10GBASE-SR XFP Modul MM LC 300m Datenreichweite (850nm)Cisco kompatibel




## GBIC-, SFP-, XFP-, XENPAK-Transceiver

Die neuen optischen Transceiver von tde, darunter GBIC-, SFP-, XFP- und XENPAK-Transceiver zeichnen sich durch hohe Qualität, höchste Ausfallsicherheit und eine sehr einfache Installation aus – und das zu einem äußerst attraktiven Preis-Leistungsverhältnis. Internet Video, HDTV, Voice over IP und die ständig wachsenden Volumina von Unternehmensdaten erfordern eine schnellere Datenübertragung und größere Bandbreiten. Optische Transceiver kombinieren Sender und Empfänger in einer optischen Komponente.

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# Technische Daten

**Features**

- Vollständig konform zu XFP MSA Rev.4.5
- Unterstützung von IEEE 802.3ae 10GBASE-SR bei 10.3125Gbit/s
- Fügsamkeit zum Faser-Kanal
  1200-M5-SN-I, 1200-M5E-SN-I,
  1200-M6-SN-I bei 10.51875Gbit/s
- Übertragungsentfernung bis
  300m mit OM3 MMF
  82m mit OM2 MMF
  33m mit OM1 MMF
- Schwachstromverbrauch 1.5W (typ.)
- Breiter Betriebstemperaturbereich: Industrie: -40°C bis +85°C
- Laser Klasse 1M konform
- Vertikaler aussendender Kavitäts Oberflächen Laser bei 850nm (VCSEL)
- LC Duplex Stecker
- XFI loopback Unterstützung
- Lead free und RoHS konform
- Exzelllente EMI Performance
- Hohe Zuverlässigkeit

**Normen und Standards**

| Feature | Standard | Performance |
|---|---|---|
| Electrostatic Discharge (ESD) to the Electrical Pins | MIL-STD-883G Method 3015.7 | Class 1C (>1000 V) |
| Electrostatic Discharge to the enclosure | EN 55024:1998+A1+A2 IEC-61000-4-2 GR-1089-CORE | Compatible with standards |
| Electromagnetic Interference (EMI) | FCC Part 15 Class B EN55022:2006 CISPR 22B :2006 VCCI Class B | Compatible with standards Noise frequency range: 30 MHz to 6 GHz. Good system EMI design practice required to achieve Class B margins. System margins are dependent on customer host board and chassis design. |
| Immunity | EN 55024:1998+A1+A2 IEC 61000-4-3 | Compatible with standards. 1kHz sine-wave, 80% AM, from 80 MHz to 1 GHz. No effect on transmitter/receiver performance is detectable between these limits. |
| Laser Eye Safety | FDA 21CFR 1040.10 and 1040.11 EN (IEC) 60825-1:2007 EN (IEC) 60825-2:2004+A1 | CDRH compliant and Class I laser product. TüV Certificate No. 50135086 |
| Component Recognition | UL and CUL EN60950-1:2006 | UL file E317337 TüV Certificate No. 50135086 (CB scheme ) |

**Absolute Grenzwerte**

| Rating | Conditions | Symbol | Min. | Max. | Unit |
|---|---|---|---|---|---|


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| | | | | | |
|---|---|---|---|---|---|
| Storage Ambient Temperature Range | | | -40 | +85 | °C |
| Powered case Temperature Range | XFP-10G-SR | TA | -40 | +85 | °C |
| Operating Relative Humidity | | RH | 8 | 80 | % |
| Supply Voltage Range at 5.0V | | Vcc5 | 0.5 | 6.0 | V |
| Supply Voltage Range at 3.3V | | Vcc3 | 0.5 | 3.6 | V |
| Open Drain VCC level | | VOD | | 4.0 | V |
| Static Discharge Voltage on XFI High | HBM human body model per JEDEC JESD22-A114-B | | | 500 | V |
| Static Discharge Voltage excluding XFI High Speed Pins | HBM human body model | | | 2,000 | V |
| Static Discharge Voltage on XFP Module | EN61000-4-2 Criterion B: Air Discharge Direct Contact discharge | | | 15,000<br>8,000 | V<br>V |

### Empfohlene Betriebsbedingungen

| Parameter | Conditions | Symbol | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| Operating Case Temperature Range | XFP-10G-SR-AS | TA | -40 | | +85 | °C |
| Transceiver total Power Consumption | | PTOT | | 1.5 | 2.3 | W |
| Power Supply Voltage at 5.0V | | Vcc5 | 4.75 | 5.00 | 5.25 | V |
| Power Supply Voltage at 3.3V | | Vcc3 | 3.135 | 3.300 | 3.465 | V |
| Supply Current | at Vcc5 | Ivcc5 | | 50 | 100 | mA |
| Supply Current | at Vcc3 | Ivcc3 | | 325 | 500 | mA |

### High Speed Line Eigenschaften

| Parameter | Conditions | Symbol | Min. | Max. | Units |
|---|---|---|---|---|---|
| Baud Rate nominal | | | 9.95 | 10.71 | Gbd |
| Baud Rate Tolerance | | | -100 | +100 | ppm |

### High Speed Line Ausgangs-DC Eigenschaften

| Parameter | Conditions | Symbol | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| Single Ended Output Impedance | | ZSE | 40 | 50 | 60 | Ω |
| Differential Output Impedance | | ZOD | 80 | 100 | 120 | Ω |


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# 10GBASE-SR XFP Modul MM LC 300m Datenreichweite (850nm)Cisco kompatibel

### High Speed Line Ausgangs-AC Eigenschaften

| Parameter | Conditions | Symbol | Min. | Max. | Units |
|---|---|---|---|---|---|
| Differential Output Amplitude | | VSOPP | 340 | 850 | mV |
| Output Common Mode | | VCM | 0 | 3.6 | V |
| Transition Time Low to High | | tr | 24 | | ps |
| Transition Time Low to Low | | tf | 24 | | ps |
| Differential Output Return Loss | 0.05—0.1GHz<br>0.1—5.5GHz<br>5.5—12GHz | | 20<br>8<br>See 1) | | dB<br>dB<br>dB |
| Common Mode Output Return Loss 2 ) | | SCC 22 | 3 | | dB |
| Total Peak-to-peak Jitter | | Dj | | 0.34 | UI |
| Output AC Common Mode Voltage | | | | 15 | mV (RMS) |

1) SDD22(dB)=8-20.66 log10(f15.5) with fin GHz

2) Common mode reference impedance is 25Ω.

Common mode return loss helps absorb reflection and noise improving EMI.

### High Speed Line Eingangs-DC Eigenschaften

| Parameter | Conditions | Symbol | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| Differential Output Impedance | | RIND | 80 | 100 | 120 | Ω |
| Input AC Common Mode Input Voltage | | | 0 | | 25 | mV (RMS) |
| Source to Sink DC Potential Difference | | VCM | 0 | | 3.6 | V |

### High Speed Line Eingangs-AC Eigenschaften

| Parameter | Conditions | Symbol | Min. | Max. | Units |
|---|---|---|---|---|---|
| Differential input Voltage Swing | | VID | 120<br>See 2) | | mV |
| Differential Return Loss | 0.05—0.1GHz<br>0.1—5.5GHz<br>5.5—12GHz | SDD11 | 20<br>8<br>See 1) | | dB |
| Common Mode Return Loss | 0.1—15GHz | SCC11 | 3 | | dB |
| Total Jitter | | Tj | | TBD | UI |

1) SDD11(dB)=8-20.66 log10(f15.5) with f in GHz

2) Beneath this level the signal can't meet the specification Optical Characteristics


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### Optischer Transmitter

| Parameter | Conditions | Symbol | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| Nominal Wavelength | | TRP | 840 | 850 | 860 | nm |
| Spectral Width | | λ | | 0.4 | 0.45 | nm |
| Operating Range | 62.5/125µm MMF<br>50/125µm MMF<br>62.5/125µm MMF<br>50/125µm MMF<br>50/125µm MMF | 160<br>400<br>200<br>500<br>2000 | IOP | 2<br>2<br>2<br>2<br>2 | | 26<br>66<br>33<br>82<br>300 |
| Nominal Signalling Speed | | | fOPT | | | 10.71 |
| Launch Power | in OMA | PoptOMA | -4.3 | | | dBm |
| Average Launch Power | | Poptavg | -7.3 | -2.6 | -1 | dBm |
| Extinction Ratio | | ER | 3.5 | 5.5 | | dB |
| Relative Intensity Noise | | RIN | | | -128 | dB/Hz |

### Optischer Receiver

| Parameter | Conditions | Symbol | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| Center Wavelength | | C | 840 | 850 | 860 | nm |
| Receiver Sensitivity | in OMA, BER 10-12 at 31_1 | PIN | | -13.5 | -11.1 | dBm |
| Stressed Receiver Sensitivity | in OMA | IN | | | -7.5 | dBm |
| Saturation Input Power | | SAT | | | 1 | dBm |

## Artikelvarianten & Zubehör

| Art.-Nr. | Beschreibung |
|---|---|
| TDE-XFP-10G-SR | 10GBASE-SR XFP Modul MM LC 300m Datenreichweite (850nm)Cisco kompatibel |

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