

155Mbps DFB SFP Optical Transceiver, Up to 120km Reach

Ordering information

Part Number	Product Description
TS-OC3-120	1550nm DFB,155Mbps, 120km, 0°C ~ +70°C,With Digital Diagnostic Monitoring
TS-OC3-80	1550nm DFB,155Mbps, 80km, -40°C ~ +85°C,With Digital Diagnostic Monitoring
TS-OC3-40	1550nm DFB,155Mbps, 40km, -40°C ~ +85°C,With Digital Diagnostic Monitoring

Features

- * Data-rate of 155Mbps operation
- * DFB 1550nm wavelengths laser and PIN photodetector for 120km transmission
- * Compliant with SFP MSA and SFF-8472 with duplex LC receptacle
- * Digital Diagnostic Monitoring:
Internal Calibration or External Calibration
- * Compatible with RoHS
- * +3.3V single power supply
- * Operating case temperature: Standard : 0 to +70°C
Industrial : -40 to +85°C



Applications

- * Gigabit Ethernet
- * Fiber Channel
- * Switch to Switch interface
- * Switched backplane applications
- * Router/Server interface
- * Other optical transmission systems

Description

The SFP transceivers are high performance, cost effective modules supporting data-rate of 155Mbps and 120km transmission distance with SMF.

The transceiver consists of three sections: a uncooled DFB laser transmitter, a PIN photodiode integrated with a trans-impedance preamplifier (TIA) and MCU control unit. All modules satisfy class I laser safety requirements.

The transceivers are compatible with SFP Multi-Source Agreement (MSA) and SFF-8472. For further information, please refer to SFP MSA.

Absolute Maximum Ratings

Table 1 - Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	-0.5	4.5	V
Storage Temperature	Ts	-40	+85	°C
Operating Humidity	-	5	95	%

Table 2 - Optical and Electrical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Centre Wavelength	λ_c	1520	1550	1580	nm	
Spectral Width (-20dB)	$\Delta\lambda$			1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Output Power	P _{out}	0		5	dBm	1
Extinction Ratio	ER	10			dB	
Jitter Generation (RMS)				0.01	UI	
Jitter Generation (PK-PK)				0.1	UI	
Output Optical Eye	Compliant Telcordia GR-253-CORE and ITU-T G.957					
Optical Rise/Fall Time (20%~80%)	tr/ff			0.26	ns	
Data Input Swing Differential	V _{IN}	300		1860	mV	2
Input Differential Impedance	Z _{IN}	90	100	110	Ω	
TX Disable	Disable	2.0		V _{cc}	V	
	Enable	0		0.8	V	
TX Fault	Fault	2.0		V _{cc}	V	
	Normal	0		0.8	V	
Receiver						
Centre Wavelength	λ_c	1260		1580	nm	
Receiver Sensitivity				-34	dBm	3
Receiver Overload		-9			dBm	3
LOS De-Assert	LOS _D			-38	dBm	
LOS Assert	LOS _A	-45			dBm	
LOS Hysteresis		1		4	dB	
Data Output Swing Differential	V _{out}	370		1800	mV	4
LOS	High	2.0		V _{cc}	V	
	Low	0		0.8	V	

Notes:

1. The optical power is launched into SMF.
2. PECL input, internally AC-coupled and terminated.
3. Measured with a PRBS 2²³-1 test pattern @155Mbps, BER $\leq 1 \times 10^{-12}$.
4. Internally AC-coupled.

Timing and Electrical

Table 3 - Timing and Electrical

Parameter	Symbol	Min	Typical	Max	Unit
Tx Disable Negate Time	t _{on}			1	ms
Tx Disable Assert Time	t _{off}			10	μ s

Time To Initialize, including Reset of Tx Fault	t_init			300	ms
Tx Fault Assert Time	t_fault			100	μs
Tx Disable To Reset	t_reset	10			μs
LOS Assert Time	t_loss_on			100	μs
LOS De-assert Time	t_loss_off			100	μs
Serial ID Clock Rate	f_serial_clock			400	KHz
MOD_DEF (0:2)-High	V _H	2		V _{cc}	V
MOD_DEF (0:2)-Low	V _L			0.8	V