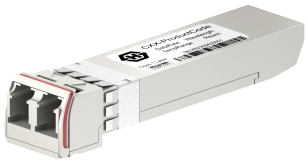
DATA SHEET

Transceivers
# 10G SFP+ DWDM ER
CSS-878A15

## Properties

- Multi-protocol support
- Data rate up to 11.3 Gbps
- Reach up to 40km
- Any ITU DWDM channel between C17 and C61
- LC/PC duplex connector
- Singlemode fiber
- Temp. range -40 ... 85°C
- Link budget at least 15 dB (w/o dispersion penalty)



| General data | |
|---|---|
| Form factor | SFP+ |
| Product image | Actual product may differ from the images shown. Colours, design, and details can vary. |
| Protocol | 1/10G Ethernet, 1/2/4/8/10G FC, STM-64/OC-48, CPRI Option 2...8, OBSAI |
| Data rate standards | 10GBASE-ER/EW<br>CPRI Option 2 to 8 |
| Media type | Singlemode |
| Connector | LC/PC duplex |
| Modulation Format | NRZ |
| Built-in FEC | No |
| CDR | none |
| Operation temperature | -40 °C ... 85 °C |
| Supply voltage typical | 3.13 V ... 3.47 V |
| Supply Current | < 460 mA |
| Power consumption | < 1.5 W |
| Digital Diagnostic Management (DDM) | Yes |
| Laser hazard level | 1 |

| Absolute Maximum Ratings | |
|---|---|
| Max. supply voltage range | -0.5 V ... 4 V |
| Max. Storage Temperature Range | -40 °C ... 85 °C |
| Max. relative humidity range | 5 % ... 95 % |

| Transmitter Specifications | |
|---|---|
| Laser Type | EML |
| Grid | DWDM 50GHz C-band |
| Available Wavelength in nm | Any ITU DWDM channel between C17 and C61 |

Transceivers

# 10G SFP+ DWDM ER

CSS-878A15

| Transmitter Specifications | |
|---|---|
| Average launch power per lane | -1 dBm ... 3 dBm |
| Dispersion Penalty | < 2 dB |
| Dispersion range | -550 ps/nm ... 800ps/nm |
| Extinction Ratio | > 8.2 dB |
| Side Mode Suppression | > 30 dB |
| Supported Data rate | 1.0625 Gbps ... 11.3 Gbps |

| Receiver Specifications | |
|---|---|
| Receiver Type | PIN |
| Operating Wavelength Range | 1260 nm ... 1620nm |
| Receiver Overload | > 0 dBm |
| Receiver Sensitivity | < -16 dBm |
| Bit Error Rate at Receiver | 1E-12 |
| Receiver LOS De-Assert | < -17 dBm |
| Receiver LOS Assert | > -30 dBm |
| Receiver LOS Hysteresis | > 0.5 dB |
| Supported Data rate | 1.0625 Gbps ... 11.3 Gbps |

| Ordering Information Table | | |
|---|---|---|
| Order Code | Compatibility code explanation | Wavelength code explanation |
| CSS-878A15xxxx-ww | "xxxx" is an alphanumerical string, describing the compatibility. "0000" means no special coding to ensure compatibility with a special switch type. | -ww: DWDM channel chosen from the table at the end |

**Channel Allocation**

| Code | ITU Number | Frequency (GHz) | Wavelength (nm) | Code | ITU Number | Frequency (GHz) | Wavelength (nm) |
|---|---|---|---|---|---|---|---|
| -17 | C17 | 191700 | 1563.86 | -40 | C40 | 194000 | 1545.32 |
| -18 | C18 | 191800 | 1563.05 | -41 | C41 | 194100 | 1544.53 |
| -19 | C19 | 191900 | 1562.23 | -42 | C42 | 194200 | 1543.73 |
| -20 | C20 | 192000 | 1561.42 | -43 | C43 | 194300 | 1542.94 |
| -21 | C21 | 192100 | 1560.61 | -44 | C44 | 194000 | 1542.14 |
| -22 | C22 | 192200 | 1559.79 | -45 | C45 | 194500 | 1541.35 |
| -23 | C23 | 192300 | 1558.98 | -46 | C46 | 194600 | 1540.56 |
| -24 | C24 | 192400 | 1558.17 | -47 | C47 | 194700 | 1539.77 |
| -25 | C25 | 192500 | 1557.36 | -48 | C48 | 194800 | 1538.98 |
| -26 | C26 | 192600 | 1556.55 | -49 | C49 | 194900 | 1538.19 |
| -27 | C27 | 192700 | 1555.75 | -50 | C50 | 195000 | 1537.40 |
| -28 | C28 | 192800 | 1554.94 | -51 | C51 | 195100 | 1536.61 |
| -29 | C29 | 192900 | 1554.13 | -52 | C52 | 195200 | 1535.82 |
| -30 | C30 | 193000 | 1553.33 | -53 | C53 | 195300 | 1535.04 |
| -31 | C31 | 193100 | 1552.52 | -54 | C54 | 195400 | 1534.25 |
| -32 | C32 | 193200 | 1551.72 | -55 | C55 | 195500 | 1533.47 |
| -33 | C33 | 193300 | 1550.92 | -56 | C56 | 195600 | 1532.68 |
| -34 | C34 | 193400 | 1550.12 | -57 | C57 | 195700 | 1531.90 |
| -35 | C35 | 193500 | 1549.32 | -58 | C58 | 195800 | 1531.12 |
| -36 | C36 | 193600 | 1548.51 | -59 | C59 | 195900 | 1530.33 |
| -37 | C37 | 193700 | 1547.72 | -60 | C60 | 196000 | 1529.55 |
| -38 | C38 | 193800 | 1546.92 | -61 | C61 | 196100 | 1528.77 |
| -39 | C39 | 193900 | 1546.12 | | | | |

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