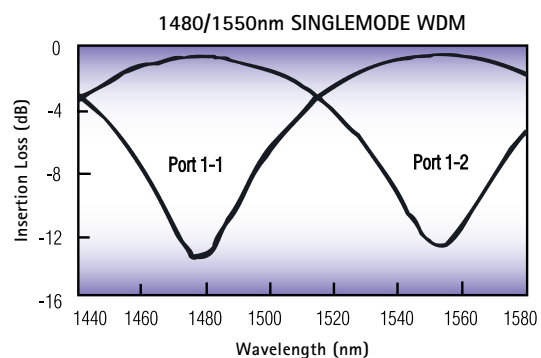
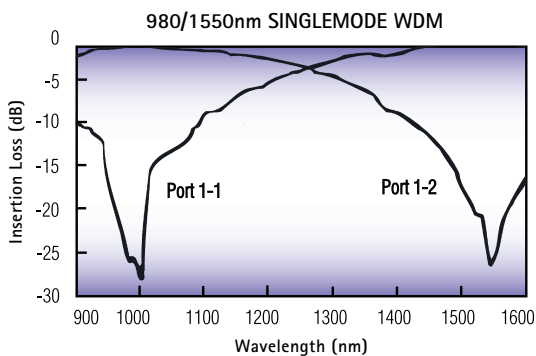
- Erbium doped fiber amplifiers ( EDFA )



## Specifications

Type	1060/1550 WDM, 980/1550nm WDM			1480/1550nm WDM	
Grade	S	P	A	P	A
Excess loss ( typical ) ( dB )	0.1	0.2	0.3	0.2	0.2
Max. insertion loss ( dB )	0.15	0.3	0.5	0.4	0.6
Isolation ( dB )	≥ 20	≥ 20	≥ 20	≥ 12	≥ 11
Polarization sensitivity ( dB )	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.2	≤ 0.2
Operating wavelength ( nm )	( 1060 ) 980/1550 ± 20			1480/1550 ± 5	
Directivity ( dB )	≥ 55 ( for 1x2 ), ≥ 65 ( for 2x2 )				
Operating temperature ( °C )	-40 ~ +85				
Storage temperature ( °C )	-40 ~ +85				
Fiber type	Corning flexcor			Corning SMF-28	
Fiber pigtail type	Bare fiber, 900µm loose tube or 3mm cable				
Fiber pigtail length ( m )	1 meter or custom on request				
Port configuration	1x2 or 2x2				
Package dimensions	Package A, B, C				

## Transmission Spectrum



# 1310/1550NM SINGLEMODE WDM

## Features

- Low excess loss
- High isolation
- Compact size
- Excellent environmental and mechanical stability

## Applications

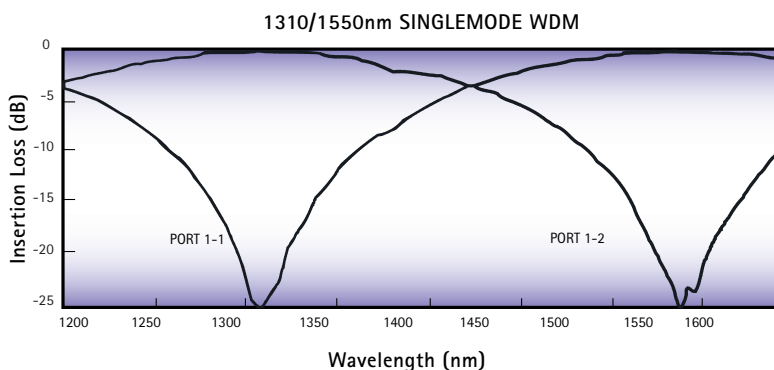
- Long-haul single and bidirectional telecommunication systems
- High-speed multi-wavelength systems
- Fiber sensors
- CATV links



## Specifications

Type	I ( 1x2 or 2x2 )		II ( 1x2 )		III ( 1x2 )		IV ( 1x2 )	
Grade	A	B	A	B	A	B	A	B
Excess loss ( typical ) ( dB )	0.1	0.2	0.3	0.5	0.6	0.9	0.8	1.2
Max. insertion loss ( dB )	0.3	0.6	0.7	1.0	1.2	1.5	1.5	1.8
Isolation ( dB )	≥ 16	≥ 15	≥ 30	≥ 28	≥ 45	≥ 42	≥ 60	≥ 55
Polarization sensitivity ( dB )	≤ 0.1	≤ 0.15						
Package dimensions	Package A, B, C		Package D		Package D		Package E	
Operating wavelength ( nm )	1310/1550 ± 20							
Directivity ( dB )	≥ 55 ( for 1x2 ), ≥ 65 ( for 2x2 )							
Operating temperature ( °C )	-40 ~ +85							
Storage temperature ( °C )	-40 ~ +85							
Fiber type	Corning singlemode SMF-28							
Fiber pigtail type	Bare fiber, 900µm loose tube or 3mm cable							
Fiber pigtail length ( m )	1 meter or custom on request							

## Transmission Spectrum



# 980/1550NM FILTER WDM

## Features

- Low insertion loss, high isolation
- High stability and reliability
- Optical path epoxy free
- Broad operating wavelength range

## Applications

- EDFA module
- Fiber optic test equipment



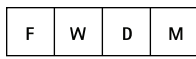
## Specifications

FWDM59	Mux / Demux
Operating wavelength ( nm )	980 ± 25; 1550 ± 30
Pass channel Insertion loss ( dB )	max.: 1.2, typ.: 1.0
Reflect channel Insertion loss ( dB )	max.: 0.6, typ.: 0.45
Pass channel Isolation ( dB )	>= 20
Reflect channel Isolation ( dB )	>= 12
Passband ripple ( dB )	max.: 0.5, typ.: 0.3
Directivity ( dB ) ( all ports )	>= 60
Return loss ( dB ) ( all ports )	>= 55
Insertion loss temperature sensitivity ( dB / °C )	< 0.005
Wavelength temperature sensitivity ( nm / °C )	< 0.003
Polarization dependence loss ( PDL ) ( dB )	<= 0.1
Polarization mode dispersion ( PMD ) ( ps )	<= 0.1
Max. operating power ( mW )	<= 300
Max. tensile load ( N )	5
Operating temperature range ( °C )	0 ~ 65
Storage temperature range ( °C )	-40 ~ +85
Package dimensions ( mm )	B: ( D ) 5.5 x ( L ) 32; L: ( D ) 5.5 x ( L ) 36

All specifications referenced are without connectors.



## Ordering Information



**Configuration**  
59 = 1550nm pass  
980nm reflect

**Fiber Type**  
1 = SMF-28  
2 = Flexcor 1060  
3 = CS 980

**Package**  
B = 250µm bare fiber  
L = 900µm loose tube  
C = Customer specify

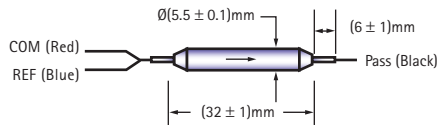
**Connector**  
0 = None  
1 = FC/APC  
2 = SC/APC  
3 = FC/PC  
4 = SC/PC  
5 = ST/PC  
6 = LC/APC  
7 = MU/PC  
8 = Customer order

**Fiber Length**  
1 = 1m  
2 = 2m  
3 = Customer specify

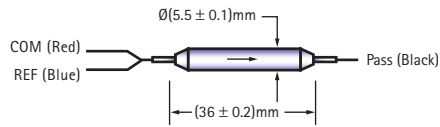


## Dimensions

B: 250µm bare fiber



L: 900µm loose tube



# 1310/1550NM FILTER WDM

## Features

- Low insertion loss, high isolation
- High stability and reliability
- Optical path epoxy free
- Broad operating wavelength range

## Applications

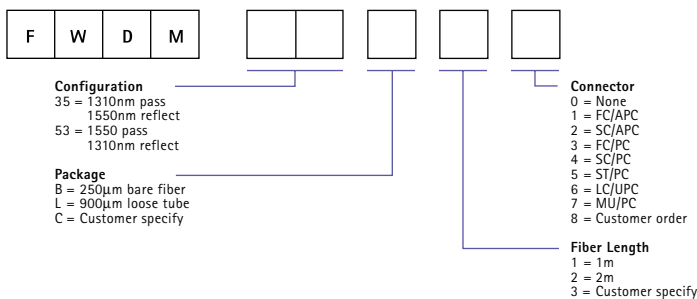
- Fiber optic metro network
- Fiber optic sensor system
- CATV system
- Fiber optic test equipment

## Specifications

FWDM35 ( 53 )	Mux / Demux
Operating wavelength ( nm )	1310 ± 40; 1550 ± 40
Pass channel insertion loss ( dB )	max.: 0.8, typ.: 0.5
Reflect channel insertion loss ( dB )	max.: 0.6, typ.: 0.4
Pass channel isolation ( dB )	≥ 30
Reflect channel isolation ( dB )	≥ 20
Passband ripple ( dB )	max.: 0.5, typ.: 0.3
Directivity ( dB ) ( all ports )	≥ 60
Return loss ( dB ) ( all ports )	≥ 55
Insertion loss temperature sensitivity ( dB / °C )	< 0.005
Wavelength temperature sensitivity ( nm / °C )	< 0.003
Polarization dependence loss ( PDL ) ( dB )	≤ 0.1
Polarization mode dispersion ( PMD ) ( ps )	≤ 0.1
Max. operating power ( mW )	≤ 300
Max. tensile load ( N )	5
Operating temperature range ( °C )	0 ~ 65
Storage temperature range ( °C )	-40 ~ +85
Fiber type	Corning SMF-28
Package dimensions ( mm )	B: ( D ) 5.5 x ( L ) 32; L: ( D ) 5.5 x ( L ) 36

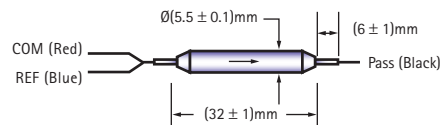
All specifications referenced are without connectors.

## Ordering Information

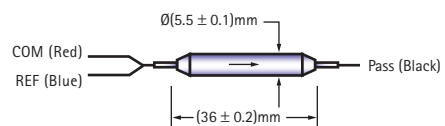


## Dimensions

B: 250µm bare fiber



L: 900µm loose tube



# 1480/1550NM FILTER WDM

## Features

- Low insertion loss, high isolation
- High stability and reliability
- Optical path epoxy free
- Broad operating wavelength range

## Applications

- EDFA module
- Fiber optic test equipment



## Specifications

	Mux / Demux
FWDM54	
Operating wavelength ( nm )	1480 ± 20; 1550 ± 30
Pass channel insertion loss ( dB )	max.: 0.8, typ.: 0.5
Reflect channel insertion loss ( dB )	max.: 0.6, typ.: 0.4
Pass channel isolation ( dB )	≥ 30
Reflect channel isolation ( dB )	≥ 20
Passband ripple ( dB )	max.: 0.5, typ.: 0.3
Directivity ( dB ) ( all ports )	≥ 60
Return loss ( dB ) ( all ports )	≥ 55
Insertion loss temperature sensitivity ( dB / °C )	< 0.005
Wavelength temperature sensitivity ( nm / °C )	< 0.003
Polarization dependence loss ( PDL ) ( dB )	≤ 0.1
Polarization mode dispersion ( PMD ) ( ps )	≤ 0.1
Max. operating power ( mW )	≤ 300
Max. tensile load ( N )	5
Operating temperature range ( °C )	0 ~ 65
Storage temperature range ( °C )	-40 ~ +85
Fiber type	Corning SMF-28
Package dimensions ( mm )	B: ( D ) 5.5 x ( L ) 32; L: ( D ) 5.5 x ( L ) 36

All specifications referenced are without connectors.

## Ordering Information



**Configuration**  
54 = 1550nm pass  
1480nm reflect

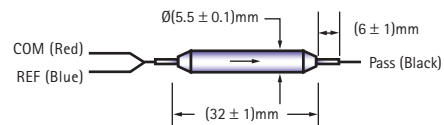
**Package**  
B = 250µm bare fiber  
L = 900µm loose tube  
C = Customer specify

**Fiber Length**  
1 = 1m  
2 = 2m  
3 = Customer specify

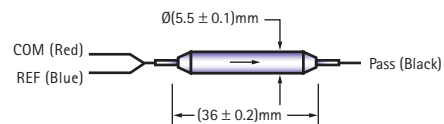
**Connector**  
0 = None  
1 = FC/APC  
2 = SC/APC  
3 = FC/PC  
4 = SC/PC  
5 = ST/PC  
6 = LC/UPC  
7 = MU/PC  
8 = Customer order

## Dimensions

B: 250µm bare fiber



L: 900µm loose tube



# 4-CHANNEL COARSE WDM

## Features

- Low insertion loss, high isolation
- High stability and reliability
- Optical path epoxy free

## Applications

- Metro optical fiber network
- CATV transmission systems
- Fiber-optic Ethernet network

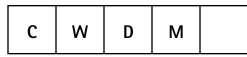
## Specifications

CWDM	Mux	Demux
Center wavelength ( nm )		A: 1510 / 1530 / 1550 / 1570 B: 1500 / 1520 / 1540 / 1560
Center wavelength difference ( nm )		<= 1.0
Channel spacing ( nm )		20nm
Channel passband ( nm ) @ 0.5dB		>= 12
Insertion loss ( dB )		<= 2.2
Output uniformity ( dB )		<= 1.2
Passband ripple ( dB )		<= 0.5
Adjacent channel isolation ( dB )	>= 20	>= 30
Non-adjacent channel Isolation ( dB )		>= 45
Directivity ( dB ) ( all ports )		>= 55
Return loss ( dB ) ( all ports )		>= 50
Insertion loss temperature sensitivity ( dB / °C )		< 0.005
Wavelength temperature sensitivity ( nm / °C )		< 0.003
Polarization dependence loss ( PDL ) ( dB )		<= 0.1
Polarization mode dispersion ( PMD ) ( ps )		<= 0.1
Max. operating power ( mW )		<= 300
Max. tensile load ( N )		5
Operating temperature range ( °C )		0 ~ 65
Storage temperature range ( °C )		-40 ~ +85
Package dimension ( mm )		( L ) 127 x ( W ) 89 x ( H ) 10.6

All specifications referenced are without connectors.



## Ordering Information



**Configuration**  
 M = MUX  
 D = DEMUX

**Number of Channels**  
 4 = 4 Channel  
 N = N Channel

**First Channel**  
 00 = 1500nm  
 10 = 1510nm

**Last Channel**  
 60 = 1560nm  
 70 = 1570nm

**Package**  
 S = Standard  
 P = Plug-in module  
 C = Customer design module

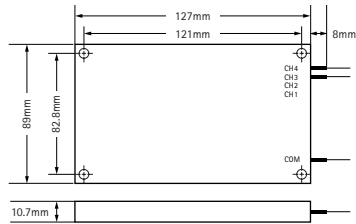
**Connector**  
 0 = None  
 1 = FC/APC  
 2 = SC/APC  
 3 = FC/PC  
 4 = SC/PC  
 5 = ST/PC  
 6 = LC/UPC  
 7 = MU/PC  
 8 = Customer order

**Fiber Length**  
 1 = 1m  
 2 = 2m  
 3 = Customer order

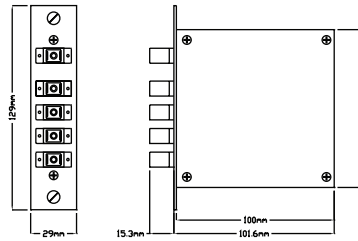
**Pigtail Type**  
 B = 250µm bare fiber  
 L = 900µm loose tube  
 C = 3mm cable

## Dimensions

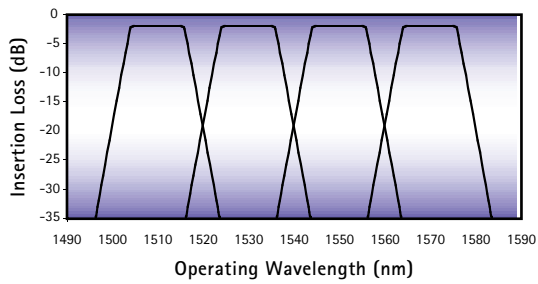
S: Standard



P: Plug-in Module



## Transmission Spectrum



# MULTI-CHANNEL FUSED PUMP COMBINER

## Features

- Low insertion loss, high isolation
- High stability and reliability
- All optical fiber path

## Applications

- EDFA system
- Raman amplifier

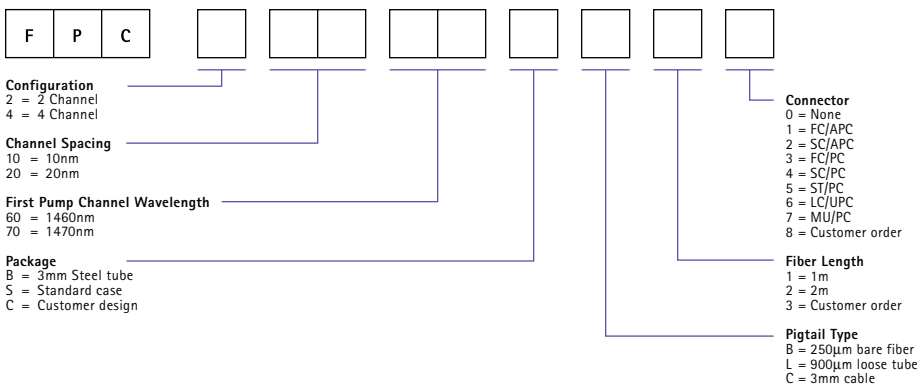
## Specifications

FPC		
Center wavelength ( nm )*	1460 / 1470 / 1480 / 1490	
Center wavelength difference ( nm )	0.5	
Channel spacing ( nm )**	10, 20	
Channel passband ( nm ) @0.5 dB	>= 3	
Insertion loss ( dB )	<= 1.0 ( 2x1 )	<= 1.8 ( 4x1 )
Directivity ( dB ) ( all ports )	>= 55	
Return loss ( dB ) ( all ports )	>= 55	
Insertion loss temperature sensitivity ( dB / °C )	< 0.004	
Wavelength temperature sensitivity ( nm / °C )	< 0.003	
Polarization dependence loss ( PDL ) ( dB )	<= 0.2	
Max. operating power ( mW )	<= 1000 mW per channel	
Max. tensile load ( N )	5	
Operating temperature range ( °C )	-5 ~ +70	
Storage temperature range ( °C )	-40 ~ +85	
Fiber type	Corning SMF-28	
Package dimension ( mm )	B: ( $\phi$ ) 3.0 x ( L ) 65 S: ( L ) 127 x ( W ) 89 x ( H ) 10.6	

All specifications referenced are without connectors.

\*\* Operating wavelength and channel spacing are changeable per customer request.

## Ordering Information



## Dimensions

