

B-1X/1X-1250C-F(DFB)-SSCx



Features

- Single Mode Single Fiber 2x5 SFF SC Receptacle connector
- Gigabit Ethernet Compliant
- Single +3.3V Power Supply
- Tx 1310nm/Rx 1550 nm [B-13/15-1250C-F(DFB)-SSCx]
- Tx 1550nm/Rx 1310 nm [B-15/13-1250C-F(DFB)-SSCx]
- LVPECL Differential Inputs and Outputs
- LVTTTL Signal Detection Output
- Class 1 Laser Int. Safety Standard IEC-825 Compliant
- EMI Shielding Finger Optional
- RoHS compliance available

Absolute Maximum Rating

Parameter	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	V_{cc}	0	3.6	V	
Input Voltage	-	0	V_{cc}	V	
Output Current	I_{out}	-	30	mA	
Soldering Temperature	-	-	260	°C	10 seconds on leads only
Storage Temperature	T_{stg}	-40	85	°C	

Recommended Operating Condition

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power Supply Voltage	V_{cc}	3.1	3.3	3.5	V
Operating Temperature (-SSCx(S))	T_{opr}	-5	-	70	°C
Operating Temperature (-SSCxA(S))	T_{opr}	-40	-	85	°C
Data Rate	-	-	1250	-	Mbps

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Transmitter Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical						
Optical Transmit Power	P_o	-9	-	-3	dBm	B-1X/1X-1250C-F(DFB)-SSC
Optical Transmit Power	P_o	-5	-	0	dBm	B-1X/1X-1250C-FDFB-SSC2
Optical Transmit Power	P_o	-3	-	+2	dBm	B-1X/1X-1250C-FDFB-SSC3
Optical Transmit Power	P_o	0	-	+5	dBm	B-1X/1X-1250C-FDFB-SSC4
Output center Wavelength	λ	1260	1310	1360	nm	B-13/15-1250C-F(DFB)-SSCX
Output center Wavelength	λ	1480	1550	1580	nm	B-15/13-1250C-F(DFB)-SSCX
Output Spectrum Width	$\Delta\lambda_{rms}$	-	-	4	nm	RMS(σ), B-1X/1X-1250C-F-SSC
Output Spectrum Width	$\Delta\lambda$	-	-	1	nm	-20dB width, B-1X/1X-1250C-FDFB-SSCX
Side Mode Supression Ratio	SMSR	30	-	-	dB	B-1X/1X-1250C-FDFB-SSCX
Extinction Ratio	ER	9	-	-	dB	
Output Eye		Compliant with IEEE 802.3z				
Optical Rise Time	t_r	-	-	260	ps	20% to 80% Values
Optical Fall Time	t_f	-	-	260	ps	20% to 80% Values
Optical Isolation		30	-	-	dB	
Relative Intensity Noise	RIN	-	-	-116	dB/Hz	
Total Jitter	TJ	-	-	270	ns	Measured with 27-1 PRBS

Transmitter Specifications

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Electrical						
Supply Current	I_{CC}	-	-	150	mA	Maximum current is specified at V_{CC} = Maximum @ maximum temperature
Transmit Enable Voltage	V_{EN}	0	-	0.8	V	
Transmit Disable Voltage	V_{DIS}	2	-	V_{CC}	V	
Data Input Current-Low	I_{IL}	-350	-	-	μ A	
Data Input Current-High	I_{IH}	-	-	350	μ A	
Differential Input Voltage	$V_{IH}-V_{IL}$	300	-	-	mV	
Data Input Voltage-Low	$V_{IL}-V_{CC}$	-2.0	-	-1.58	V	These inputs are compatible with 10K, 10KH and 100K ECL and PECL inputs
Data Input Voltage-High	$V_{IH}-V_{CC}$	-1.1	-	-0.74	V	

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Receiver Specifications

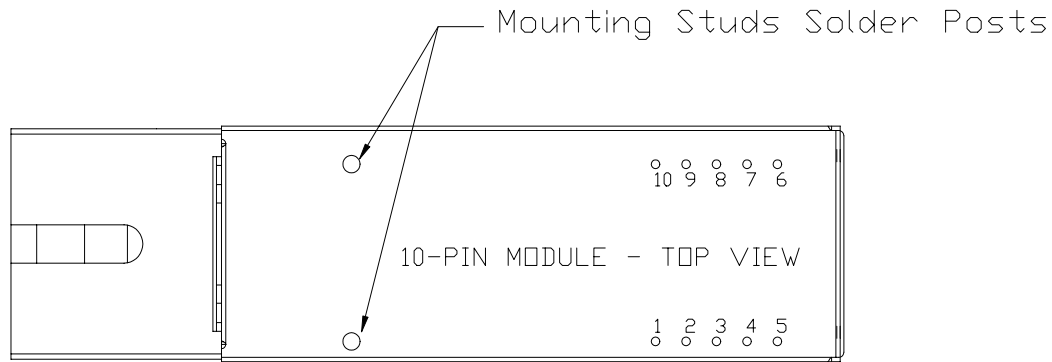
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical						
Sensitivity	-	-	-	-22	dBm	Measured with 27-1 PRBS, BER= 10 ⁻¹²
Maximum Input Power	P _{in}	-3	-	-	dBm	
Signal Detect-Asserted	Pa	-	-	-22	dBm	Measured on transition: low to high (Note 1)
Signal Detect-Deasserted	Pd	-38	-	-	dBm	Measured on transition: high to low (Note 1)
Signal Detect-Hysteresis	-	1	-	4	dB	
Cross Talk	-	-	-	-33	dB	
Wavelength of Operation	-	1480	-	1600	nm	B-13/15-1250C-F(DFB)-SSCX
Wavelength of Operation	-	1260	-	1360	nm	B-15/13-1250C-F(DFB)-SSCX

Note 1: The SD level should be deasserted when fiber disconnected

Receiver Specifications

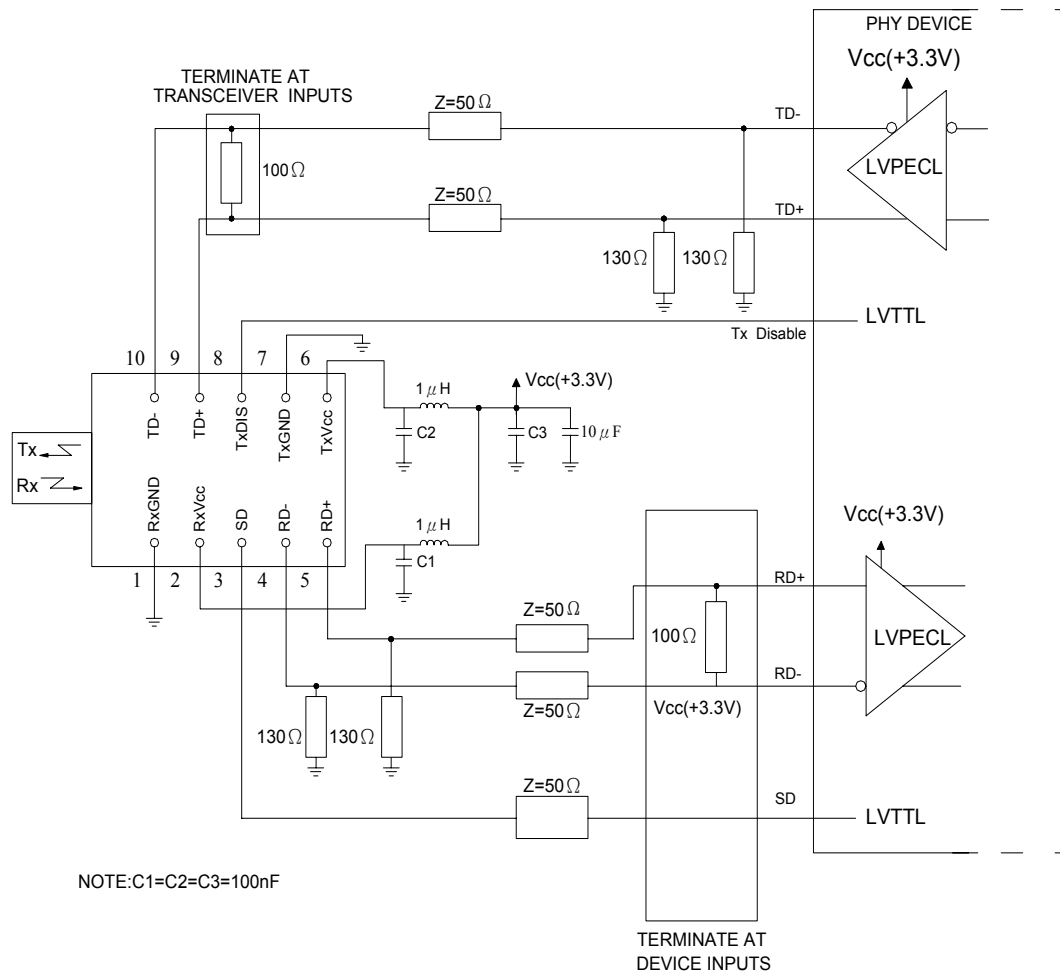
Parameter	Symbol	Min	Typical	Max	Unit	Note
Electrical						
Supply Current	I _{CC}	-	-	100	mA	The current excludes the output load current
Data Output Voltage-Low	V _{OL} -V _{CC}	-2.0	-	-1.58	V	These outputs are compatible with 10K, 10KH and 100KECL and PECL outputs
Data Output Voltage-High	V _{OH} -V _{CC}	-1.1	-	-0.74	V	
Signal Detect Output Voltage-Low	V _{SDL}	0	-	0.5	V	LVTTTL SD Output
Signal Detect Output Voltage-High	V _{SDH}	2.0	-	V _{CC}	V	

Connection Diagram



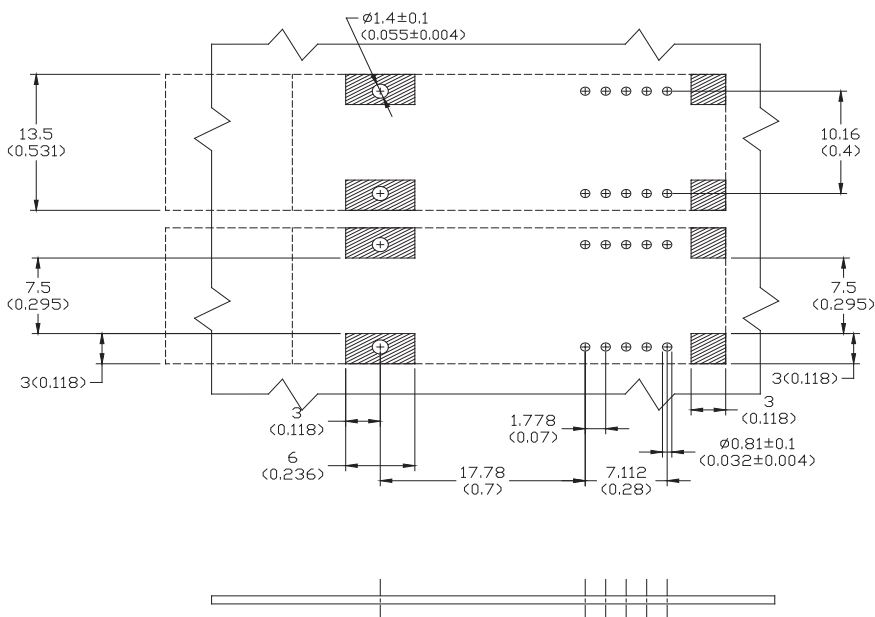
PIN	Symbol	Notes
1	RxGND	Directly connect this pin to the receiver ground plane
2	RxVcc	+3.3V dc power for the receiver section
3	SD	Active high on this indicates a received optical signal(LVTTL)
4	RD-	Receiver Data Out Bar(LVPECL)
5	RD+	Receiver Data Out (LVPECL)
6	TxVcc	+3.3V dc power for the transmitter section
7	TxGND	Directly connect this pin to the transmitter ground plane
8	TxDIS	Transmitter disable(LVTTL)
9	TD+	Transmitter Data In (LVPECL)
10	TD-	Transmitter Data In Bar (LVPECL)

Recommended Circuit Schematic



The split-loaded terminations for ECL signals need to be located at the input of devices receiving those ECL signals. The power supply filtering is required for good EMI performance. Use short tracks from the inductor L1/L2 to the module Rx Vcc. A GND plane under the module is required for good EMI and sensitivity performance.

Recommended Circuit Board Layout



DIMENSION IN MILLIMETER (INCHES)

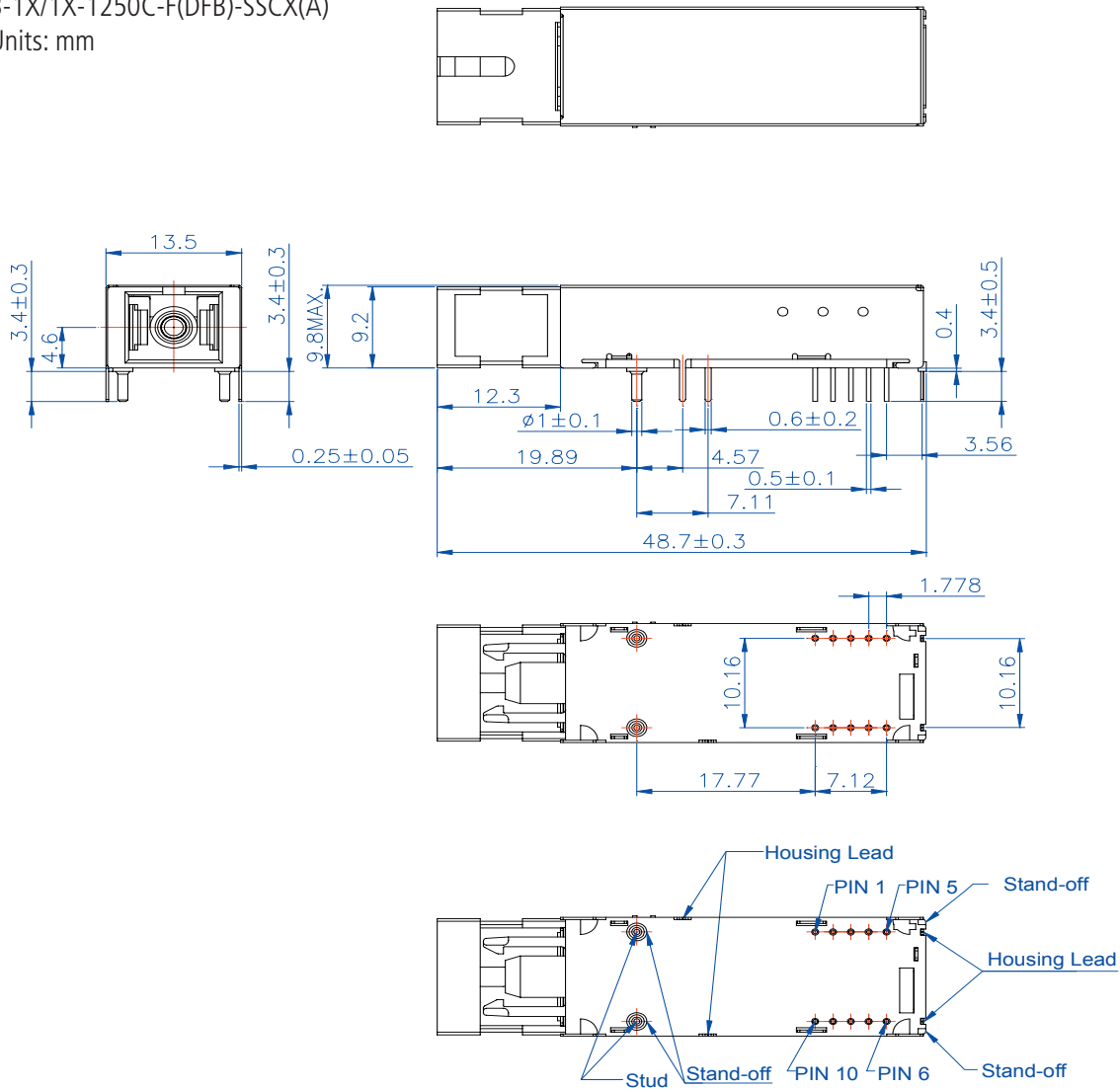
NOTES:

1. THIS FIGURE DESCRIBE THE RECOMMAND CIRCUIT BOARD LAYOUT FOR THE SFF TRANSCEIVER.
2. THE HATCHED AREAS ARE KEEP-OUT AREAS RESERVED FOR HOUSING STANDOFF. NO METAL TRACES OR GROUND CONNECTION IN KEEP-OUT AREAS.
3. THE MOUNTING STUDS SHOULD BE SOLDERED TO CHASSIS GROUND FOR MECHANICAL INTEGRITY.

Package Diagram

B-1X/1X-1250C-F(DFB)-SSCX(A)

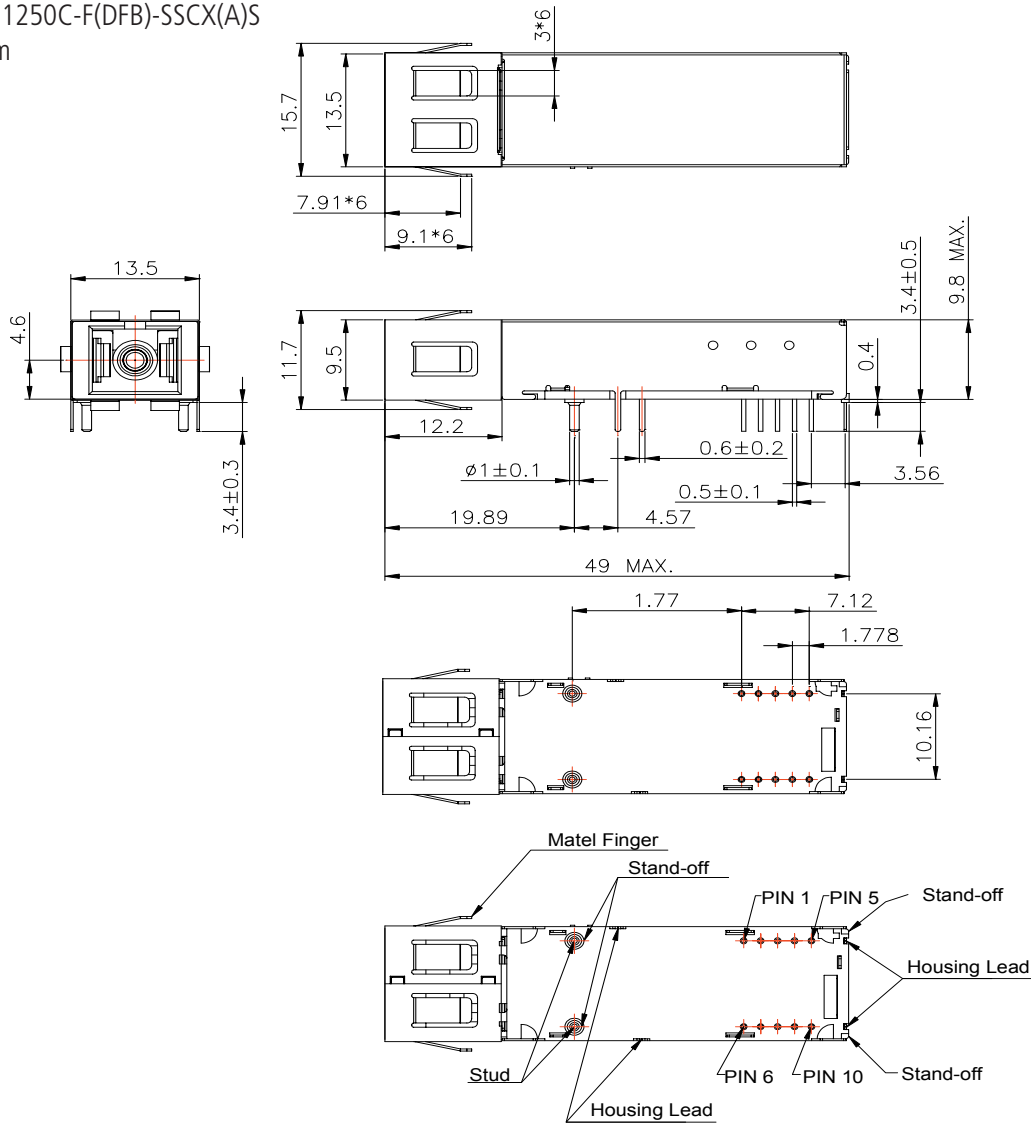
Units: mm



Package Diagram

B-1X/1X-1250C-F(DFB)-SSCX(A)S

Units: mm

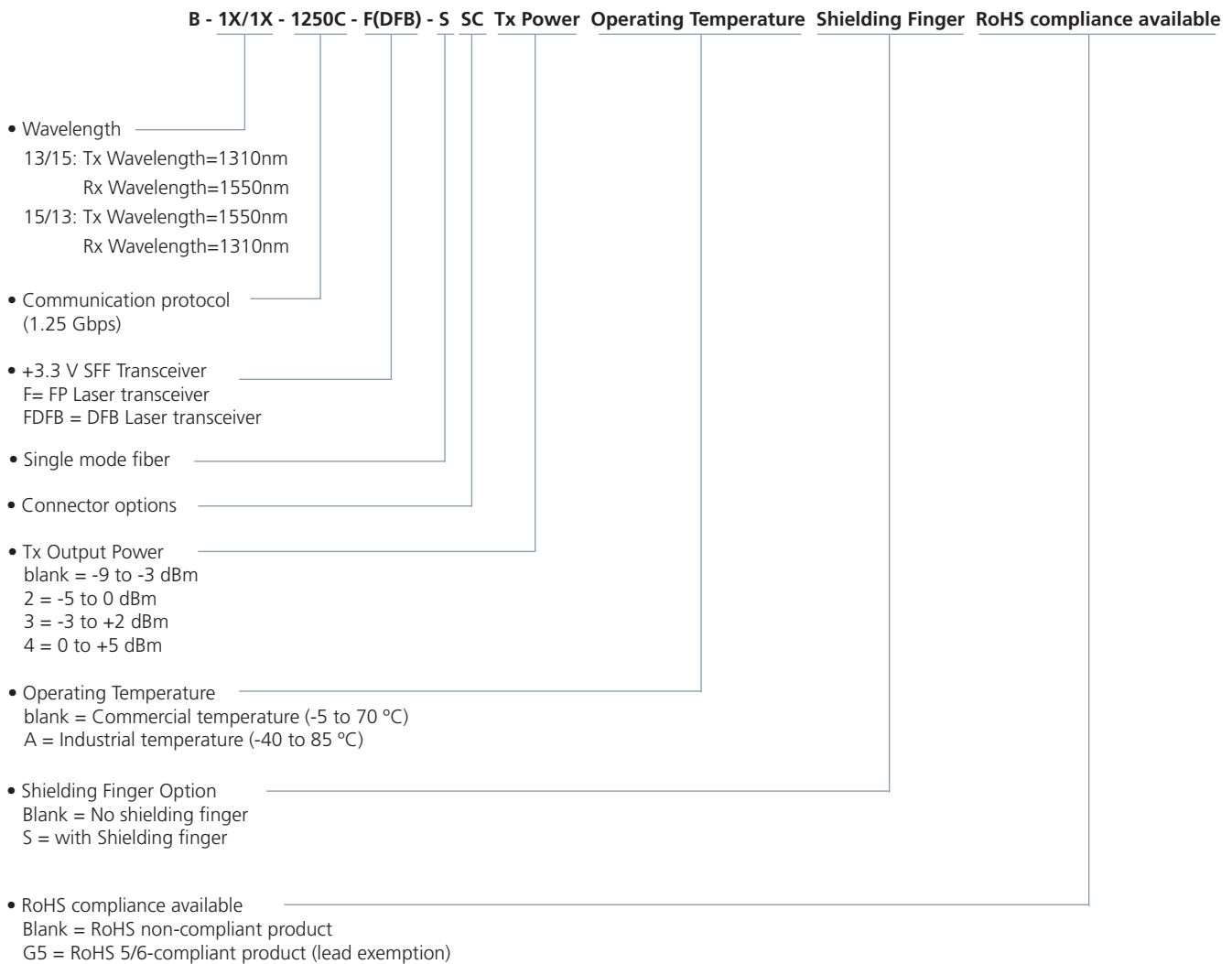


Ordering Information

Available Options:

- | | |
|---------------------------------|---------------------------------|
| B-13/15-1250C-F-SSC(A)(S)(-G5) | B-15/13-1250C-F-SSC(A)(S)(-G5) |
| B-13/15-1250C-FDFB-SSC(S)(-G5) | B-15/13-1250C-FDFB-SSC(S)(-G5) |
| B-13/15-1250C-FDFB-SSC2(S)(-G5) | B-15/13-1250C-FDFB-SSC2(S)(-G5) |
| B-13/15-1250C-FDFB-SSC3(S)(-G5) | B-15/13-1250C-FDFB-SSC3(S)(-G5) |
| B-13/15-1250C-FDFB-SSC4(S)(-G5) | B-15/13-1250C-FDFB-SSC4(S)(-G5) |

Part numbering Definition:



Warnings:

Handling Precautions: This device is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

Laser Safety: Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

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