

# Wavelength Division Multiplexer (WDM) 1x2

100GHz, 200GHz, SM, PM



DATASHEET

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## Features

- 100/200GHz ITU Channel Spacing
- Low Insertion Loss
- Wide Pass Band
- High Channel Isolation
- High Stability and Reliability
- Epoxy Free Optical Path

## Applications

- Channel Add / Drop
- WDM Network
- Wavelength Routing
- Fiber Optical Amplifier
- CATV Fiberoptic System



100/200 GHz 1 Channel OADM utilizes thin film coating technology and proprietary design of non-flux metal bonding micro optics packaging to achieve optical add and drop at the ITU wavelength. It provides ITU channel center wavelength, low insertion loss, high channel isolation, wide pass band, low temperature sensitivity and epoxy free optical path. It can be used for wavelength add/drop in telecommunication network system.

## Specifications

| Parameter                              | Specifications (Mux / Demux)   |                     | Unit  |
|--|--|---------------------|-------|
| Operating Wavelength                   | 1530.33 - 1560.61 (21~ 59 ITU grid)  |                     | nm    |
| Minimum Channel Spacing                | 100  | 200                 | GHz   |
| Center Wavelength Accuracy             | ± 0.05   | ± 0.1               | nm    |
| Channel Passband (@-0.5dB bandwidth)   | ≥ 0.22   | ≥ 0.5               | nm    |
| Insertion Loss (Add / Drop Ch. )       | ≤ 1.0  | ≤ 0.9               | dB    |
| Insertion Loss (Express Ch.)           | ≤ 0.40   | ≤ 0.40              | dB    |
| Polarization Extinction Ratio (PM)     | >19  |                     | dB    |
| Channel Isolation (Demux only)         | ≥ 25(Adjacent)   | ≥ 30(Adjacent)      | dB    |
|  | ≥ 35 (Non-adjacent)  | ≥ 40 (Non-adjacent) |       |
| Express Channel Isolation              | ≥ 10   | ≥ 12                | dB    |
| Add / Drop Channel Ripple              | ≤ 0.3  |                     | dB    |
| Insertion Loss Temperature Sensitivity | ≤ 0.003  |                     | dB/°C |
| Wavelength Temperature Shifting        | ≤ 0.002  |                     | nm/°C |
| Polarization Dependent Loss            | ≤ 0.1  |                     | dB    |
| Polarization Mode Dispersion           | ≤ 0.1  |                     | ps    |
| Directivity                            | ≥ 50   |                     | dB    |
| Return Loss                            | ≥ 45   |                     | dB    |
| Optical Power                          | ≤ 300  |                     | mW    |
| Operating Temperature                  | 0 to +70 (Extended temperatures upon request)  |                     | °C    |
| Storage Temperature                    | - 40 to +85  |                     | °C    |
| Package Dimension                      | A= Standard, Ø5.5xL34 (250um bare fiber)<br>Ø5.5xL38 (900um jacket fiber)<br>M=Compact, Ø4.8xL30 (250um bare fiber)<br>N=Mini, Ø4.2xL28 (250um bare fiber)<br>C=98x14x8.5 (2&3 mm fiber jacket)<br>S=89x51x8.0 (2&3 mm fiber jacket) |                     | mm    |

**Note:** The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link](#):

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# Wavelength Division Multiplexer (WDM) 1x2

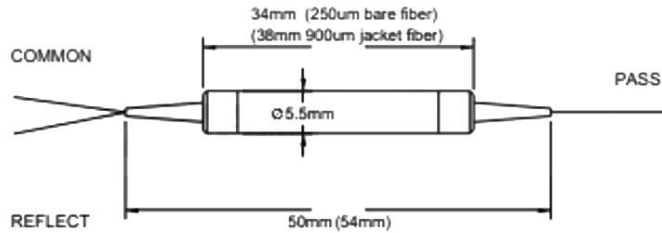


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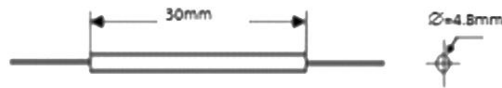
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### Mechanical Dimensions (mm)

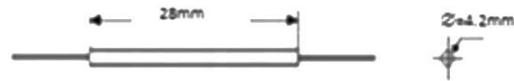
A package:



M package:



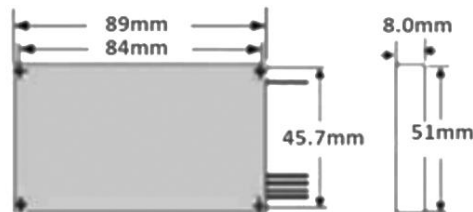
N package:



C package:



S package:



\*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

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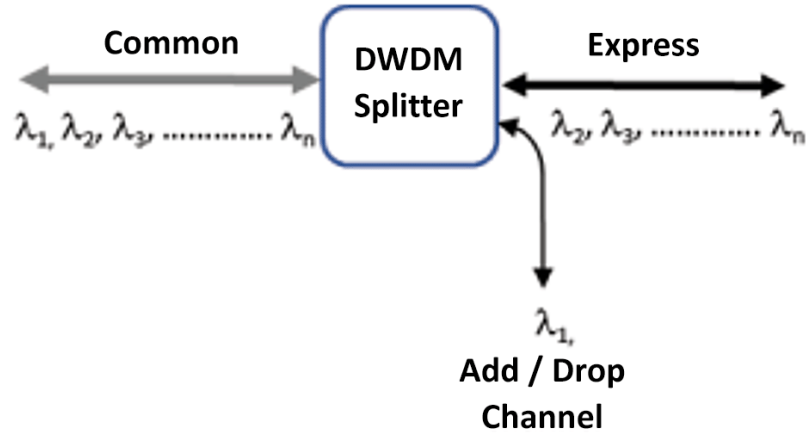
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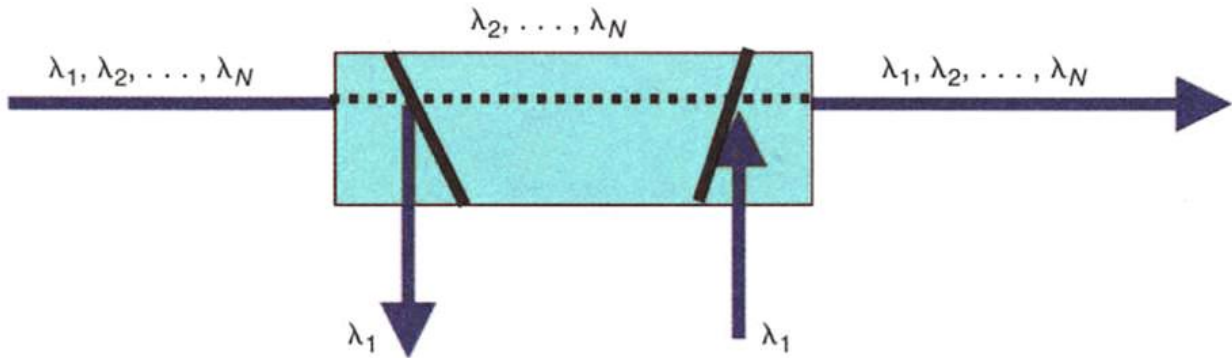
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### Channel Configurations



### Optical Function Path Illustration

Wavelength multiplexing and Demultiplexing can be illustrated below in a single-channel optical add-drop case.



# Wavelength Division Multiplexer (WDM) 1x2

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### Ordering Information (Part Number)

| Prefix      | Channel Spacing          | ITU Channel <sup>[1]</sup>   | Configuration | Package   | Fiber Type <sup>[2]</sup>          | Fiber Cover   | Fiber Length                                   | In Connector <sup>[3]</sup>  | Out Connector <sup>[3]</sup>   |
|-------------|--------------------------|--|---------------|---|------------------------------------|---|--|--|--|
| <b>WDM-</b> | 100GHz = 1<br>200GHz = 2 | 1560.61nm = C21<br>1559.79nm = C22<br>...<br>1530.33nm = C59<br><br><i>Select from table</i> | 1x2 = 102     | A Package = A<br>M Package = M<br>N Package = N<br>C Package = C<br>S Package = S | SMF28 = 2<br>ZBL = 3<br>PM1550 = 5 | Bare fiber = 1<br>900 μm tube = 2<br>3mm jacket = 3<br>2mm jacket = 4<br>1.6mm jacket = 5 | 0.5m = 05<br>1.0m = 10<br>1.5m = 15<br>2m = 20 | None = 0<br>FC/APC = 1<br>FC/PC = 2<br>SC/APC = 3<br>SC/PC = 4<br>ST = 5<br>LC/UPC = 6<br>LC/APC = 7 | None = 0<br>FC/APC = 1<br>FC/PC = 2<br>SC/APC = 3<br>SC/PC = 4<br>ST = 5<br>LC/UPC = 6<br>LC/APC = 7 |

[1]. O and L band wavelengths are also available upon request.

[2]. SMF-28(G.652)=1 is available upon request.

[3]. The connector cannot be installed directly onto bare fiber, as it is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer can remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SM28 fiber and decreases further with smaller core fibers.

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### WDM ITU 100GHz Spacing

| Channel | Frequency (GHz) | Wavelength (nm) | Channel | Frequency (GHz) | Wavelength (nm) |
|---------|-----------------|-----------------|---------|-----------------|-----------------|
| GG1     | 190,100         | 1577.03         | G38     | 193,800         | 1546.92         |
| GG2     | 190,200         | 1576.20         | G39     | 193,900         | 1546.12         |
| GG3     | 190,300         | 1575.37         | G40     | 194,000         | 1545.32         |
| GG4     | 190,400         | 1574.54         | G41     | 194,100         | 1544.53         |
| GG5     | 190,500         | 1573.71         | G42     | 194,200         | 1543.73         |
| GG6     | 190,600         | 1572.89         | G43     | 194,300         | 1542.94         |
| GG7     | 190,700         | 1572.06         | G44     | 194,400         | 1542.14         |
| GG8     | 190,800         | 1571.24         | G45     | 194,500         | 1541.35         |
| GG9     | 190,900         | 1570.42         | G46     | 194,600         | 1540.56         |
| G10     | 191,000         | 1569.59         | G47     | 194,700         | 1539.77         |
| G11     | 191,100         | 1568.77         | G48     | 194,800         | 1538.98         |
| G12     | 191,200         | 1567.95         | G49     | 194,900         | 1538.19         |
| G13     | 191,300         | 1567.13         | G50     | 195,000         | 1537.40         |
| G14     | 191,400         | 1566.31         | G51     | 195,100         | 1536.61         |
| G15     | 191,500         | 1565.50         | G52     | 195,200         | 1535.82         |
| G16     | 191,600         | 1564.68         | G53     | 195,300         | 1535.04         |
| G17     | 191,700         | 1563.86         | G54     | 195,400         | 1534.25         |
| G18     | 191,800         | 1563.05         | G55     | 195,500         | 1533.47         |
| G19     | 191,900         | 1562.23         | G56     | 195,600         | 1532.68         |
| G20     | 192,000         | 1561.42         | G57     | 195,700         | 1531.90         |
| G21     | 192,100         | 1560.61         | G58     | 195,800         | 1531.12         |
| G22     | 192,200         | 1559.79         | G59     | 195,900         | 1530.33         |
| G23     | 192,300         | 1558.98         | G60     | 196,000         | 1529.55         |
| G24     | 192,400         | 1558.17         | G61     | 196,100         | 1528.77         |
| G25     | 192,500         | 1557.36         | G62     | 196,200         | 1527.99         |
| G26     | 192,600         | 1556.55         | G63     | 196,300         | 1527.22         |
| G27     | 192,700         | 1555.75         | G64     | 196,400         | 1526.44         |
| G28     | 192,800         | 1554.94         | G65     | 196,500         | 1525.66         |
| G29     | 192,900         | 1554.13         | G66     | 196,600         | 1524.89         |
| G30     | 193,000         | 1553.33         | G67     | 196,700         | 1524.11         |
| G31     | 193,100         | 1552.52         | G68     | 196,800         | 1523.34         |
| G32     | 193,200         | 1551.72         | G69     | 196,900         | 1522.56         |
| G33     | 193,300         | 1550.92         | G70     | 197,000         | 1521.79         |
| G34     | 193,400         | 1550.12         | G71     | 197,100         | 1521.02         |
| G35     | 193,500         | 1549.32         | G72     | 197,200         | 1520.25         |
| G36     | 193,600         | 1548.51         | G73     | 197,300         | 1519.48         |
| G37     | 193,700         | 1547.72         |         |                 |                 |

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### ITU Grid Table 50GHz Spacing

| Channel | f (GHz) | λ (nm)  |
|---------|---------|---------|
| L48     | 184800  | 1622.25 |
| Q48     | 184850  | 1621.81 |
| L49     | 184900  | 1621.38 |
| Q49     | 184950  | 1620.94 |
| L50     | 185000  | 1620.50 |
| Q50     | 185050  | 1620.06 |
| L51     | 185100  | 1619.62 |
| Q51     | 185150  | 1619.19 |
| L52     | 185200  | 1618.75 |
| Q52     | 185250  | 1618.31 |
| L53     | 185300  | 1617.88 |
| Q53     | 185350  | 1617.44 |
| L54     | 185400  | 1617.00 |
| Q54     | 185450  | 1616.57 |
| L55     | 185500  | 1616.13 |
| Q55     | 185550  | 1615.70 |
| L56     | 185600  | 1615.26 |
| Q56     | 185650  | 1614.83 |
| L57     | 185700  | 1614.39 |
| Q57     | 185750  | 1613.96 |
| L58     | 185800  | 1613.52 |
| Q58     | 185850  | 1613.09 |
| L59     | 185900  | 1612.65 |
| Q59     | 185950  | 1612.22 |
| L60     | 186000  | 1611.79 |
| Q60     | 186050  | 1611.35 |
| L61     | 186100  | 1610.92 |
| Q61     | 186150  | 1610.49 |
| L62     | 186200  | 1610.06 |
| Q62     | 186250  | 1609.62 |
| L63     | 186300  | 1609.19 |
| Q63     | 186350  | 1608.76 |
| L64     | 186400  | 1608.33 |
| Q64     | 186450  | 1607.90 |
| L65     | 186500  | 1607.47 |
| Q65     | 186550  | 1607.04 |
| L66     | 186600  | 1606.60 |
| Q66     | 186650  | 1606.17 |

| Channel | f (GHz) | λ (nm)  |
|---------|---------|---------|
| L67     | 186700  | 1605.74 |
| Q67     | 186750  | 1605.31 |
| L68     | 186800  | 1604.88 |
| Q68     | 186850  | 1604.45 |
| L69     | 186900  | 1604.03 |
| Q69     | 186950  | 1603.60 |
| L70     | 187000  | 1603.17 |
| Q70     | 187050  | 1602.74 |
| L71     | 187100  | 1602.31 |
| Q71     | 187150  | 1601.88 |
| L72     | 187200  | 1601.46 |
| Q72     | 187250  | 1601.03 |
| L73     | 187300  | 1600.60 |
| Q73     | 187350  | 1600.17 |
| L74     | 187400  | 1599.75 |
| Q74     | 187450  | 1599.32 |
| L75     | 187500  | 1598.89 |
| Q75     | 187550  | 1598.47 |
| L76     | 187600  | 1598.04 |
| Q76     | 187650  | 1597.62 |
| L77     | 187700  | 1597.19 |
| Q77     | 187750  | 1596.76 |
| L78     | 187800  | 1596.34 |
| Q78     | 187850  | 1595.91 |
| L79     | 187900  | 1595.49 |
| Q79     | 187950  | 1595.06 |
| L80     | 188000  | 1594.64 |
| Q80     | 188050  | 1594.22 |
| L81     | 188100  | 1593.79 |
| Q81     | 188150  | 1593.37 |
| L82     | 188200  | 1592.95 |
| Q82     | 188250  | 1592.52 |
| L83     | 188300  | 1592.10 |
| Q83     | 188350  | 1591.68 |
| L84     | 188400  | 1591.26 |
| Q84     | 188450  | 1590.83 |
| L85     | 188500  | 1590.41 |
| Q85     | 188550  | 1589.99 |

| Channel | f (GHz) | λ (nm)  |
|---------|---------|---------|
| L86     | 188600  | 1589.57 |
| Q86     | 188650  | 1589.15 |
| L87     | 188700  | 1588.73 |
| Q87     | 188750  | 1588.30 |
| L88     | 188800  | 1587.88 |
| Q88     | 188850  | 1587.46 |
| L89     | 188900  | 1587.04 |
| Q89     | 188950  | 1586.62 |
| L90     | 189000  | 1586.20 |
| Q90     | 189050  | 1585.78 |
| L91     | 189100  | 1585.36 |
| Q91     | 189150  | 1584.95 |
| L92     | 189200  | 1584.53 |
| Q92     | 189250  | 1584.11 |
| L93     | 189300  | 1583.69 |
| Q93     | 189350  | 1583.27 |
| L94     | 189400  | 1582.85 |
| Q94     | 189450  | 1582.44 |
| L95     | 189500  | 1582.02 |
| Q95     | 189550  | 1581.60 |
| L96     | 189600  | 1581.18 |
| Q96     | 189650  | 1580.77 |
| L97     | 189700  | 1580.35 |
| Q97     | 189750  | 1579.93 |
| L98     | 189800  | 1579.52 |
| Q98     | 189850  | 1579.10 |
| L99     | 189900  | 1578.69 |
| Q99     | 189950  | 1578.27 |
| L00     | 190000  | 1577.86 |
| Q00     | 190050  | 1577.44 |
| C01     | 190100  | 1577.03 |
| H01     | 190150  | 1576.61 |
| C02     | 190200  | 1576.20 |
| H02     | 190250  | 1575.78 |
| C03     | 190300  | 1575.37 |
| H03     | 190350  | 1574.95 |
| C04     | 190400  | 1574.54 |
| H04     | 190450  | 1574.13 |

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### ITU Grid Table

| Channel | f (GHz) | λ (nm)  |
|---------|---------|---------|
| C05     | 190500  | 1573.71 |
| H05     | 190550  | 1573.30 |
| C06     | 190600  | 1572.89 |
| H06     | 190650  | 1572.48 |
| C07     | 190700  | 1572.06 |
| H07     | 190750  | 1571.65 |
| C08     | 190800  | 1571.24 |
| H08     | 190850  | 1570.83 |
| C09     | 190900  | 1570.42 |
| H09     | 190950  | 1570.01 |
| C10     | 191000  | 1569.59 |
| H10     | 191050  | 1569.18 |
| C11     | 191100  | 1568.77 |
| H11     | 191150  | 1568.36 |
| C12     | 191200  | 1567.95 |
| H12     | 191250  | 1567.54 |
| C13     | 191300  | 1567.13 |
| H13     | 191350  | 1566.72 |
| C14     | 191400  | 1566.31 |
| H14     | 191450  | 1565.90 |
| C15     | 191500  | 1565.50 |
| H15     | 191550  | 1565.09 |
| C16     | 191600  | 1564.68 |
| H16     | 191650  | 1564.27 |
| C17     | 191700  | 1563.86 |
| H17     | 191750  | 1563.45 |
| C18     | 191800  | 1563.05 |
| H18     | 191850  | 1562.64 |
| C19     | 191900  | 1562.23 |
| H19     | 191950  | 1561.83 |
| C20     | 192000  | 1561.42 |
| H20     | 192050  | 1561.01 |
| C21     | 192100  | 1560.61 |
| H21     | 192150  | 1560.20 |
| C22     | 192200  | 1559.79 |
| H22     | 192250  | 1559.39 |
| C23     | 192300  | 1558.98 |
| H23     | 192350  | 1558.58 |

| Channel | f (GHz) | λ (nm)  |
|---------|---------|---------|
| C24     | 192400  | 1558.17 |
| H24     | 192450  | 1557.77 |
| C25     | 192500  | 1557.36 |
| H25     | 192550  | 1556.96 |
| C26     | 192600  | 1556.55 |
| H26     | 192650  | 1556.15 |
| C27     | 192700  | 1555.75 |
| H27     | 192750  | 1555.34 |
| C28     | 192800  | 1554.94 |
| H28     | 192850  | 1554.54 |
| C29     | 192900  | 1554.13 |
| H29     | 192950  | 1553.73 |
| C30     | 193000  | 1553.33 |
| H30     | 193050  | 1552.93 |
| C31     | 193100  | 1552.52 |
| H31     | 193150  | 1552.12 |
| C32     | 193200  | 1551.72 |
| H32     | 193250  | 1551.32 |
| C33     | 193300  | 1550.92 |
| H33     | 193350  | 1550.52 |
| C34     | 193400  | 1550.12 |
| H34     | 193450  | 1549.72 |
| C35     | 193500  | 1549.32 |
| H35     | 193550  | 1548.91 |
| C36     | 193600  | 1548.51 |
| H36     | 193650  | 1548.11 |
| C37     | 193700  | 1547.72 |
| H37     | 193750  | 1547.32 |
| C38     | 193800  | 1546.92 |
| H38     | 193850  | 1546.52 |
| C39     | 193900  | 1546.12 |
| H39     | 193950  | 1545.72 |
| C40     | 194000  | 1545.32 |
| H40     | 194050  | 1544.92 |
| C41     | 194100  | 1544.53 |
| H41     | 194150  | 1544.13 |
| C42     | 194200  | 1543.73 |
| H42     | 194250  | 1543.33 |

| Channel | f (GHz) | λ (nm)  |
|---------|---------|---------|
| C43     | 194300  | 1542.94 |
| H43     | 194350  | 1542.54 |
| C44     | 194400  | 1542.14 |
| H44     | 194450  | 1541.75 |
| C45     | 194500  | 1541.35 |
| H45     | 194550  | 1540.95 |
| C46     | 194600  | 1540.56 |
| H46     | 194650  | 1540.16 |
| C47     | 194700  | 1539.77 |
| H47     | 194750  | 1539.37 |
| C48     | 194800  | 1538.98 |
| H48     | 194850  | 1538.58 |
| C49     | 194900  | 1538.19 |
| H49     | 194950  | 1537.79 |
| C50     | 195000  | 1537.40 |
| H50     | 195050  | 1537.00 |
| C51     | 195100  | 1536.61 |
| H51     | 195150  | 1536.22 |
| C52     | 195200  | 1535.82 |
| H52     | 195250  | 1535.43 |
| C53     | 195300  | 1535.04 |
| H53     | 195350  | 1534.64 |
| C54     | 195400  | 1534.25 |
| H54     | 195450  | 1533.86 |
| C55     | 195500  | 1533.47 |
| H55     | 195550  | 1533.07 |
| C56     | 195600  | 1532.68 |
| H56     | 195650  | 1532.29 |
| C57     | 195700  | 1531.90 |
| H57     | 195750  | 1531.51 |
| C58     | 195800  | 1531.12 |
| H58     | 195850  | 1530.72 |
| C59     | 195900  | 1530.33 |
| H59     | 195950  | 1529.94 |
| C60     | 196000  | 1529.55 |
| H60     | 196050  | 1529.16 |
| C61     | 196100  | 1528.77 |
| H61     | 196150  | 1528.38 |