

Ether-PON OLT Transceiver Specifications

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Part Number : OAT1232-OLT-V2-A/B

Modification History

Rev.	Date	Originator	Comment
Rev Draft0.2	Nov.27, 2001	H. Okada	Table 1.2 PN modification
Rev Draft0.3	Dec.28, 2001	T.Tanaka	Addition of Figure1.1, Table2.1 Figure4.1 and 4.2

1.Specifications

Table 1.1 Specifications

Parameter	Unit	Specifications
Bit rate	Gbit/s	1.250
Transmission mode	—	Tx: continuous, Rx: burst
Transfer code	—	NRZ
Bi-directional transmission	—	1-fibre WDM
Transmission distance	km	10
Laser diode	—	1.55μm DFB-LD
photo detector	—	PIN-PD
Operating temperature range	°C	0 ~ 70
Operating humidity	%	5 ~ 95
Fiber/Connector type	—	Single mode fiber (10/125nm) / PC polished SC connector
Power supply voltage	V	+5.0 ± 5%
Power consumption	W	1.5 (Typ.) , 1.8W (Max)
Dimension	mm	40 x 60 x 85

Table 1.2 Optical Characteristics (over operating temperature and lifetime)

Parameter	Unit	Specifications	
Part number		OAT1232-OLT-V2-A	OAT1232-OLT-V2-B
Operating wavelength	nm	Tx:1480 - 1580 / Rx:1260 -1360	
Mask of the transmitter eye diagram		Figure1.1	
Maximum reflectance of equipment, measured at transmitter wavelength	dB	-	
Mean launched power range	dBm	-4.0 ~ +1.0	+1.0 ~ +6.0
Minimum extinction ratio	dB	10	
Tolerance to the transmitter incident light power	dB	more than -15	
Launched optical power w/o input to the transmitter	dBm	-	
Maximum spectral width	nm	1.0 (@-20dB)	
Side mode suppression ratio (@DFB-LD)	dB	More than 30	
Jitter transfer	dB	-	
Jitter generation in 1.3kHz bandwidth	UIpp	-	
Maximum reflectance of equipment, measured at receiver wavelength	dB	less than -20	
Bit error ratio	-	less than 10^{-10}	
Minimum sensitivity	dBm	SOL -25.5 EOL -25.0	
Minimum overload	dBm	SOL -4.5 EOL -5.0	
Consecutive identical digit immunity	bit	more than 72	
Jitter tolerance	-	-	
Tolerance to the reflected optical power	dB	less than 10	

Table 1.3 Absolute maximum ratings

Parameter	Symbol	Conditions	Ratings	Unit
Power supply voltage	Vcc	Ta = 25°C	0 to +7.0	V
Input voltage	Vi		0 to Vcc	V
Maximum output current	Io		30	mA
Storage temperature	Tstg		-40 to +85	°C
Soldering temperature/time		Ta = 25°C	250/10	°C/sec
Maximum tension of fiber			500	g
Minimum bending radius			30	mm

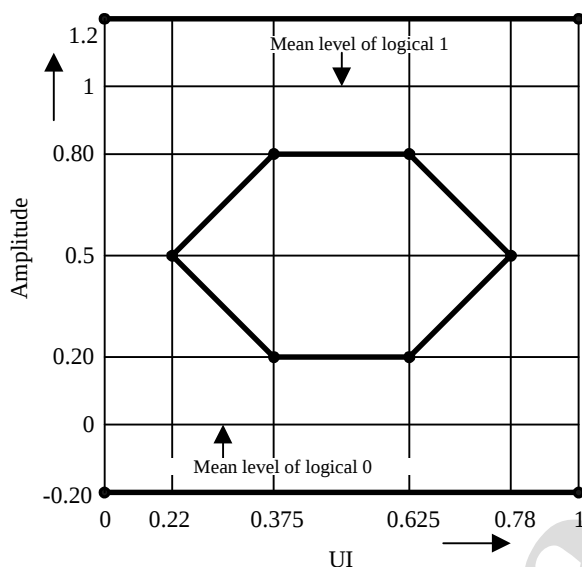


Figure1.1 Eye mask pattern for OAT1232-OLT-V2

Table1.4 DC characteristic

Parameter	Unit	OAT1232-OLT-V2-A/B		
		MIN	TYP	MAX
PECL input high voltage	V	VCC-1.17	-	VCC-0.88
PECL input low voltage		VCC-1.81	-	VCC-1.47
PECL output high voltage		VCC-1.02	-	VCC-0.88
PECL output low voltage		VCC-1.81	-	VCC-1.62
LVTTL input high voltage		2.0	-	VCC+0.3
LVTTL input low voltage		-0.3	-	0.8
LVTTL output high voltage		2.4	-	Vcc
LVTTL output low voltage		GND	-	0.4
Clock input duty	%	40	50	60
Data output rise/fall time (20 - 80 %)	ns			2.5
Clock/Data input setup & hold time	-	Figure4.1		
Reset input timing	-	Figure4.2		
Required preamble pattern	-	10101010		

2. Block diagram

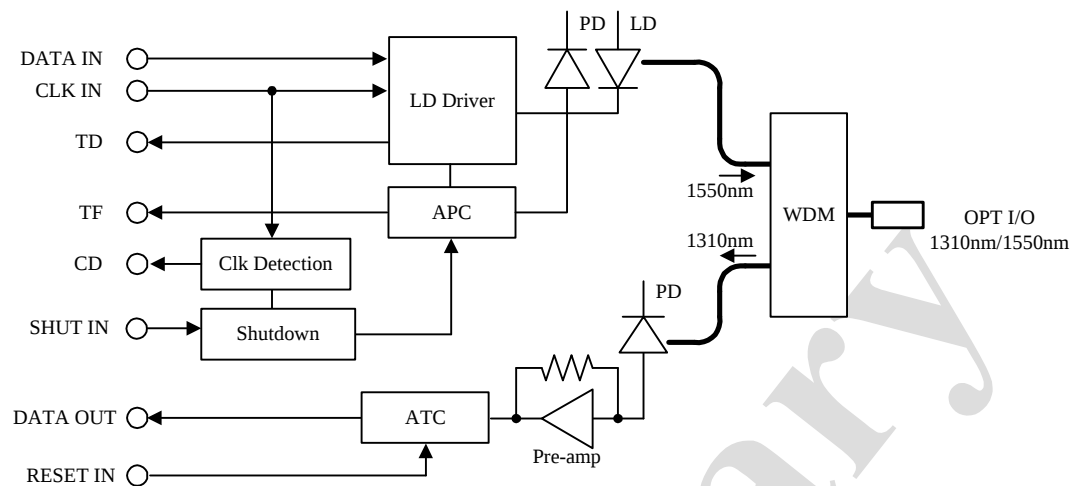


Fig. 2.1 Block diagram

3. Pin description

Table 3.1 Pin descriptions

No.	I/O	Symbol	Level	Logic	Functionality
01		SVCC			Transmitter power supply (+3.3V)
02		GND			Ground
03	I	SDATAP	LVPECL	P	TX Data input(pos)
04	I	SDATAN	LVPECL		TX Data input(neg)
05	I	SCLKP	LVPECL	P	TX Clock input(pos)
06	I	SCLKN	LVPECL		TX Clock input(neg)
07		GND			Ground
08	I	SHUT	LVTTTL	P	Optical output shut down
09	O	CD	LVTTTL	P	TX Clock down alarm
10	O	TD	LVTTTL	P	Transmitter Degraded alarm
11	O	TF	LVTTTL	P	Transmitter Failure alarm
12		GND			Ground
13		GND			Ground
14		NC			Not user connection
15		GND			Ground
16		NC			Not user connection
17		NC			Not user connection
18		NC			Not user connection
19		GND			Ground
20		NC			Not user connection
21		NC			Not user connection
22		GND			Ground
23	O	RDATAP	LVPECL	P	Data output(pos)
24	O	RDATAN	LVPECL		Data output(neg)
25		GND			Ground
26		NC			Not user connection
27		GND			Ground
28		GND			Ground
29	I	RSN		N	ATC reset (neg)
30	I	RSP			ATC reset (pos)
31		GND			Ground
32		RVCC			Power supply for ATC(+3.3V)

4. Timing condition

4.1 Data/Clock input timing

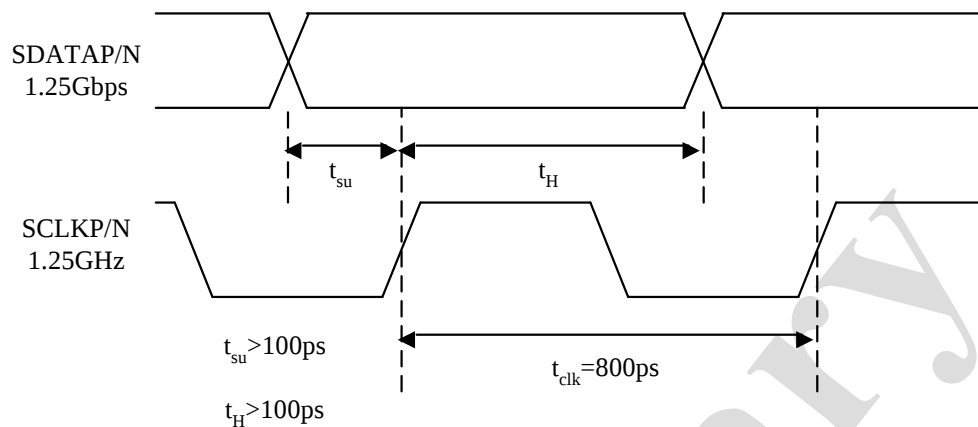


Figure4.1 Data/Clock input setup & hold time

4.2 Reset input timing

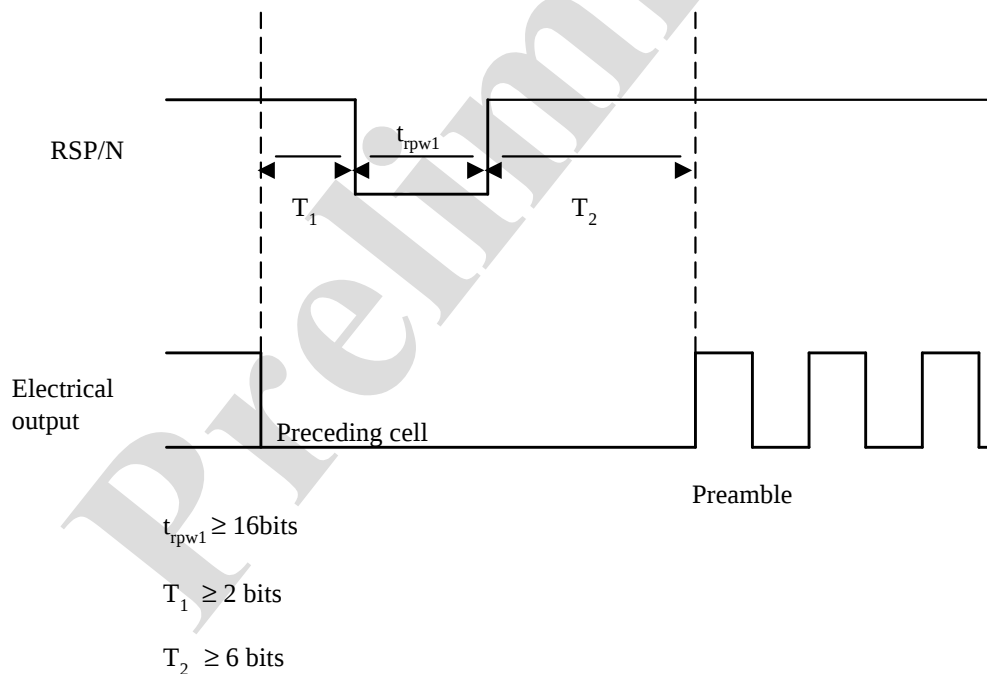


Figure4.2 Reset input timing

5. Outline

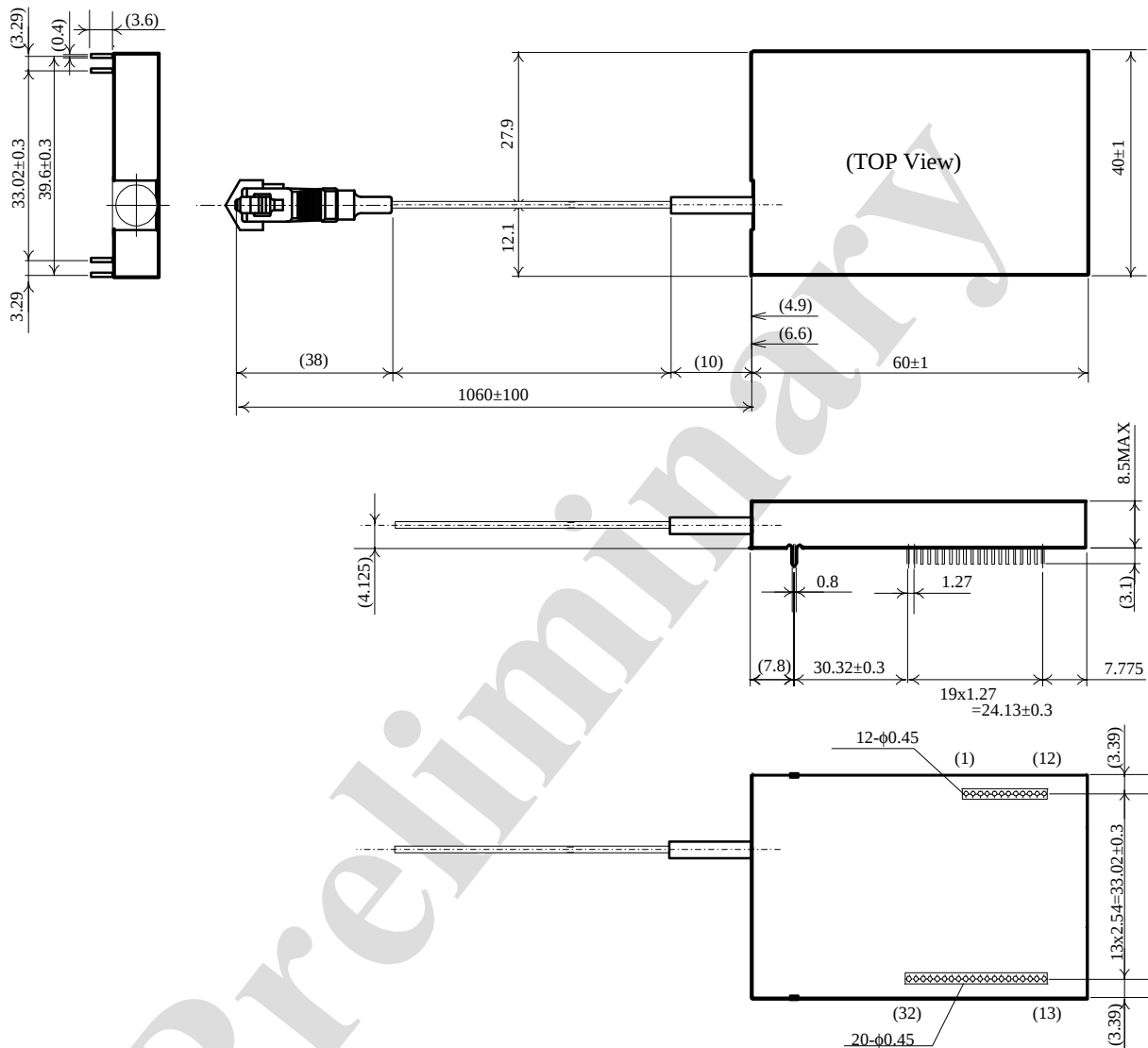


Fig 4.1 Package Outline

6. Precautions for handling

The circuits of these modules operate at very small signal. In order to avoid the degradation of the optical sensitivity due to external noise, the bottom pattern of these modules on the PCB should be ground pattern with low impedance.

Do not mount/pattern device/circuits which generate high frequency noise close to the module.

In order to operate the module stable against the power noise, install the power supply noise reduction circuits. The impedance between the power and ground pattern of the power circuit should be as low as possible. The elements around the module should be mounted close to the pins of the module.

If an optical power exceeding the absolute maximum ratings is fed to the module, the optical receiver may be damaged. Set the optical input power appropriately when in use of these modules.

7. Qualification and Reliability

To help ensure high product reliability and customer satisfaction, OKI is committed to an intensive quality program that starts in the design phase and proceeds through the manufacturing process.

Optical transceiver modules are qualified to OKI internal standards using MIL-STD-883 test methods and procedures and using sample techniques consistent with Telcordia requirements.

This qualification program fully meets the intent of Telcordia reliability practices GR-468-CORE.

8. Laser Safety

All version of transceiver are Class 1 Laser products FDA complies with 21 CFR 1040.10 and 1040.11 requirements.

Also, all versions are Class 1 Laser products pre IEC 825-1.