

OAR25320 Series

Part Number

OAR25320 x - yy - zz

Document Number QPS-0202-101

Revision 0.1

DATE: Feb. 03, 2003

Author T.Ida

Project Manager K. YUSA

Modification History

Rev.	Date	Originator	Comments, Modifications
DRAFT0.1	Feb.03.2003	T.Ida	

Features

- High sensitivity
- Integrated APD High Voltage Bias and Control Circuits.
- Adjustable Slice Level
- OIL monitor and LOS alarm available.
- High accuracy log converted by OIL function.
- Selective DATA rate function (OC-3/OC-12/OC-48(w/, w/o FEC) and Gb-Ether)

Application

- SONET and ITU-T compliant at OC3, OC12, Gb-Ether, OC48 and w/ FEC for DWDM

1. Specifications

Table 1.1 Specifications (Vcc =+5.0V+/-5%,Tc=-5 to 75C)

Parameter	Unit	Values
Operating Wavelength	nm	1200 to 1620
Maximum Operating Bit rate	Gbps	2.666057
Minimum Sensitivity	dBm	≤ -28 (Note)
Minimum Overload	dBm	≥ -7
Jitter Characteristics	-	ITU-T G.958 Conformity
Los off signal activation BER	-	>1E-3
Los off signal deactivation BER	-	>1E-5
Loss of signal response time	usec	Activation<100, Deactivation<250
Power consumption	W	< 3.0
Operating case temperature range	C	-5 to +75
Operating humidity	%	0 to 85
Dimension	mm	35. 6 x 59 x 8. 9
Reliability	Fit	1200 @Tc=45C

Note If not specified then measurement conditions are NRZ2³¹-1,Mark Ratio 1/2,BER 1x10⁻¹²,1550nm

Table 1.2 Absolute Maximum Ratings

Parameter	Symbol	Condition	Min	Max	Unit
Supply voltage Vcc +5V pin	Vcc	Tc=+25C	-0.5	+6	V
Maximum signal output current (Clock/Data)	Io		0	30	mA
Maximum signal output current (LOS pin)	IO	-	-25	+25	mA
Operating case temperature range	T _{OP}		-20	+85	C
Storage temperature range	T _{STG}		-40	+85	C
Lead soldering temperature/time	-		-	260/10	C/s
Tensile strength of fiber pigtail cable	-	Tc=+25C	-	500	g
Minimum bending radius of fiber pigtail cable	-	-	30		mm

Table 1.3 Electrical Specifications (Vcc=+/-5%, Tc=25C)

Parameter	Symbol	Min	Typ	Max	Unit	
Power supply voltage (OAR25320-LV)	Vcc	+3.14	+3.30	+3.47	V	
Power supply voltage (OAR25320-NV)	Vcc	+4.75	+5.00	+5.25	V	
Power supply current	I _{CC}	-	460	600	mA	
Data/Clock Output	V _{out-single}	200	-	800	mVp-p	
Amplitude						V _{out-diff.}
Output impedance	R _{INRoad}	-	50	-	ohm	
LOS signal Output (LOS)	On Signal	V _{ON}	0	-	+0.8	V
	Loss of Signal	V _{LOS}	2.4	-	Vcc	V
Clock/Data delay (Fig1.1)	-	-75		+75	ps	
DATA/Clock Pulse width distortion	-	80	100	120	%	

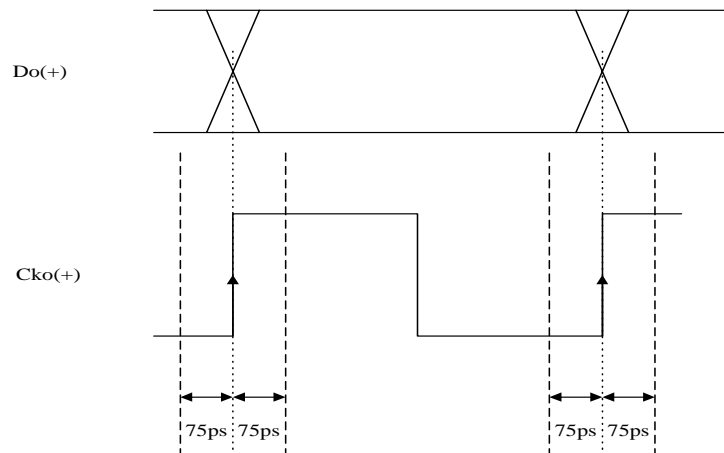
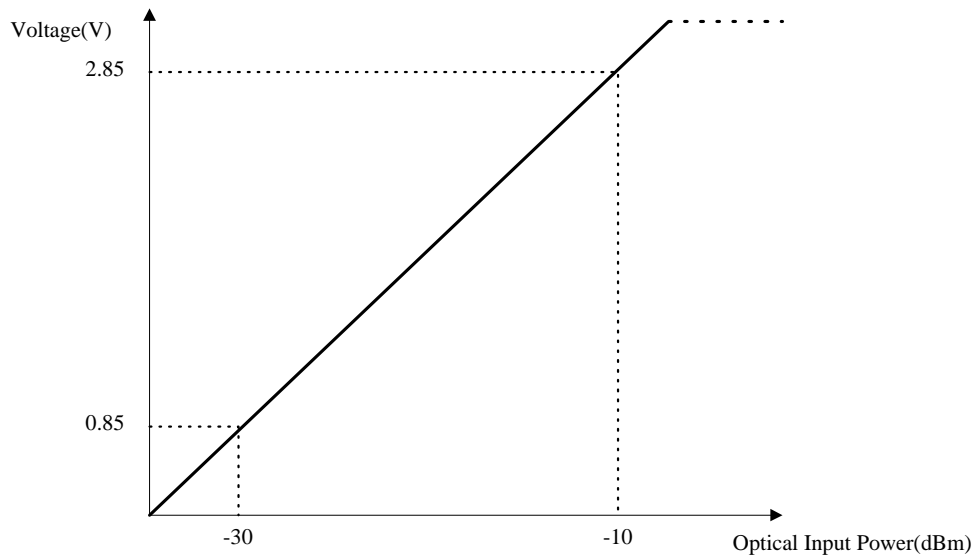


Figure 1.1 Clock/Data Delay



Input Power [dBm]	-10	-15	-20	-25	-30
Voltage [V]	2.85 ± 0.3	2.35 ± 0.3	1.85 ± 0.3	1.35 ± 0.3	0.85 ± 0.3

Figure 1.2 Optical Input Light Voltage

2. Block Diagram

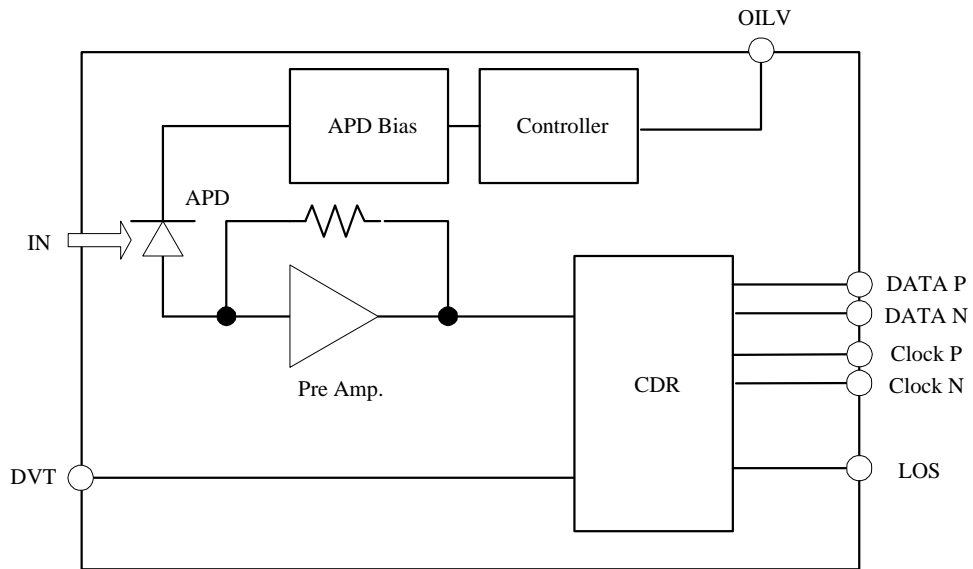


Figure 2.1 Block Diagram

3. Package Outline (Unit : mm)

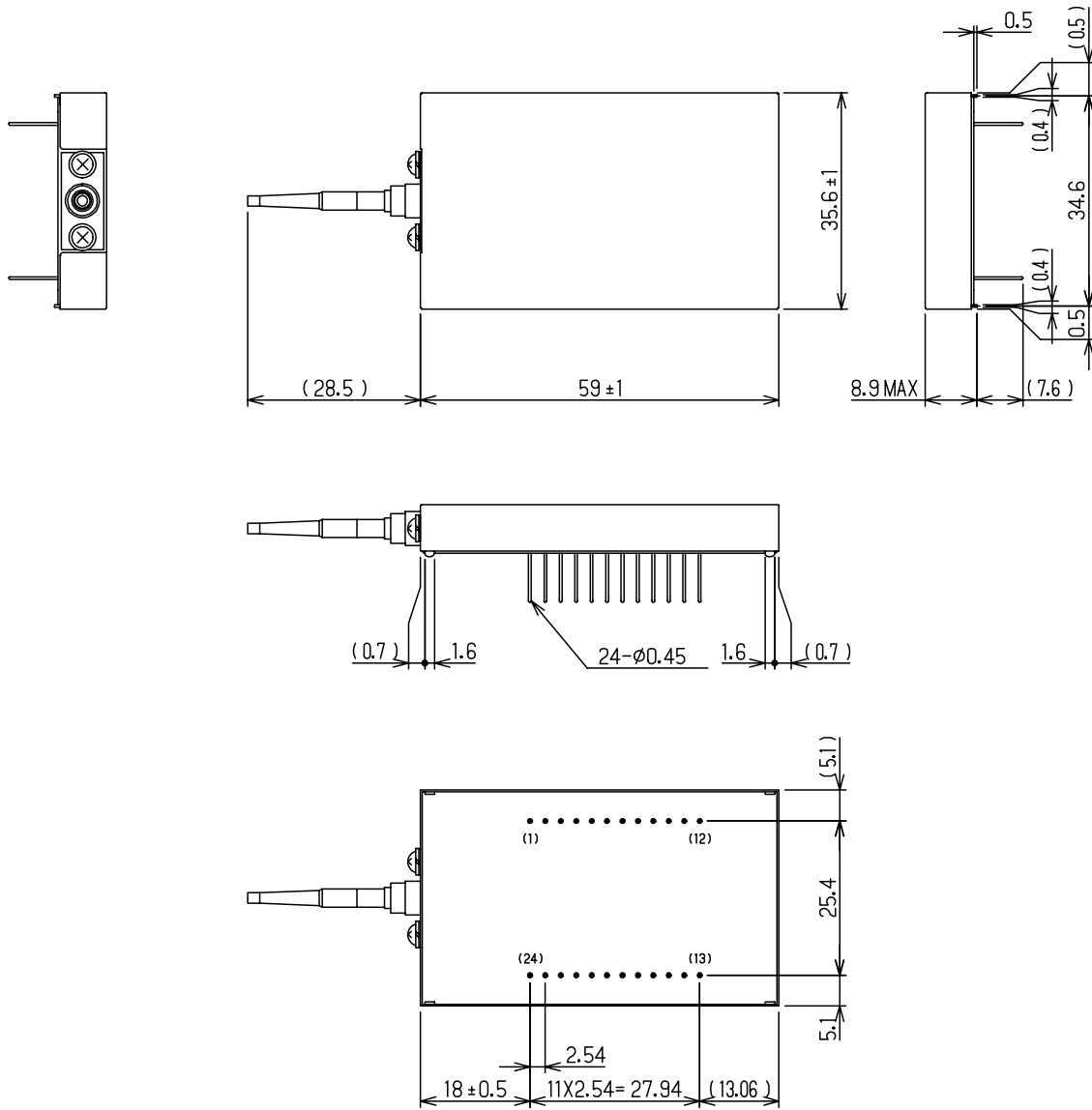


Figure 3.1 Package Outline

4. Pin Descriptions

Table 4.1 pin Descriptions

No.	Symbol	Functionality	No.	Symbol	Functionality
01	SEL0	Data rate select (*2)	13	DTV	Decision Threshold Voltage (*1)
02	SEL1	Data rate select (*2)	14	GND	Ground
03	LOS	Loss of Signal	15	GND	Ground
04	GND	Ground	16	GND	Ground
05	Cko(-)	False clock output	17	GND	Ground
06	Cko(+)	True clock output	18	NIC	Not Internally Connected
07	GND	Ground	19	GND	Ground
08	VCC	Positive power supply (*3)	20	GND	Ground
09	GND	Ground	21	NUC	Not Internally Connected
10	Do(+)	True data output	22	VCC	Positive power supply (*3)
11	Do(-)	False data output	23	OILV	Optical Input Light Voltage
12	GND	Ground	24	SEL2	Data select (*2)

(*1) DTV should be connected to the resistor (2kΩ) that is terminated to GND.

(*2) Data rate select function as follows :

SEL0	SEL1	SEL1	Rate	Frequency
0	0	1	OC48 w/ FEC	2.666Gbps
0	0	0	OC48	2.48832 Gbps
1	0	0	Gigabit Ethernet	1.25 Gbps
0	1	0	OC12	622.08Mbps
1	1	0	OC3	155.52Mbps

(*3) OAR25320-NV : Vcc=+5.0V, OAR25320-LV Vcc=3.3V

4. Recommended Interface Circuit

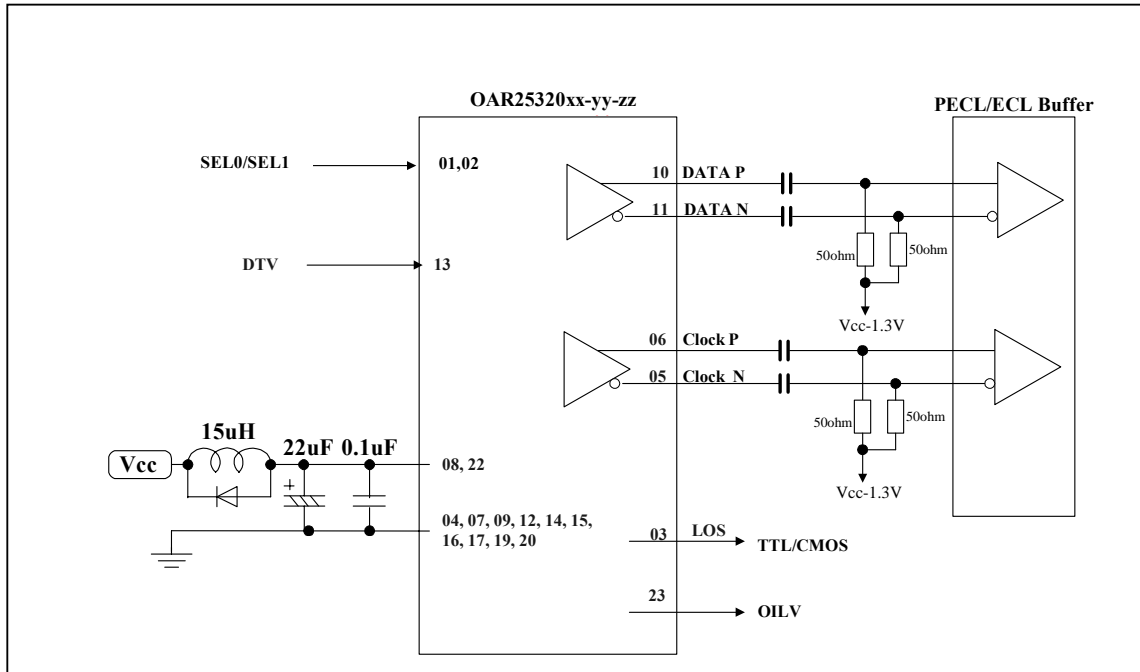


Figure 5.1 Recommended Interface Circuit

5. 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.

6. 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. Ordering information

