

SFP Pluggable Transceivers for Ethernet and Fibre Channel



Key Features

- Proven high reliability, <100 FIT
- Low bit error rate (<10⁻¹²)
- Hot-plug surge protection
- 850 nm VCSEL, 1310 Fabry Perot
- Ethernet and/or Fibre Channel data rates
- Tri-speed versions for stocking simplicity
- Metal bail de-latching option
- Extended temperature operation options
- Digital Diagnostic Monitoring (SFF8472)

Applications

- High speed data communications

Compliance

- Class 1 laser safe
- EMI emissions below FCC Class B
- UL, CDRH, and TUV certified
- SFP Transceiver MSA compliant
- IEC 60825, IEC 60950 compliant
- Ethernet 802.3 compliance
- Fibre Channel FC-PI compliance
- CE Mark, CTIK approved
- Telcordia GR-468-CORE stress tested

The JDSU Datacom Small Form Factor Pluggable (SFP) transceiver product families provide high-speed serial links at signaling rates of up to 4.25 Gb/s, which conform either to the Gigabit Ethernet 802.3 or American National Standards Institute's (ANSI) Fibre Channel, FC- PI specification. All Datacom SFP transceivers are Class 1 laser safe and have EMI emissions below residential FCC Class B.

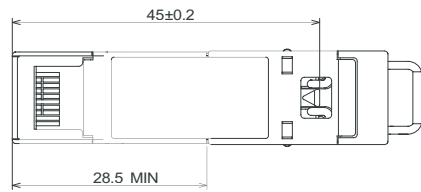
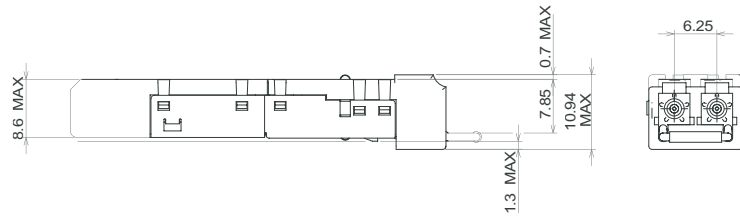
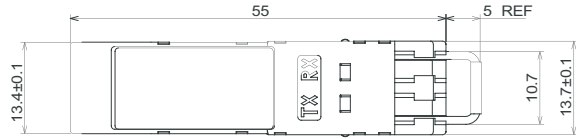
This family of product exceeds MSA compliance with broader supply and laser voltage tolerances, interoperability with legacy devices that use CD lasers, and interoperability with other standards-compliant transceivers at link distances up to 80 km. All 850 nm products use enhanced oxide lasers and transmit optical subassemblies designed for reliability and extra-long-life operations.

The JSH family expands upon the original JSP/JSM family features with extended temperature operation and a bail latch for high density host card packaging. JSH products are respectively product-enhanced with SFF 8472 compliant digital diagnostic monitoring features.

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JSH Product Family

(Specifications in mm unless otherwise noted.)



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850 nm Short Wave Transceivers Specifications

Parameter	JSH-21S3AB3 ¹ JSH-21S3AD3 ^{1,2}	JSH-42S3AB3 ¹ , JSH-42S3AR3 ¹ , JSH-42S4DB3 ¹ , JSH-42S4DR3 ^{1,2} , JSH-42S3AD3 ^{1,2} , JSH-42S3DD3 ^{1,2}
Applications		
Fibre channel	2/1 Gb/s	4/2/1 Gb/s
Ethernet	1 Gb/s (SX)	1 Gb/s (SX) compatible/compliant
Diagnostic monitoring	Yes	Yes
Electrical Interface		
Transmit signal input differential swing	400 to 2000 mV _{P-P}	-
Receive signal input differential swing	-	390 to 1600 mV _{P-P} 600 to 1600 mV _{P-P} ²
Control I/O signals	TTL	TTL
Optical		
Data rate(s)	1.0625, 1.250, 2.125 Gb/s	1.0625, 1.250, 2.125, 4.25 Gb/s
Max. launch power into fiber (average)	-4.0 dBm	-1.5 dBm
Min. launch power into fiber (average)	-9.5 dBm	-9.0 dBm
Receiver optical modulation amplitude (OMA)		
1.0625 Gb/s	31 to 2000 μW	31 to 2000 μW
2.125 Gb/s	449 to 2000 μW	49 to 2000 μW
4.25 Gb/s	-	61 to 2000 μW
Maximum bit error rate at minimum receiver sensitivity		<10 ⁻¹²
Power		
Voltage		3.3 V±10%
Current		200 mA maximum
Environmental		
Operating temperature		
JSH		-15 to 85 °C
JSH-42S4DB3, JSH-42S4DD3, JSH-42S4DR3		-40 to 85 °C
Operating humidity		8 to 80%
Storage temperature		-40 to 90 °C
Mechanical		
Dimension		SFP MSA compliant
Form factor		Small form factor, LC connector
Digital Diagnostics		
Standard		SFF8472
Enhance features		Yes
Laser Safety		
US		DHHS 21 CFR(J) conformant and UL Class-1
International		IEC 60825 -1 with TUV and UL marks, Class-1

Note: GIGAlite extended distances are part of the Berk-Tek product warranty.

1. RoHS 6/6

2. Higher Rx amplitude

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1310 nm Long Wave Transceivers Specifications

Parameter	JSH-21L3AR3 ¹	JSH-42L3AB3-5G ¹ , JSH-42L3AD3-5G ^{1,2} , JSH-42L3AB3-5 ¹ , JSH-42L3AD3-5 ^{1,2} , JSH-42L3AB3-20 ¹ , JSH-42L3AD3-20 ^{1,2}
Laser Wavelength	1310 nm	1310 nm
Applications		
Fibre channel	2/1 Gb/s, 1 Gb/s	4/2/1 Gb/s
Ethernet	1 Gb/s (LX)	1 Gb/s
Diagnostic monitoring	Yes	Yes
Electrical Interface		
Transmit signal input differential swing	400 to 2000 mV _{p-p}	300 to 2400 mV _{p-p}
Receive signal input differential swing	600 to 1000 mV _{p-p}	390 to 1600 mV _{p-p} 600 to 1600 mV _{p-p} ²
Control I/O signals	TTL	
Optical		
Data rate(s)	2.125, 1.250, 1.0625 Gb/s	4.25, 2.125, 1.250, 1.0625 Gb/s
Max. launch power into fiber (average)	-3.0 dBm	-
Min. launch power into fiber (average)	-8.0 dBm	-
Receiver optical modulation amplitude (OMA)	15 to 1000 μW	-
Maximum bit error rate at minimum receiver sensitivity	<10 ⁻¹²	<10 ⁻¹²
Power		
Voltage		3.3 V±10%
Current		225 mA max.
Environmental		
Operating temperature		
JSH (except JSH-xxLxDxx)	-15 to 85 °C	-15 to 85 °C
JSH offering ³ 4G	-	-40 to 85 °C
Operating humidity		8 to 80%
Storage temperature		-40 to 90 °C
Mechanical		
Dimension		SFP MSA compliant
Form factor		Small form factor, LC connector
Digital Diagnostics		
Standard		SFF8472
Enhance features		Yes
Laser Safety		
US		DHHS 21 CFR(J) conformant and UL Class-1
International		IEC 60825 -1 with TUV and UL marks, Class-1

1. RoHS 6/6

2. Higher Rx amplitude

3. Parts will operate to -40 °C ambient to 85 °C case

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850 nm Short Wave Transceivers Link Distances

Maximum Distance	JSH-21S3AB3	JSH-42S3AB3, JSH-42S3AR3, JSH-42S4DB3, JSH-42S4DR3, JSM-42S3AD3, JSM-42S3DD3
50/125 µm optical fiber, 700 MHz standard		
1.0625 Gb/s	500 m	500 m
1.250 Gb/s	550 m	550 m
2.125 Gb/s	300 m	300 m
4.25 Gb/s	-	150 m
Berk-Tek GIGAlite™ 50/125 µm, 700 MHz		
1.0625 Gb/s	720 m	720 m
1.250 Gb/s	750 m	750 m
2.125 Gb/s	390 m	390 m
4.25 Gb/s	-	210 m
Berk-Tek GIGAlite-10 50/125 µm, 2000 MHz		
1.0625 Gb/s	900 m	900 m
1.250 Gb/s	1000 m	1000 m
2.125 Gb/s	500 m	500 m
4.25 Gb/s	-	300 m
62.5/125 µm optical fiber, 200 MHz standard		
1.0625 Gb/s	300 m	300 m
1.250 Gb/s	275 m	275 m
2.125 Gb/s	150 m	150 m
4.25 Gb/s	-	70 m
Berk-Tek GIGAlite 62.5/125 µm, 200 MHz		
1.0625 Gb/s	500 m	500 m
1.250 Gb/s	500 m	500 m
2.125 Gb/s	220 m	220 m
4.25 Gb/s	-	120 m

Note: GIGAlite extended distances are part of the Berk-Tek product warranty.

1310 nm Long Wave Transceivers Link Distances

Maximum Distance	JSH-21L3AR3	JSH-42L3AB3-5G, JSH-42L3AD3-5G, JSH-42L3AB3-5, JSH-42L3AD3-5, JSH-42L3AB3-20, JSH-42L3AD3-20
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Standard Interoperability

9/125 m optical fiber		
1.0625 Gb/s	10000 m	10000 m
1.250 Gb/s	10000 m	10000 m
2.125 Gb/s	10000 m	10000 m
50/125 m optical fiber		
1.0625 Gb/s	n/a	n/a
1.250 Gb/s	550 m	550 m
2.125 Gb/s	n/a	n/a
62.5/125 µm optical fiber		
1.0625 Gb/s	n/a	n/a
1.250 Gb/s	550 m	550 m
2.125 Gb/s	n/a	n/a
JDSU Interoperability		
9/125 m optical fiber		
1.0625 Gb/s	20000 m	20000 m
1.250 Gb/s	20000 m	20000 m

Ordering Information

For more information on this or other products and their availability, please contact your local JDSU account manager or JDSU directly at 1-800-498-JDSU (5378) in North America and +800-5378-JDSU worldwide or via e-mail at customer.service@jdsu.com.



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