MISCELLANEOUS

Amplifer Optic Block
Pigtail Fiber Optic Collimators
Attenuator
VCVOA
Jumper

AMPLIFIER OPTIC BLOCK

Features

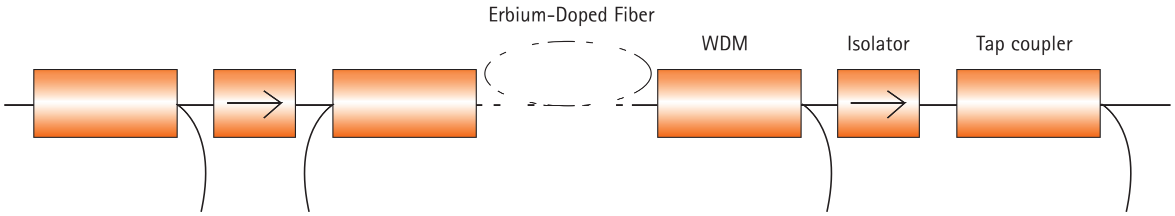
- Low insertion loss
- High stability and reliability
- Compact size
- Optical path epoxy free

An Optical Block is a basic building unit of an amplifer. It contains Tap Couplers, Isolators, and Wavelength Division Multiplexers. The Erbium-Doped Fiber and Gain Flattening Filter can be assembled into the block per customer's request.

Applications

- Booster amplifier
- Line amplifier
- Preamplifier
- ASE light source

Typical Structure



Ordering Information

F A O ☐ ☐ ☐ ☐☐

Stage
1 = Single stage
2 = Dual stages

Pump configuration
0 = Forward pump
1 = Backward pump
2 = Dual pump
3 = Triple pump

Package
A = Package A (152 x 137 x 13mm)
S = Special

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

PIGTAIL FIBER OPTIC COLLIMATORS

Features

- Compact miniature unit
- Low insertion loss
- High return loss
- Environmental stability and reliability

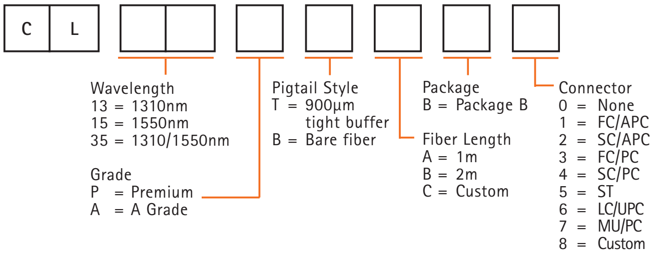
Applications

- Optical devices
- Fiber optical alignment
- Optical testing systems
- Laser interface

Specifications

CL type	Premium	A Grade
Spectral width (min.) (nm)	60	
Central wavelength (nm)	≥1310, 1550, 1310/1550	
Beam diameter (mm)	< 0.5	
Beam divergence (max.) (˚)	0.25	
Acceptance angle (max.) (˚)	0.15	
Return loss (dB)	65	60
Typ. insertion loss (dB) (any pair)	0.2	0.3
Max. insertion loss (dB)	0.3	0.5
Max. optical power (mW)	300	
Operating temperature (˚C)	-20 ~ +70	
Storage temperature (˚C)	-40 ~ +85	
Tensile load (max.) (N)	5	

Ordering Information



Wavelength
13 = 1310nm
15 = 1550nm
35 = 1310/1550nm

Grade
P = Premium
A = A Grade

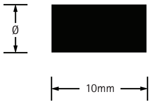
Pigtail Style
T = 900µm tight buffer
B = Bare fiber

Package
B = Package B

Fiber Length
A = 1m
B = 2m
C = Custom

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

Dimensions



Package A: Ø = 4.0mm
Package B: Ø = 3.2mm

ATTENUATOR

Features

- All-fiber construction
- In-line configuration
- Excellent environmental stability and reliability

Applications

- Telecommunication systems
- Digital, hybrid and AM-video systems
- Local area networks
- CATV systems
- Aerospace

Specifications

Type	Single Window Wideband	Dual Window Wideband
Attenuation (dB)	3, 5, 10, 15, 20 ± 10%	3, 5, 10, 15, 20 ± 10%
Operating wavelength (nm)*	1310 ± 40 or 1550 ± 40	1310/1550 ± 40
Back reflection (dB)	≤ -60	
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	
Package dimensions	Package A, B, C	

* Applications at 980nm and 850nm are available.

VCVOA (VOLTAGE-CONTROLLED VARIABLE OPTICAL ATTENUATOR)

Features

- High reliability
- Latching capability
- Potentiometer feedback to monitor
- Wide attenuation range
- High attenuation resolution
- Mountable on printed circuit board

Applications

- Power equalization in multi-channel optical networks
- Gain-tilt control in optical amplifers
- Balance laser signal into DWDM networks
- Used between stages of EDFA as a constant "gain" block

Specifications

Specifications	Min.	Typical	Max.
Wavelength range (nm)	1520		1580
Input optical power (mW)			250
Attenuation range (dB)	40		
Attenuation resolution (dB)		0.1	0.15
Residual attenuation (dB)			0.1
Minimum insertion loss (dB)		0.5dB*; 1.2dB**; 1.6dB***	
Temperature dependence of attenuation (dB)			0.2
Wavelength dependence of attenuation (dB)			0.2
Polarization dependent loss (dB)			0.2
Polarization mode dispersion (ps)			0.1
Return loss (dB)			50
Response speed (ms)			100
Repeatability of attenuation setting (dB)			0.15
Backlash in attenuation setting (dB)			0.15
Dimensions (mm)		(L) 25 x (W) 12 x (H) 50	
Operating temperature (˚C)	-5		70
Storage temperature (˚C)	-5		80

* With no monitoring tap detector.
** With input or output monitoring tap detector.
*** With input or output monitoring tap detector.

Ordering Information

V C V O A ☐ ☐ ☐ ☐ ☐

No. of Pigtails
0 = without taps
1 = with input tap only
2 = with input tap only
3 = with input and output taps

Package
S = Standard
C = Customer design module

Pigtail Type
B = 250µm bare fiber
L = 900µm loose tube

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

JUMPER

Ordering Information

S = Singlemode
M = Multimode

S = Simplex
M = Duplex

01 = 1m
02 = 2m
03 = Custom

B = Bare fiber
L = 900µm loose tube
R = 3mm cable
T = 900µm tight buffer

0 = SMF-28
1 = Corning flexcore
2 = 50/125µm
3 = 62.5/125µm
4 = 100/140µm

FC = FC/PC
ST = ST
SC = SC/PC
FA = FC/APC
SA = SC/APC

FC = FC/PC
ST = ST
SC = SC/PC
FA = FC/APC
SA = SC/APC

FIBER OPTIC COUPLERS, WDMs, AND ATTENUATORS

Product
S = Singlemode standard coupler
W = Singlemode wideband coupler single or dual window
D = Singlemode wavelength division multiplexer
M = Multimode coupler
A = Singlemode in-line attenuator

Grade
S
P
A
B

Wavelength
85 = 850nm
63 = 633nm
13 = 1310nm
14 = 1480nm
15 = 1550nm
18 = 1585nm
35 = 1310/1550nm
95 = 980/1550nm
45 = 1480/1550nm
•
•
•

Coupling Ratio
50 = 50/50
30 = 30/70
10 = 10/90
05 = 5/95
01 = 1/99
• •
• •
• •
AV = Tree coupler
00 = WDM (for 980/1550µm & 1480/1550nm WDM)
WA = Type I WDM (for 1310/1550nm WDM)
WB = Type II WDM (for 1310/1550nm WDM)
WC = Type III WDM (for 1310/1550nm WDM)
WD = Type IV WDM (for 1310/1550nm WDM)

Attenuation (dB)
20 = 20dB
15 = 15dB
10 = 10dB
05 = 5dB
03 = 3dB

Port
0102 = 1x2
0202 = 2x2
0103 = 1x3
0303 = 3x3
0104 = 1x4
•
•
•
0116 = 1x16
1616 = 16x16
3232 = 32x32

Package
A = Package A
B = Package B
C = Package C
D = Package D
E = Package E
F = Package F
G = Package G
S = Customer specify

Pigtail Style
B = Bare fiber
L = 900µm loose tube
C = 3mm cable

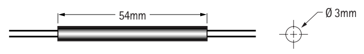
Fiber Type
0 = Corning SMF-28
1 = Corning Flexcore
2 = 50/125µm
3 = 62.5/125µm
4 = 100/140µm
5 = CS980
S = Customer specify

In Out

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 specify

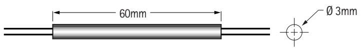
Dimensions and Pigtail Style

Package A



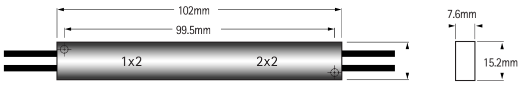
Bare Package

Package B

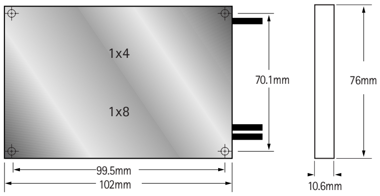


Loose Tube Package

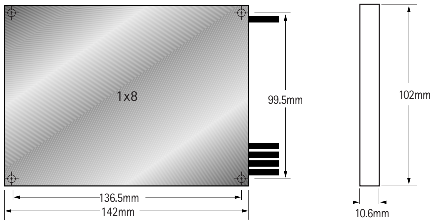
Package C



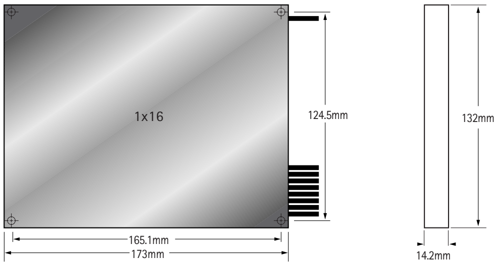
Package D



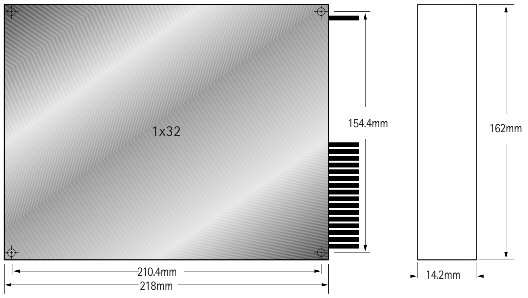
Package E



Package F



Package G



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