**AP10-MM85xxM SFP+ 10Gb/s Active Optical Cable**

**Features**

* Up to 300m on OM3 MMF
* Interface compliant to SFF-8431
* Operating case temperature 0°C to 70°C
* Low power consumption <0.35W per end
* Power supply 3.3 V
* RoHS 6 compliant

**Applications**

* 10 Gigabit Ethernet
* 4G/8G Fiber Channel
* InfiniBand QDR. DDR, SDR
* Servers, switches, storage host card adapters and datacenter

**Description**

Photonics Valley’s AP10-MM85xxM is active optical cable assemblies with SFP+ connectors. Enjoys low power consumption. It is suitable for short distance and offer a cost-effective way to connect within racks and across adjacent racks. Its length is up to 300 meters on OM3 MMF

**Ordering information**

|  |  |
| --- | --- |
| AP10-MM8501M | SFP+ Active Optical Cable 1 meter |
| AP10-MM8502M | SFP+ Active Optical Cable 2 meter |
| AP10-MM8503M | SFP+ Active Optical Cable 3 meter |
| AP10-MM8505M | SFP+ Active Optical Cable 5 meter |
| AP10-MM8510M | SFP+ Active Optical Cable 10 meter |
| AP10-MM8520M | SFP+ Active Optical Cable 20 meter |
| AP10-MM8530M | SFP+ Active Optical Cable 30 meter |

**Absolute Maximum Ratings**

The operation in excess of any absolute maximum ratings might cause permanent damage to this module.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter** | **Symbol** | **Min** | **Max** | **Unit** | **Note** |
| Storage Temperature | Ts | -20 | 85 | ℃ |  |
| Relative Humidity(non-condensing) | Rh | 0 | 85 | % |  |
| Operating Case Temperature | Ta | 0 | 70 | ℃ |  |
| Supply Voltage | VCC | -0.3 | 3.6 | V |  |
| Input Voltage | Vin | -0.3 | Vcc+0.3 | V |  |

**Recommended Operating Conditions**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter** | **Symbol** | **Min** | **Typical** | **Max** | **Unit** |
| Operating Case Temperature | Tc | 0 |  | 70 | ℃ |
| Power Supply Voltage | Vcc | 3.13 | 3.3 | 3.47 | V |
| Power Consumption (per end) |  | -0.3 |  | 0.35 | W |
| Bit Rate | BR |  | 10.3125 |  | Gbps |
| Rate Tolerance |  | -100 |  | +100 | ppm |

**Electrical Specifications**

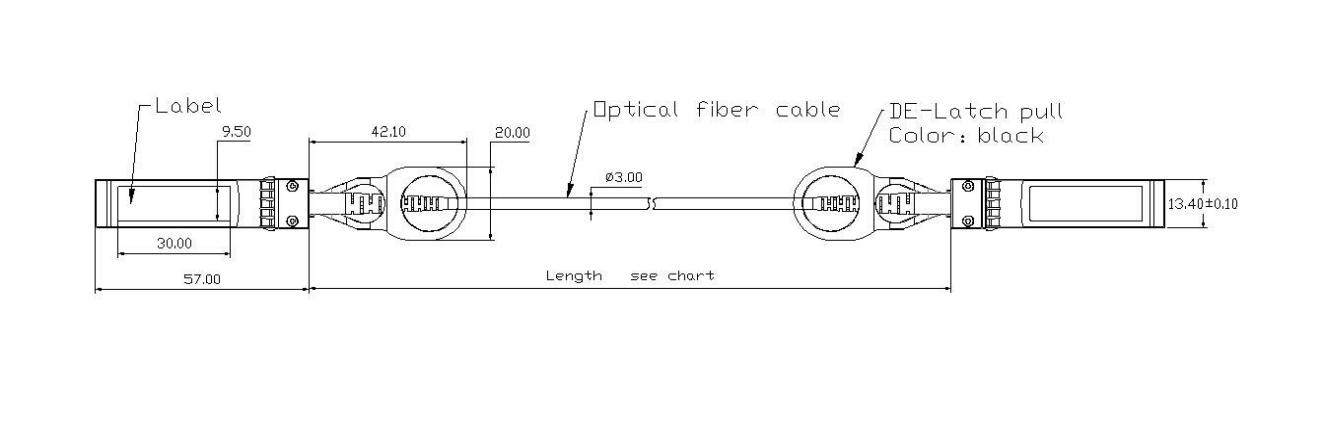
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter** | **Symbol** | **Min** | **Typical** | **Max** | **Unit** |
| Differential input  impedance | Zin | 90 | 100 | 110 | ohm |
| Differential Output  impedance | Zout | 90 | 100 | 110 | ohm |
| Differential input  voltage amplitude | ΔVin | 100 |  | 1800 | mVp-p |
| Differential output  voltage amplitude | ΔVout | 400 |  | 800 | mVp-p |
| Bit Error Rate | BR |  |  | E-12 | |
| Input Logic Level High | VIH | 2.0 |  | VCC | V |
| Input Logic Level Low | VIL | 0 |  | 0.8 | V |

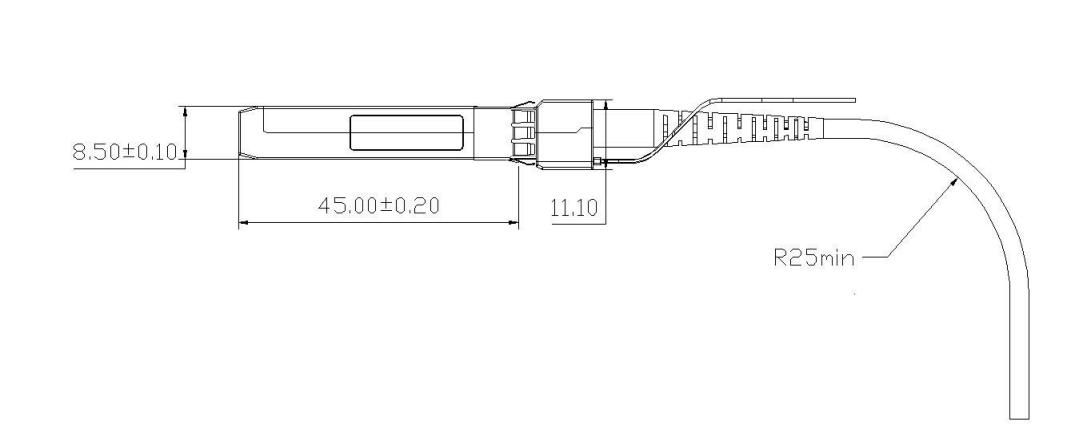
**Optical Characteristics**

All parameters are specified under the recommended operating conditions with PRBS31 data pattern unless otherwise specified.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter** | **Symbol** | **Min** | **Typical** | **Max** | **Unit** |
| **Transmitter** | | | | | |
| Center Wavelength | λC | 840 | 850 | 860 | nm |
| Average optical Power | PAVE | -6 |  |  | dBm |
| Rise/Fall Time | Tr/Tf |  |  | 50 | ps |
| Extinction Ratio | ER | 3.5 |  |  | dB |
| Relative Intensity Noise | Rin |  |  | -128 | dB/Hz |
| Optical Return Loss  Tolerance | TOL |  |  | 12 | dB |
| Transmitter Reflectance | RT |  |  | -12 | dB |
| **Receiver** | | | | | |
| Center Wavelength | λC | 840 | 850 | 860 | nm |
| Overload, each lane | Povl | -1 |  |  | dBm |
| Receiver Sensitivity  in OMA | Rsen |  |  | -11 | dBm |

**Mechanical Dimensions**





**Regulatory Compliance**

|  |  |  |
| --- | --- | --- |
| **Feature** | **Reference** | **Performance** |
| Electrostatic discharge（ESD） | MIL-STD-883 | Compatible with standards |
| Electromagnetic Interference (EMI) | FCC Part 15 Class B EN 55022 Class B (CISPR 22A) | Compatible with standards |
| Laser Eye Safety | FDA 21CFR 1040.10, 1040.11 IEC/EN 60825-1, 2 | Class 1 laser product |
| ROHS | 2002/95/EC | Compatible with standards |
| EMC | EN61000-3 | Compatible with standards |

**Appendix A. Document Revision**

|  |  |  |
| --- | --- | --- |
| **Version No.** | **Date** | **Description** |
| 1.0 | 2019-3-1 | Preliminary datasheet |