

622.08 Mb/s UPSTREAM/ DOWNSTREAM ATM-PON OD-B6212-ONUB OPTICAL TRANSCEIVER FOR ONU

FEATURES

GENERAL

- APPLIED to ONU(OPTICAL NETWORK UNIT) FOR SINGLE FIBER BI-DIRECTIONAL TRANSMISSION ON ATM-PON SYSTEM
- INTEGRATED 1.3/1.550 μm WDM FUNCTION BY EMPLOYING PLC (PLANAR LIGHTWAVE CIRCUIT)
- SINGLE POWER SUPPLY VOLTAGE of +3.3 V

TRANSMITTER PART

- 622.08 Mb/s BURST-MODE TRANSMITTER OPERATING at WAVELENGTH of 1.3 μm
- INSTANTANEOUS OPERATION FROM THE 1st BIT OF BURST CELL BY FEED-FORWARD APC CIRCUIT EMPLOYING ROM
- LASER BIAS CURRENT CONTROL IN BURST-BY-BURST (BIAS CNT)
- OPTICAL OUTPUT DEGRADE DETECTION (TX ALM)
- SHUT DOWN FUNCTION (SHUTDOWN)

RECEIVER PART

- 622.08 Mb/s CONTINUOUS-MODE RECEIVER OPERATING AT WAVELENGTH OF 1.5 μm
- CLOCK AND DATA RECOVERY FUNCTION BY PLL CIRCUIT
- OPTICAL INPUT LOSS DETECTION (RX ALM)

BLOCK DIAGRAM

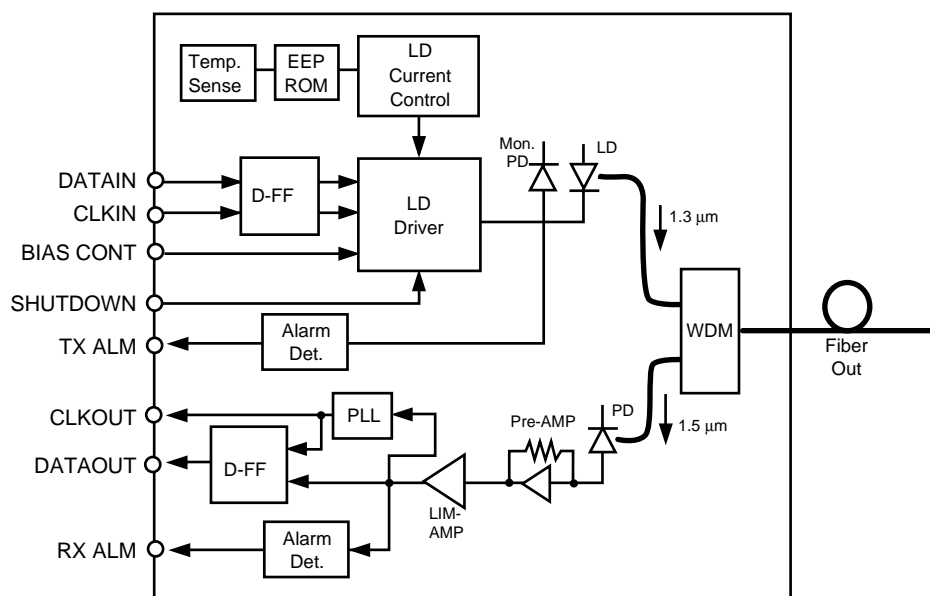


Figure 1. Block diagram of OD-B6212-ONUB.

ABSOLUTE MAXIMUM RATINGS¹

(TC = 25°C, unless otherwise specified)

SYMBOLS	PARAMETERS	UNITS	MIN	MAX
V _{CC}	Power Supply Voltage	V	-0.3	+4.0
T _{STG}	Storage Temperature	°C	-40	+85
P _f	Input Optical Power	dBm	-	0
V _{IN}	Signal Input Voltage	V	-0.3	V _{CC} +0.3
T _{SOL}	Lead Soldering Temperature	°C/sec	-	260/10
R	Bending Radius of Pigtail Fiber	mm	30	-
N	Tensile Force on Pigtail ²	N	-	2

Notes:

1. Operation in excess of any one of these parameters may result in permanent damage.
2. (= 200 gf).

RECOMMENDED OPERATING CONDITIONS

SYMBOL	PARAMETER	UNITS	MIN	TYP	MAX	REMARKS
T _{OP}	Ambient Temperature	°C	-40	-	+75	
HA	Ambient Humidity	%	5	-	95	
V _{CC}	Power Supply Voltage	V	+3.135	+3.300	+3.465	
I _{OP}	Power Supply Current	mA	-	-	500	Not include LVPECL termination current
	Power Supply Noise	mVpp	-	-	100	Noise frequency at 100 Hz to 1 MHz

OPTICAL INTERFACE

TRANSMITTER SECTION

ITEMS	UNIT	SPECIFICATIONS	REMARKS
		OD-B6212-ONUB	
Operating wavelength	nm	1260 to 1360	
Normal bit rate	Mb/s	622.08	
Line code	-	Scrambled NRZ (burst-mode)	
Photo diode	-	MLM-LD	
Mean output power	dBm	-2 to +4	
Optical output waveform	-	Mask spec	Figure 2 (after passing through a 4th-order Thomson filter; f _c = 0.75 x 622.08 MHz)
Extinction ratio	dB	more than 10	
Spectral width (RMS)	nm	less than 3.0	
Launched optical power without input to the transmitter	dBm	less than -40	
Consecutive identical digit immunity	bit	more than 72	
Tolerance to the transmitter incident light power	dB	more than -15	
Maximum reflectance	dB	less than -6	measured at wavelength of 1.3μm
Jitter Transfer	-	Mask spec	Figure 3
Jitter Tolerance	UI _{p-p}	less than 0.2	frequency range from 0.5 kHz to 1.3 MHz

OPTICAL INTERFACE

RECEIVER SECTION

ITEMS	UNIT	SPECIFICATIONS	REMARKS
		OD-B6212-ONUB	
Operating wavelength	nm	1480 to 1580	
Normal bit rate	Mb/s	622.08+/-100ppm	
Line code	-	Scrambled NRZ (continuous-mode)	
Photo diode	-	PIN-PD	
Minimum sensitivity	dBm	less than -28	Bit error rate is 10^{-10} at $2^{23}-1$ pattern
Maximum overload	dBm	more than -6	Bit error rate is 10^{-10} at $2^{23}-1$ pattern
Consecutive identical digit immunity	bit	more than 72	
Tolerance to the reflected optical power	dB	less than 10	
Maximum reflectance	dB	less than -20	measured at wavelength of $1.5\mu\text{m}$
Jitter Transfer	-	Mask spec	Figure 3
Jitter Tolerance	-	Mask spec	Figure 4

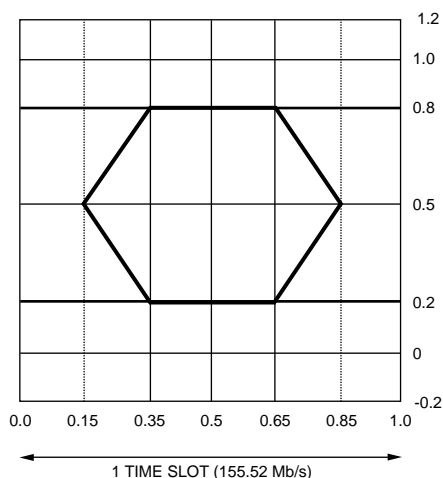


FIGURE 2. Mask of eye diagram

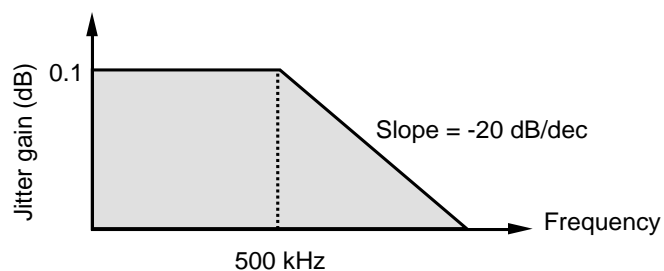


FIGURE 3. Jitter transfer mask

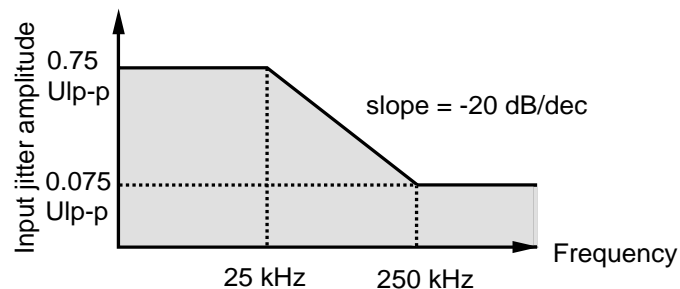
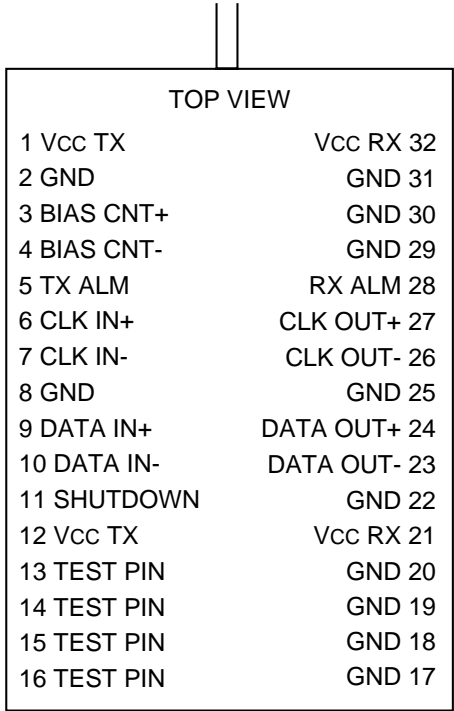


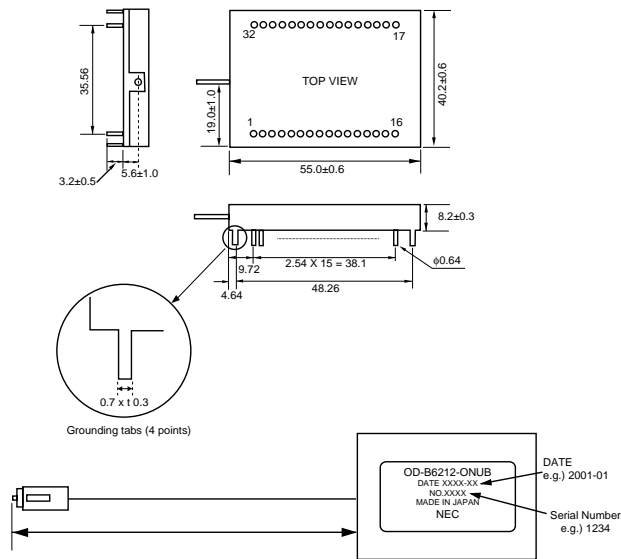
FIGURE 4. Jitter tolerance mask

PIN CONNECTIONS



	PIN NO.	INPUT/ OUTPUT	SYMBOL	DESCRIPTION
TX	1	-	VCC TX	Transmitter power supply (+3.3V)
	2	-	GND	Ground
	3	I	BIAS CNT+	Laser bias control (positive)
	4	I	BIAS CNT-	Laser bias control (negative)
	5	O	TX ALM	Optical output alarm
	6	I	CLK IN+	Clock input (positive)
	7	I	CLK IN-	Clock input (negative)
	8	-	GND	Ground
	9	I	DATA IN+	Data input (positive)
	10	I	DATA IN-	Data input (negative)
	11	I	SHUTDOWN	Optical output shut down
	12	-	VCC TX	Transmitter power supply (+3.3V)
	13	-	TEST PIN	Connect to ground
	14	-	TEST PIN	Connect to ground
	15	-	TEST PIN	Connect to ground
	16	-	TEST PIN	Connect to ground
RX	17	-	GND	Ground
	18	-	GND	Ground
	19	-	GND	Ground
	20	-	GND	Ground
	21	-	VCC RX	Receiver power supply (+3.3V)
	22	-	GND	Ground
	23	O	DATA OUT -	Data output (Negative)
	24	O	DATA OUT +	Data output (Positive)
	25	-	GND	Ground
	26	O	CLK OUT-	Clock output (Negative)
	27	O	CLK OUT+	Clock output (positive)
	28	O	RX ALM	Optical input alarm
	29	-	GND	Ground
	30	-	GND	Ground
	31	-	GND	Ground
	32	-	VCC RX	Receiver power supply (+3.3V)

OUTLINE DIMENSIONS (Units in mm)



Note: Default pigtail fiber length (L) is 540 (+0/-40) mm.
Default optical connector is SC/PC type.