

10G SFP+ Active Optical Cables

Small Form Factor Pluggable (SFP) transceiver is SFP+ module for duplex optical data communications such as 10GBASE-SR and 10GBASE-SW. It is with the SFP+ 20-pin connector to allow hot plug capability. This module is designed for multi-mode fibre and operates at a nominal wavelength of 850nm.

The transmitter section uses a Vertical Cavity Surface Emitted Laser (VCSEL) and is a Class 1 laser compliant according to International Safety Standard IEC 60825. The receiver section uses an integrated GaAs detector preamplifier (IDP) mounted in an optical header and a limiting post-amplifier IC.



Features & Benefits

- Up to 11.1Gbps Data Links
- 850nm VCSEL transmitter and GaAs PIN PD receiver
- Hot-pluggable
- Compliant with IEEE 802.3ae 10GBASE-SR/SW
- Operating temperature range:
 - Commercial: 0°C to +70°C
 - Industrial: -40°C to +85°C
- RoHS compliant
- VCSEL laser and PIN receiver
- Single 3.3V power Supply

Application

- Inter Rack Connection
- High-speed servers, switches and storages
- 10GBASE-SW at 9.953Gbps/10GBASE-SR at 10.3125Gbps
- High-performance computing clusters
- SAN, Routers, Hubs

Product Specifications

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Storage temperature	Ts	-40	-	85	°C
Relative humidity	RH	5	-	95	%
Power supply voltage	Vcc	-0.3	-	4	V
Signal input voltage	Vin	Vcc-0.3	-	Vcc+0.3	V

Product Specifications

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Case operating temperature	Ts	0	-	70	°C	OFSF10GD3C-F85
Storage temperature	-	-40	-	+85	°C	-
Power supply voltage	Vcc	3.14	3.3	3.47	V	-
Power supply current	Icc	-	-	300	mA	-
Data rate	BR	-	10.3125	-	Gbps	TX Rate/RX Rate
Transmission distance	TD	-	-	300	m	OM3

Optical Characteristics

Transmitter Characteristics

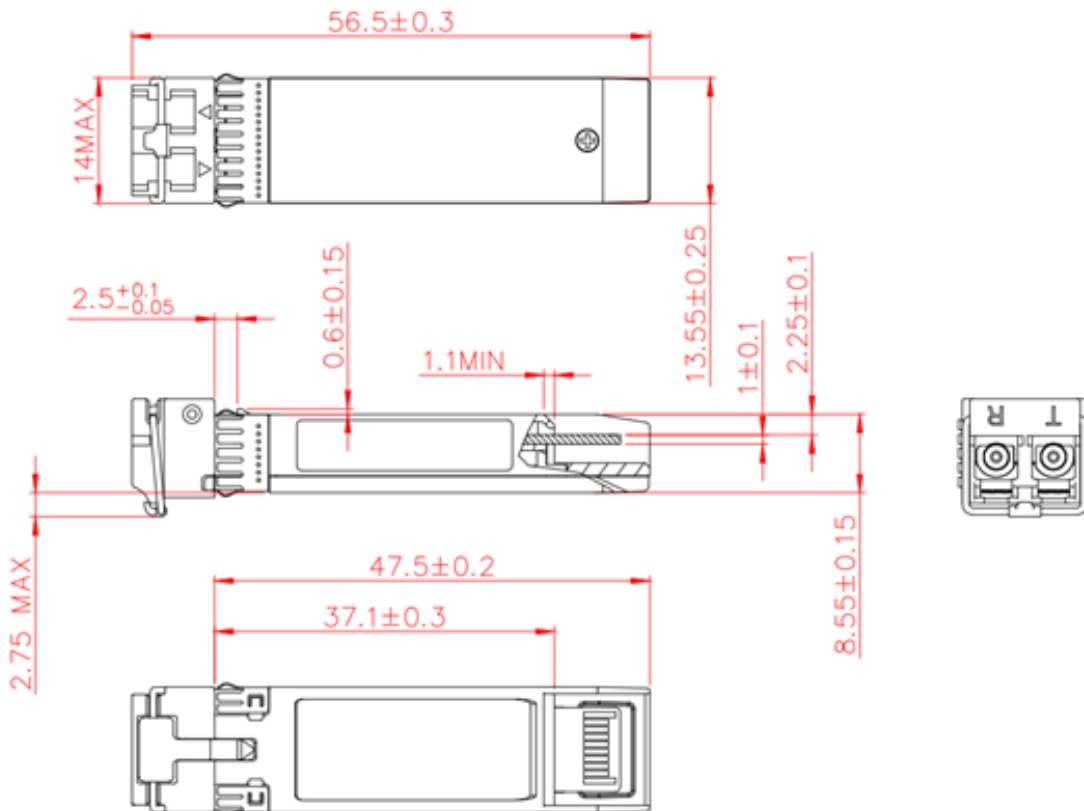
Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Centre wavelength	λ_c	840	-	860	nm	-
RMS spectral width	Pm	-	-	0.45	nm	-
Average optical power	Pavg	-8.2	-	-1	dBm	-
Average launch power of OFF transmitter	Poff	-	-	-30	dBm	-
Extinction ratio	ER	4	-	-	dB	-
Transmitter dispersion penalty	TDP	-	-	3.9	dB	-
Output optical eye	-	IEEE 802.3-2005 Compliant				
Optical return loss tolerance	-	-	-	12	dB	-

Receiver Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Centre wavelength	λ_c	840	850	860	nm	-
Damage threshold	-	3.4	-	0.45	dBm	-
Receive power overload	-	-1	-	-	dBm	-
Receiver sensitivity	-	-	-	-9.9	dB	-
LOS assert	LOSA	-25	-	-	dBm	-
LOS de-assert	LOS _D	-	-	-11.5	dBm	-
LOS hysteresis	LOSH	0.5	-	-	dB	-

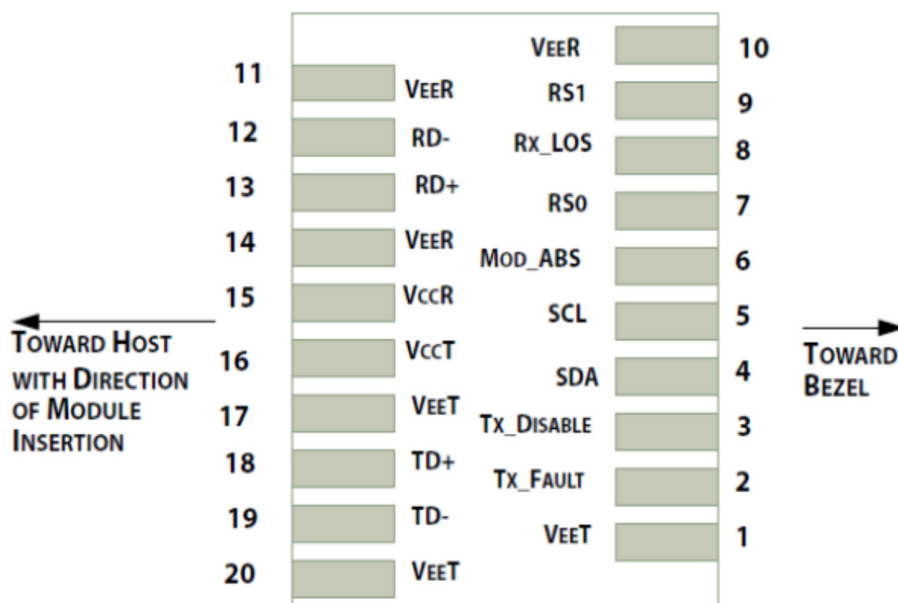
Mechanical Drawing

Fig 1: Package Outline



Pin Assignment

Fig 2: Electrical Pin-Out Details



Pin Definition Receiver Specifications

Pin	Logic	Symbol	Name/Description
1	-	VeeT	Module Transmitter Ground
2	CML-I	TX_Fault	Module Transmitter Fault
3	CML-I	TX_Dis	Transmitter Disable; Turn off transmitter laser output
4	-	SDA	2-wire Serial Interface Data Line
5	CML-I	SCL	2-Wire Serial Interface Clock
6	CML-I	MOD_DEF0	Module Definition, Grounded in the module
7	-	RSO	Receiver Rate Select
8	LVTTTL-I	RS_LOS	Receiver Rate Select
9	LVTTTL-I	RS1	Transmitter Rate Select (not used)
10	-	VeeR	Module Receiver Ground
11	LVCOMS-I/O	VeeR	Module Receiver Ground
12	VCOMS-I/O	RD-	Receiver Inverted Data Output
13	-	RD+	Receiver Data Output
14	CML-0	VeeR	Module Receiver Ground
15	CML-0	VccR	Module Receiver 3.3V Supply
16	-	VccT	Module Receiver 3.3V Supply
17	CML-0	Veet	Module Transmitter Ground
18	CML-0	TD+	Transmitter Non-Inverted Data Input
19	-	TD-	Transmitter Inverted Data Input
20	-	VeeT	Module Transmitter Ground