

3HE13998AA-PRO

Alcatel-Lucent Nokia® 3HE13998AA Compatible TAA Compliant 200GBase-DWDM Coherent CFP2 Transceiver (SMF, 80km, 0 to 70C, LC)

Features

- CFP MSA 1.0 Compliance
- Duplex LC Connector
- Commercial Temperature 0 to 70 Celsius
- Single-mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free



Applications:

- 200GBase Ethernet
- Access and Enterprise

Product Description

This Alcatel-Lucent Nokia® 3HE13998AA compatible CFP2 transceiver provides 200GBase-DWDM throughput up to 80km over single-mode fiber (SMF) using a wavelength of 1528.77nm to 1568.36nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Alcatel-Lucent Nokia® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. It is built to meet or exceed the specifications of Alcatel-Lucent Nokia®, as well as to comply with MSA (Multi-Source Agreement) standards to ensure seamless network integration. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Proline's transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products.



Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage	Vcc			3.6	V	
Input Voltage		-0.3		Vcc + 0.5	V	
RX Input Power	Prx			17	dBm	1
Operating Relative Humidity	RHop	5		85	%	2
Storage Temperature	Ttrs	-40		+85	°C	
Operating Case Temperature (long term)	Tcase	-5		70	°C	
Operating Case Temperature (short term)	Tcase	-5		75	°C	
Storage / Transportation RH	RHst	5		93	%	

Note:

1. This should be considered an operating fault condition experienced for only short timeframe and should not result in damage; above it could risk damage.
2. Constant humidity ratio of 0.026 kg water/kg dry air not to be exceeded according to GR-63.

Power Supplies

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
+3.3V Supply Voltage	Vcc	3.2	3.3	3.4	V	
+3.3 V Supply current (200G, 16QAM with SD-FEC)	Icc			6.1	A	
+3.3 V Supply current -5°C to 70°C	Icc			TBD	A	
Power dissipation -5°C to 70°C	Pdiss					
QPSK with HDFEC			15.5		W	
QPSK with SDFEC			17.5		W	
8QAM			21.5		W	
16QAM			20.5		W	

Optical Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Baud rate	Per IQ modulator	27.95		43	GBaud	
Mean modulated output power	DP_QPSK	-5		2	dBm	
Mean modulated output power	DP-8QAM	-5		2	dBm	
Mean modulated output power	DP-16QAM	-5		2	dBm	
Shuttered output power				-35	dBm	
Wavelength range		1528.77		1568.36	nm	
Frequency range		191.150		196.100	THz	
Default channel grid spacing	Tunable across C-band		50		GHz	
Fine tune frequency resolution		0.1			GHz	
Wavelength deviation	± 20 pm	-1.5		+1.5	GHz	
On-grid tuning range	Unshuttered tuning	-6		+6	GHz	
Lorentzian linewidth	Tx and LO		300		kHz	
OSNR	Inband	35			dB	
OSNR	Outband	45			dB	
Optical transmitter turn on time 1	Warm start			1	s	
Optical transmitter turn on time 1	Cold start			60	s	
Optical transmitter turn off time	From TX_DIS activated			10	ms	
Transmitter channel tuning				60	s	
Optical return loss	Towards the module	27			dB	
Receiver						
Frequency range		191.150		196.100	THz	
Average optical input power		-20		+13	dBm	
Receiver dynamic range		-20		0	dBm	
VOA range	On input signal	10			dB	
VOA step size				0.4	dB	
VOA response time				100	ms	
Signal input monitor accuracy		-2.5		+2.5	dB	
Optical return loss				27	dB	
Required OSNR DP-QPSK (10-15 post FEC error rate)	SDFEC		11.4		dB/0.1 nm	
Required OSNR DP-8QAM (10-15 post FEC error rate)	SDFEC		18.1		dB/0.1nm	
Required OSNR DP-16QAM (10-15 post FEC error rate)	SDFEC		19.8		dB/0.1nm	
Chromatic dispersion tolerance	QPSK 8QAM 16QAM			40 20 16	ns/nm	

DGD tolerance	QPSK 8QAM 16QAM			90 45 45	ps ps ps	
SOPMD tolerance	QPSK 8QAM 16QAM		2500 2500 1000		ps^2 ps^2 ps^2	
Acquisition time				30	ms	

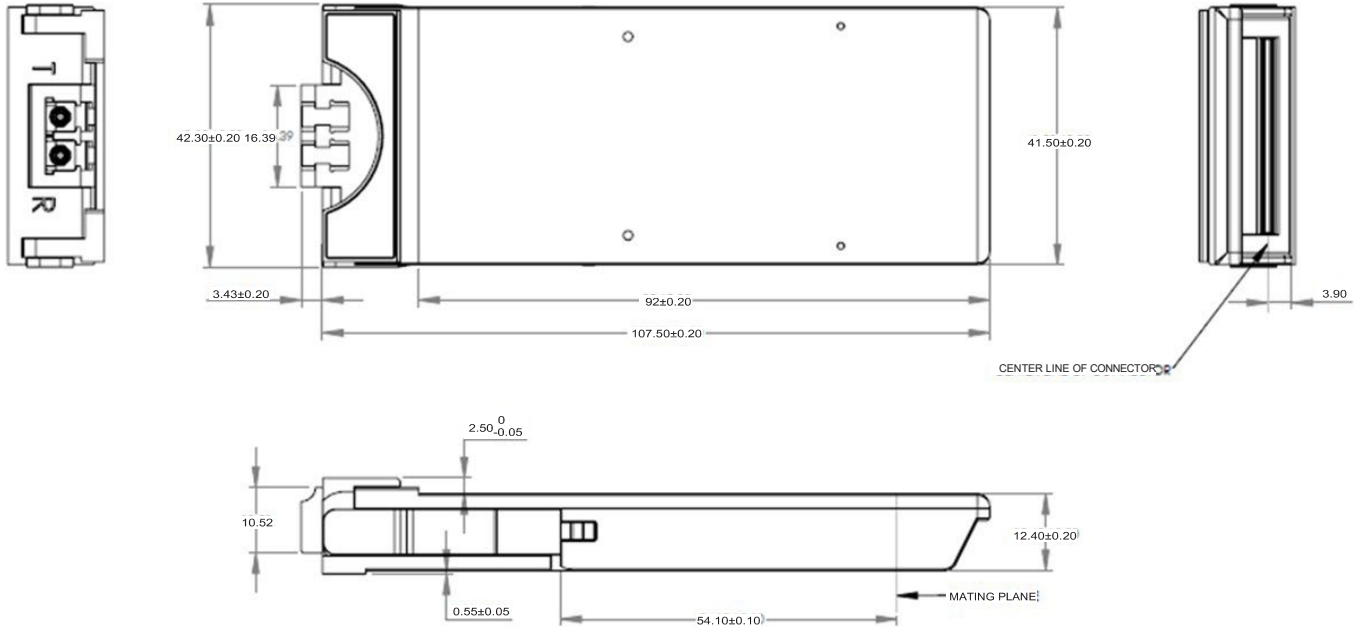
Notes:

1. Absolute tuning speed dependent on required power/wavelength mask requirements

Pin Descriptions

Bottom Row		Top Row		Bottom Row		Top Row	
Pin	Name	Pin	Name	Pin	Name	Pin	Name
1	GND	104	GND	27	MOD_ABS	78	(REFCLKp)
2	TX_OHIO _n	103	TX1_0 _n	28	MOD_RST _n	77	GND
3	TX_OHIO _p	102	TX1_0 _p	29	GLB_ALRM _n	76	RX1_0 _n
4	GND	101	GND	30	GND	75	RX1_0 _p
5	RX_OHIO _n	100	TX0_3 _n	31	MDC	74	GND
6	RX_OHIO _p	99	TX0_3 _p	32	MDIO	73	RX0_3 _n
7	3.3V_GND	98	GND	33	PRTADR0	72	RX0_3 _p
8	3.3V_GND	97	TX0_2 _n	34	PRTADR1	71	GND
9	3.3V	96	TX0_2 _p	35	PRTADR2	70	RX0_2 _n
10	3.3V	95	GND	36	SWDIO	69	RX0_2 _p
11	3.3V	94	TX1_1 _n	37	BER threshold alarm	68	GND
12	3.3V	93	TX1_1 _p	38	DSP_UARTT0_TX	67	RX1_1 _n
13	3.3V_GND	92	GND	39	3.3V_GND	66	RX1_1 _p
14	3.3V_GND	91	TX1_2 _n	40	3.3V_GND	65	GND
15	HOST_INT	90	TX1_2 _p	41	3.3V	64	RX1_2 _n
16	SWCLK	89	GND	42	3.3V	63	RX1_2 _p
17	PRG_CNTL1	88	TX0_1 _n	43	3.3V	62	GND
18	PRG_CNTL2	87	TX0_1 _p	44	3.3V	61	RX0_1 _n
19	PRG_CNTL3	86	GND	45	3.3V_GND	60	RX0_1 _p
20	PRG_ALARM1	85	TX0_0 _n	46	3.3V_GND	59	GND
21	PRG_ALARM2	84	TX0_0 _p	47	OHIO_REFCLK _n	58	RX0_0 _n
22	PRG_ALARM3	83	GND	48	OHIO_REFCLK _p	57	RX0_0 _p
23	GND	82	TX1_3 _n	49	GND	56	GND
24	TX_DIS	81	TX1_3 _p	50	MUX_UART_RX	55	RX1_3 _n
25	RX_LOS	80	GND	51	MUX_UART_TX	54	RX1_3 _p
26	MOD_LOPWR	79	(REFCLK _n)	52	GND	53	GND

Mechanical Specifications



About Us:

Proline Options is one of North America's leading providers of transceivers and high speed cabling. With a reputation for quality, tested products that cover the connectivity spectrum, Proline Options has a solution for you regardless of the specification.

At Proline Options, every product is tested in its intended application - never batch or spec tested only. We run bandwidth, distance and IOS network tests. We have documented an impressive 0.03% failure rate over the last 10 years. To continue this rate of success we invest millions annually in our own on-site testing lab.



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