

Fibre Products- Short Form Pluggables

SFP 815S-140D



Gigabit –Multi Mode 140km – 1550 nm



Features

- RoHS Compliant
- Compatible with IEEE802.3z Gigabit Ethernet Standard
- Fibre Channel 100-SM-LL-L
- SFF 8472 Diagnostic Monitoring Interface
- Duplex LC Connector
- Hot Pluggable
- Class 1 Laser product complies with EN 60825-1
- NB 140km at 1550nm assumes 0.25dB / KM loss

Recommended Operating Conditions

Parameter	Symbol	Min	Max	Units	Note
Operating Temperatures		0	+70	C	
Supply Voltage	V _{cc}	3.1	3.5	V	
Supply Current	I _{TX} + I _{RX}	----	300	Ma	

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Units	Notes
Storage Temperature	T _s	-40	+85	C	
Supply Voltage	V _{cc}	-0.5	4.0	V	
Input Voltage	V _{IN}	-0.5	V _{cc}	V	
Rx Optical Input damage power	P		-5	dBm	Average

Transmitter Electro-Optical Characteristics

Parameter	Symbol	Min	Type	Max	Unit	Note
Output Optical Power 9/125 μ m fibre	P _{out}	+2	---	+6	dBm	Average
Extinction Ration	ER	9	---	---	dB	
Centre Wavelength	l _c	1520	1550	1580	nm	
Spectral Width (-20db)	$\Delta\lambda$	---	---	1.0	nm	
Side Mode Suppression Ratio	SMSR	30	---	---	dB	
Rise / Fall Time (20-80%)	T _{rf}	---	---	260	ps	
Total jitter	TJ	---	---	227	ps	
Output eye			Compliant with IEEE802.3z			
Max Pout TX-DISABLE Asserted	P _{OFF}	---	---	-45	dBm	
Differential Input Voltage	V _{DIFF}	0.4	---	2.0	V	

Receiver Electro-Optical Characteristics

Parameter	Symbol	Min	Type	Max	Unit	Note
Optical Input Power-Maximum	P _{IN}	-8	---	---	dBm	BER<10 ⁻¹²
Optical Input Power-Minimum Sensitivity)	P _{IN}	---	---	-34	dBm	BER<10 ⁻¹²
Operating Centre Wavelength	l _c	1500	---	1600	nm	
LOS-Deasserted	P _A	---	---	-34	dBm	
LOS-Asserted	P _D	-45	---	---	dBm	
Differential Output Voltage	D _{DIFF}	0.5	---	1.2	V	
Data Output Rise, fall Time (20-80%)	T _{rf}	---	---	0.35	ns	
Receiver Loss of Signal Output Voltage-Low	RX_LOS _L	0	---	0.5	V	
Receiver Loss of Signal Output Voltage-High	RX_LOS _H	2.4	---	V _{cc}	V	

Ordering Information

Feature	Part Number	Fibre	Range	Wave	Temperature
SFP-Gigabit-140km-1550	815S-140	SM	140km	1550	-40°C to + 85°C

FACT SHEET

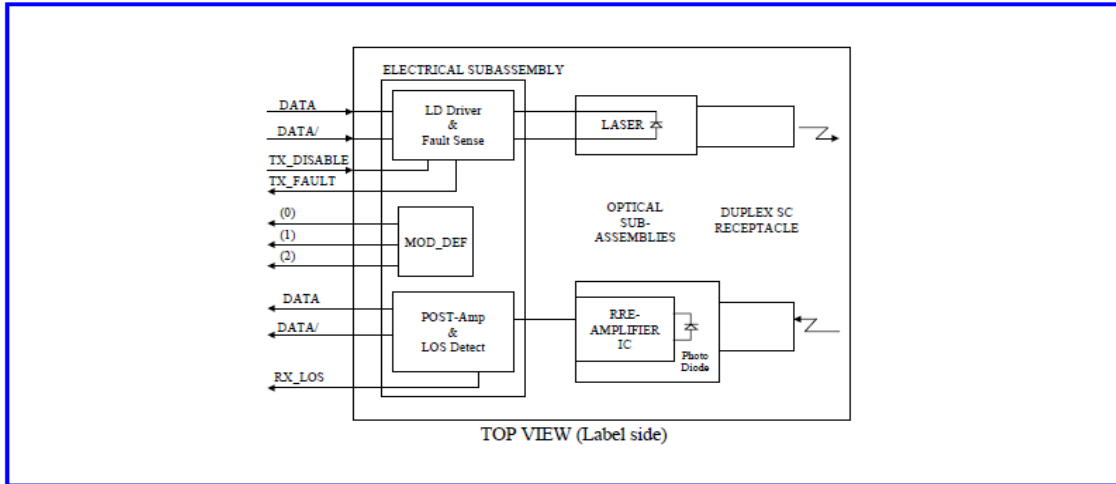
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Diagnostics				
Parameter	Range	Accuracy	Unit	Calibration
Temperature	-10 to 80	± 3	$^{\circ}\text{C}$	External
Voltage	3.1 to 3.5	± 0.1	V	
Bias Current	0 to 90	$\pm 10\%$	mA	
TX-30 to - 8 Power	+2 to +6	$\pm 3\text{dB}$	dBm	
RX Power	-30 to -8	$\pm 3\text{dB}$	dBm	

Block Diagram of Transceiver



Transmitter Section

The transmitter section consists of a 1550 nm InGaAsP laser in an eye safe optical subassembly (OSA) which mates to the fiber cable. The laser OSA is driven by a LD driver IC which converts differential input LVPECL logic signals into an analog laser driving current.

TX_DISABLE

The TX_DISABLE signal is high (TTL logic "1") to turn off the laser output. The laser will turn on when TX_DISABLE is low (TTL logic "0").

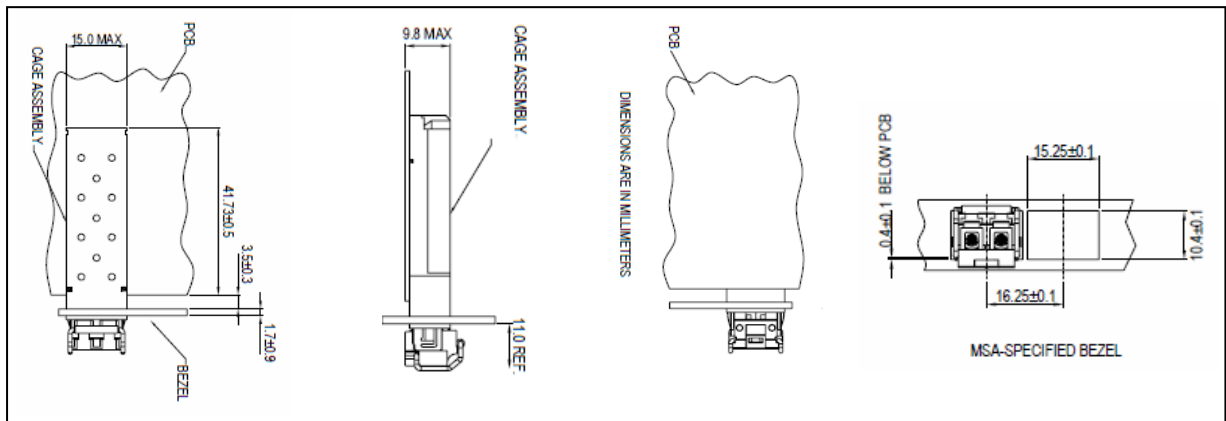
Receiver Section

The receiver utilizes an APD Photodiode mounted together with a trans-impedance pre-amplified IC in an OSA. This OSA is connected to a circuit providing post-amplification quantisation and optical signal detection

Receive Loss (RX_LOS)

The RX_LOS is high (logic "1") when there is no incoming light from the companion transceiver. This signal is normally used by the system for the diagnostic purpose. The signal is operated in LVTTTL level.

Assembly Details



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Pin	Signal Name	Description
1	T _{GND}	Transmit Ground
2	TX_FAULT	Transmit Fault
3	TX_DISABLE	Transmit Disable
4	MOD_DEF(2)	SDA Serial Data Signal
5	MOD_DEF (1)	SCL Serial Clock Signal
6	MOD_DEF (0)	TTL Low
7	RATE_SELECT	Open Circuit
8	RX_LOS	Receiver Loss of Signal, TTL High, open collector
9	R _{GND}	Receiver Ground
10	R _{GND}	Receiver Ground
11	R _{GND}	Receiver Ground
12	RX-	Receive Data Bar, Differential PECL, ac coupled
13	RX+	Receive Data, Differential PECL, ac coupled
14	R _{GND}	Receiver Ground
15	V _{CCR}	Receiver Power Supply
16	V _{CCT}	Transmitter Power Supply
17	T _{GND}	Transmitter Ground
18	TX+	Transmit Data, Differential PCEL, ac coupled
19	TX-	Transmit Data Bar, Differential PCEL, ac coupled
20	T _{GND}	Transmit Ground

Pin out

