

HSI-70191-xx

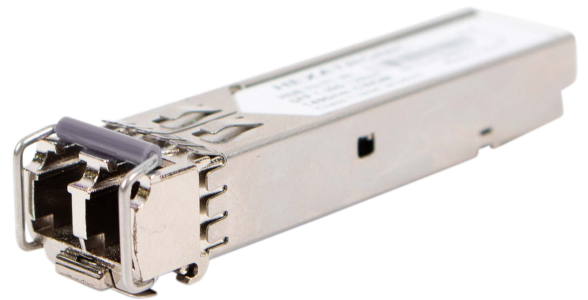
1.25Gbps 160km CWDM SFP Transceiver

Product Description

Our HSI-70191 series are small form factor pluggable (SFP) transceivers compatible with multi-sourcing agreement (MSA). It is designed for single-mode fiber (SMF) communications in 1.25Gbps 1000Base-CWDM and 1G/2G Fiber Channel CWDM systems

Features

- Up to 1.25Gbps data links
- Power Budget 36dB in SMF
- DFB laser
- APD receiver
- Hot-pluggable
- Single 3.3V power supply
- Digital Diagnostic Monitor (DDM)



Applications

- 1.25Gbps CWDM links
- 1G/2G Fiber Channel

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Supply Voltage	V _{CC}	-0.5	3.6	V
Storage Temperature	T _s	-40	85	°C
Operating Case Temperature	T _c	0	70	°C

Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit
Power Supply Voltage	V _{CC}	3.15	3.3	3.45	V
Power Supply Current	I _{CC}			300	mA
Data Rate			1.25		GBps
Power Budget /Max Link Length		36dB / 160km			

Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
Transmitter					
Centre Wavelength	λ_c	(XX-6.5)	(XX)	(XX+6.5)	nm
Spectral Width (RMS)	σ			1	nm
Average Output Power	P _{out}	0		5	dBm
Extinction Ratio	EX	9			dB
Optical Rise/Fall Time	tr/tf			2	ns
Receiver					
Centre Wavelength	λ_c	(XX-6.5)	(XX)	(XX+6.5)	nm
Receiver Sensitivity	P _{IN}			-36	dBm
Receiver Overload	P _{MAX}	-7			dBm
LOS De-Assert	LOS _D			-39	dBm
LOS Assert	LOS _A	-41			dBm
LOS Hysteresis		0.5		4.5	dB

Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
Transmitter					
Input Differential Impedance	Zin	90	100	110	Ω
Data Input Swing Differential	Vin	500		3600	mV
Tx-Dis Disable	Vd	2.0		Vcc	V
Tx-Dis Enable	Ven	0		0.8	V
TX-Fault (Fault)		2.0		Vcc+0.3	V
TX-Fault (Normal)		0		0.8	V
Receiver					
Data Output Swing Differential	Vout	370		2000	mV
Rx-Los Fault	Vlf	2.0		Vcc+0.3	V
Rx-Los Normal	Vln	0		0+0.8	V

Product selector

Part No.	Wavelength	Latch color	Part No.	Wavelength	Latch color
HSI-	1270nm	Light Violet	HSI-	1290nm	Light Blue
HSI-	1310nm	Light Green	HSI-	1330nm	Yellow Ocher
HSI-	1350nm	Pink	HSI-	1410nm	Silver
HSI-	1430nm	Black	HSI-	1450nm	Light Orange
HSI-70194-xx	1470nm	Gray	HSI-70191-xx	1490nm	Violet
HSI-	1510nm	Blue	HSI-	1530nm	Green
HSC-	1550nm	Yellow	HSC-	1570nm	Orange
HSC-70195-xx	1590nm	Red	HSC-70196-xx	1610nm	Brown

DDM THRESHOLD

	Low Alarm	Low Warn	High Warn	High Alarm
Temp	-10°C	-5°C	85°C	90°C
Voltage	3V	3.1V	3.5V	3.6V
Tx Bias	15mA	20mA	80mA	85mA
Tx Power	-2dBm	-1dBm	6dBm	7dBm
Rx Power	-37dBm	-35dBm	-8dBm	-7dBm

For safety and reliability reasons, please read the following information carefully.

Light Budget is one of the key items for designing fiber optic network. In order to create a product that will meet application requirements. To adequately characterize the budget loss, the following key parameters are generally considered:

- Transmitter: Output power, temperature and aging
- Fiber connections: Active connection and splices
- Fiber Cable: fiber attenuation and temperature effect
- Receiver: Detector sensitivity
- Others: Safety margin and repairs

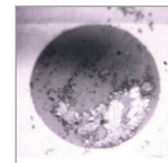
When one of the above-listed variables fails to meet specifications, the performance of the network can be greatly affected or worse, the degradation can lead to network failure. Unfortunately, not all the variables can be controlled with ease during the deployment of the network or the maintenance stage; however, there exists one component—the connector—that is too-often overlooked, sometimes overused (test jumpers) but that can be controlled using the proper procedure.



This is a Class 1 Laser Product according to IEC 60825-1:2014 compatible with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).



This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 / JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.



The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination. In a study by NTT-Advanced Technology, 98% of installers and 80% of network owners reported that issues with connector contamination were the greatest cause of network failures.

EU declaration of conformity

The CE marking is mandatory for this category of products. It is the manufacturer's declaration that the product meets the requirements of the applicable EU directives required to allow free movement and sale of the product throughout the European Economic Area.

Equipment Specific part number extension

-51	Cisco	-59	Alcatel (Nokia)
-52	Ericsson	-60	Combo code
-53	Huawei	-61	H3C (HP)
-54	Juniper	-62	Brocade
-55	Generic (MSA)	-63	AristaNetworks
-56	HP	-64	Adva
-57	Extreme	-65	Microsens
-58	3COM (HP)	-66	DELL
		-67	Intel