

OAR1525 LV Series

Document Number QPS-0201-029

Part Number

Revision **DRAFT 0.1**

1.51um-1.63um C and L-Band type
 OAR1525xx-LV-V2-yy.

DATE: **May. 20, 2001**

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Modification History

Rev.	Date	Originator	Comment
DRAFT0.1	May.20, 2001	M.Sudo	

Features

- SDH(STM-1)/SONET(OC-3) compatible
- +3.3V single power supply
- PECL compatible interface
- Operation at 1.51um(C-band) and 1.625um(L-band) wavelengths
- High sensitivity -44dBm at BER 1E-11 in APD
- Integrated CDR Function in SAW filter Q=1000 and APD bias voltage generator

Applications

- DWDM Optical Service Cannel Receiver operated by 155.520Mbps(STM-1/OC3)

1. Specifications

Table1.1 Specifications

Parameter	OAR1525xx-LV-V2-yy	Unit	Note
Data rate	155.520	Mbps	-
Line code	Scrambled NRZ	-	-
Detector	InGaAs APD	-	-
Applicable fiber type	Single mode fiber	-	-
Connector type	LC/MU/SC/FC	-	PC polished
Operating temperature range	0 to +70	°C	-
Operating humidity range	5 to 85	%Rh	-
Power supply voltage	+3.3	V	±5%
Power consumption	0.8(Max)	W	-
Dimension W ´ L ´ H	30 ´ 50 ´ 8.5	mm	-

Table 1.2 Absolute Maximum Ratings

Parameter	Symbol	Condition	Min	Max	Unit
Supply voltage	V _{CC}	T _a =+25°C	-0.5	+4.6	V
Maximum signal input voltage	V _I		0	V _{CC}	
Maximum signal output current	I _O		-	50	mA
Operating temperature range	T _{OP}	-	0	+70	°C
Storage temperature range	T _{STG}	-	-40	+85	
Lead soldering temperature/time	-	T _a =+25°C	-	260/10	°C /s
Tensile strength of fiber pigtail cable	-		-	500	g
Minimum bending radius of fiber pigtail cable	-		30	-	mm
Maximum optical input power	-		-	-10	dBm

2. Block Diagram

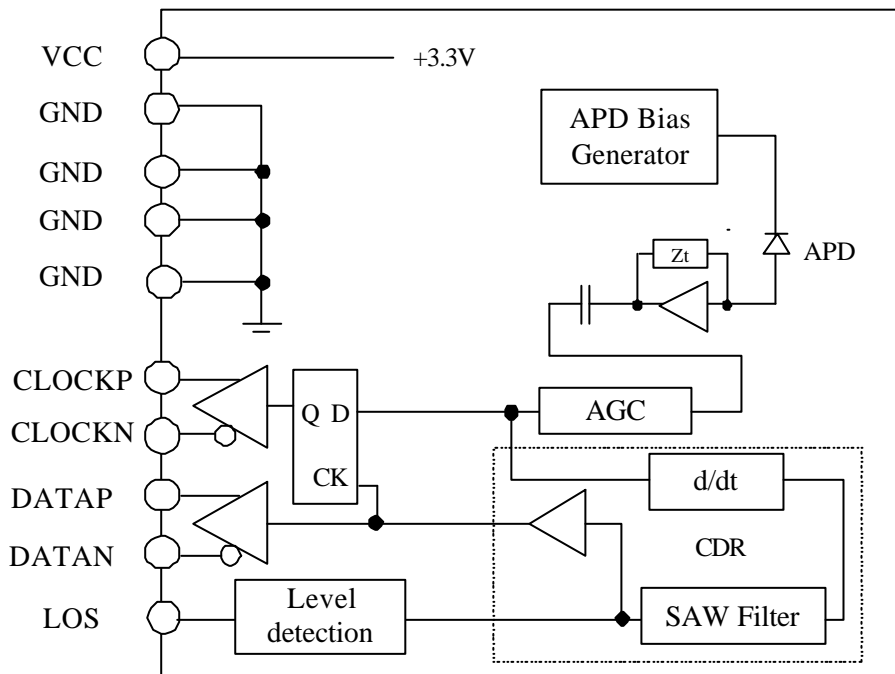


Figure 2.1 Block Diagram

3. Characteristics

Table 3.1 Optical Characteristics [Vcc=+3.3V±5%,Ta=0 to70°C]

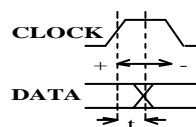
Parameter	Specifications	Note
	C-Band/L-Band	
Data rate	155.520Mbps	
Line code	Scrambled NRZ	
Logic	Positive : Logic "1" = Emission, Logic "0" = Extinction	
Operating wavelength	1500 to 1635nm	
Applicable fiber type	Single mode fiber	
Applicable connector type	LC/MU/SC/FC	PC Polished
Bit error rate	less than 10^{-11}	
Extinction ratio	more than 13dB	
Minimum sensitivity (Average)	Less than -44dBm	
Minimum overload (Average)	Over -24dBm	

Table 3.2 Electrical Characteristics [Vcc=+3.3V±5% ,Ta=+25°C]

Parameter	Symbol	Min	Typ	Max	Unit	
Power supply voltage	V _{CC}	3.135	3.3	3.465	V	
Power supply current	I _{CC}					
DATAP/DATAN/CLOCKP/CLOCKN output Rise/Fall time ¹	t _R /t _F	-	-	0.8	ns	
DATAP/DATAN/CLOCKP/CLOCKN output voltage(LVPECL)	"High"	V _{OH}	V _{CC} -1.025	-	V _{CC} -0.880	V
	"Low"	V _{OL}	V _{CC} -1.810	-	V _{CC} -1.620	
LOS output voltage(LVTTL)	"High"	V _{OHA}	V _{CC} -0.9	-	-	V
	"Low"	V _{OLA}	-	-	+0.4	
DATA/CLOCK timing ²	t	+0.8	-	+1.8	ns	
Recovered Clock pulse width	-	40	50	60	%	

1. Between 20% and 80%

2. The data and clock timing diagram is following,



4. Pin Descriptions**Table 4.1 Pin Description**

No.	Name	I/O	Description	Electrical interface level
1	LOS	O	Los of incoming signal A logic high on LOS indicates the absence of a signal.	LVTTTL Open collector :1.6kΩ @ Vcc
2	GND	-	Ground	
3	GND	-	Ground	
4	GND	-	Ground	
5	VCC	-	Power supply(+3.3V)	
6	CLOCKP	O	Positive clock output	LVPECL
7	CLOCKN	O	Negative clock output	LVPECL
8	GND	-	Ground	
9	DATAP	O	Positive data output	LVPECL
10	DATAN	O	Negative data output	LVPECL

5. Outline

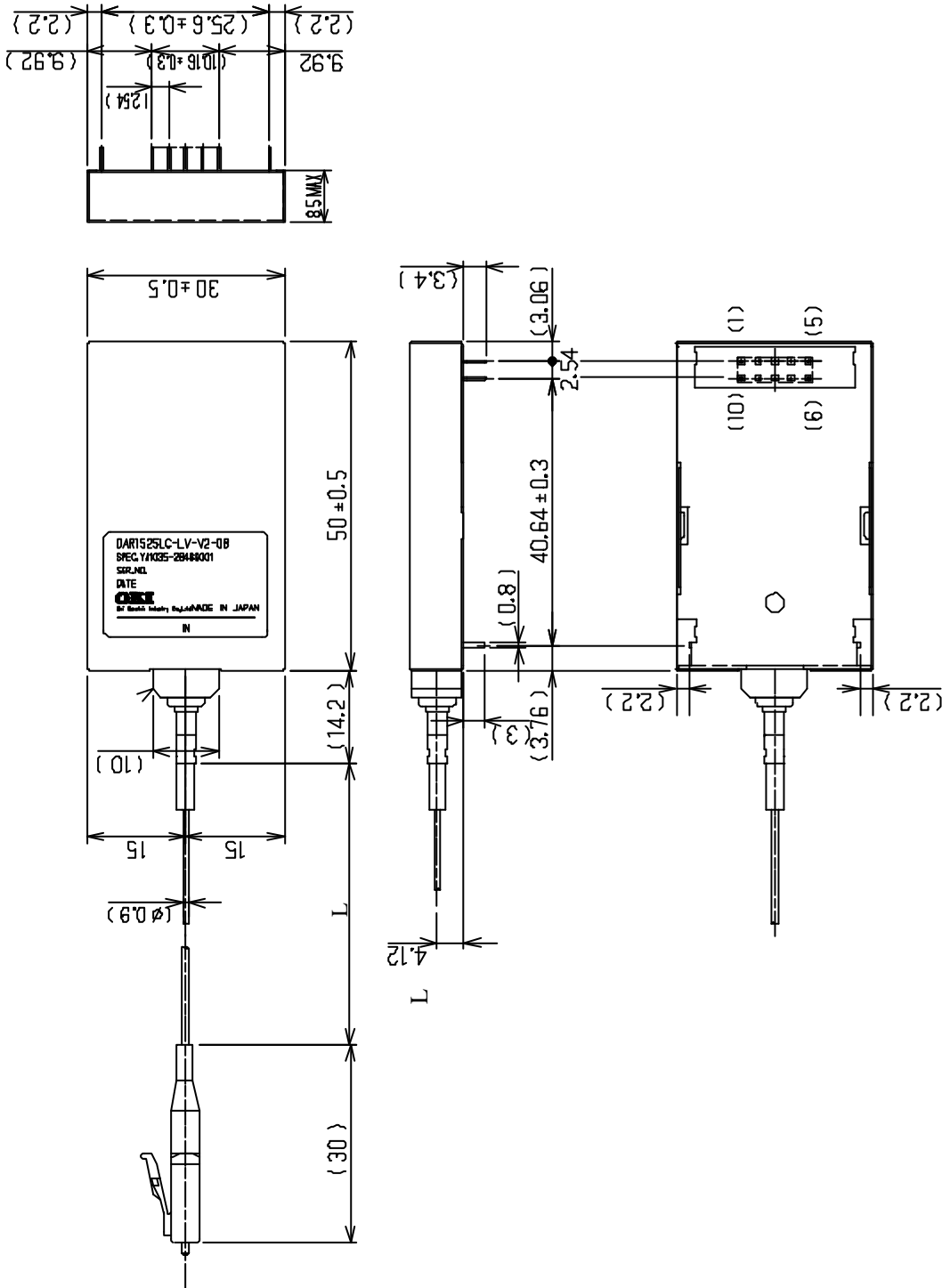


Figure 5.1 Detail of Outline

6. Recommended Interface Circuit

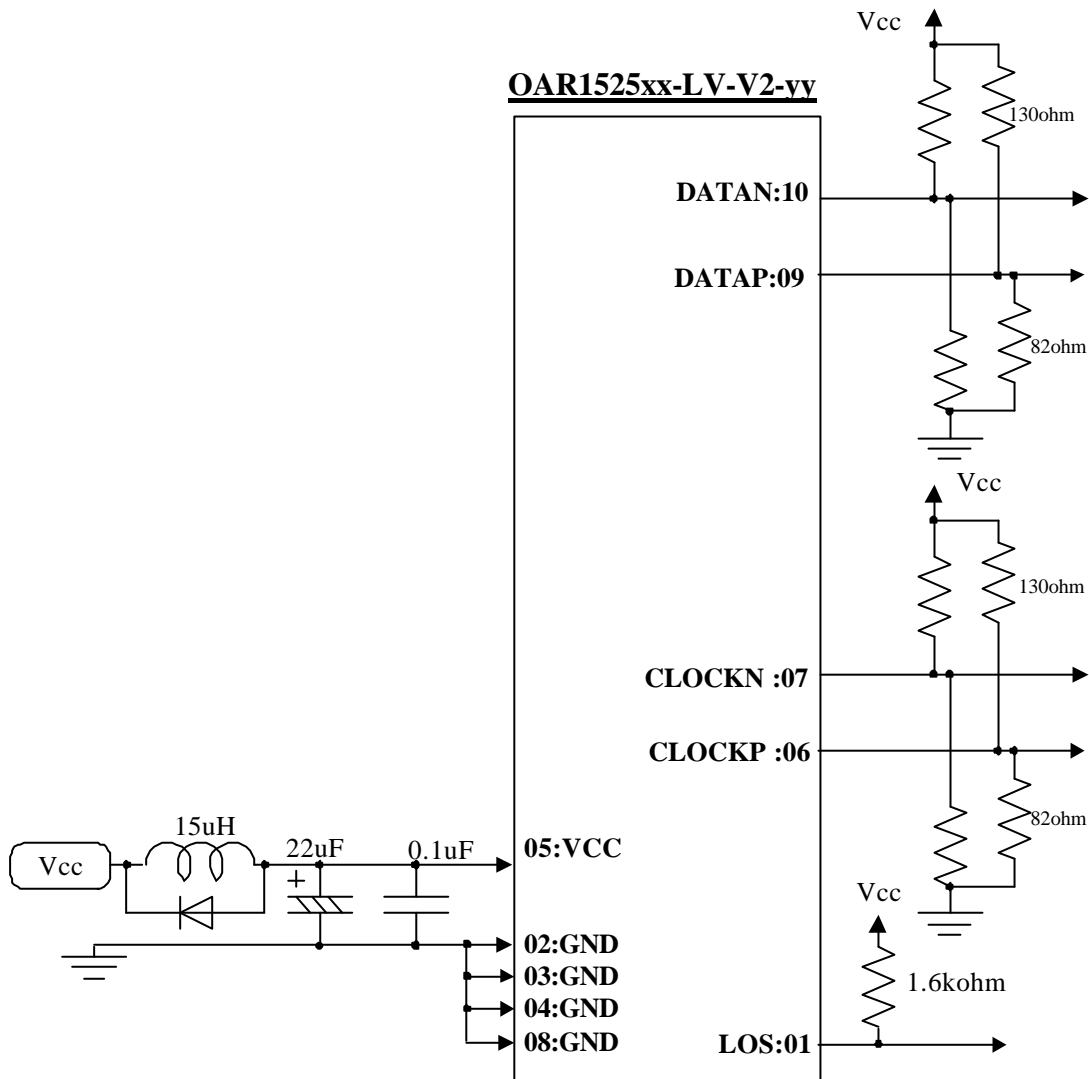


Figure 6.1 Recommended Interface Circuit

7. 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.

8. 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.

9. Laser Safety

Not applicable.

10. Ordering information

