

◇ OD - S 4 9 3

## 1310nm FP-LD Module with built-in optical isolator

### FEATURES

- Operating frequency range       $f=5\text{MHz to } 200\text{MHz}$
- Distortion                               $\text{IMD2} \leq -53\text{dBc}$   
    $\text{IMD3} \leq -53\text{dBc}$
- Noise                                       $\text{RIN} \leq -130\text{dB/Hz}$
- Optical output power                 $P_f=1.0\text{mW}$
- Wavelength                               $\lambda=1310\text{nm}$
- Operation over wide temperature    $T_c=-40 \text{ to } 85^\circ\text{C}$
- Built-in optical isolator
- Singlemode fiber pigtail with SC connector

### APPLICATIONS

- CATV return link
- CATV forward link for a few channels

### 1. ABSOLUTE MAXIMUM RATINGS

( $T_c=25^\circ\text{C}$  unless noted)

Parameter	Sym.	Min.	Max.	Unit
Fiber Output Power	$P_f$	—	2	mW
Laser Forward Current	$I_F(\text{LD})$	—	100	mA
Laser Reverse Voltage	$V_R(\text{LD})$	—	2	V
Monitor Forward Current	$I_F(\text{PD})$	—	1	mA
Monitor Reverse Voltage	$V_R(\text{PD})$	—	10	V
Operation Temperature	$T_{op}$	-40	85	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-40	85	$^\circ\text{C}$

2. PERFORMANCE SPECIFICATIONS

(Tc=-40 to +85°C unless noted)

Parameter	Sym.	Conditions	Min.	Typ.	Max.	Unit	
Fiber Output Power	Pf	CW	1.0	—	—	mW	
Threshold Current	I <sub>th</sub>	CW	Tc=+25°C	—	12	25	mA
			—	—	30	50	
Slope Efficiency	DQE	CW, Pf=1.0mW	Tc=+25°C	0.05	—	0.20	W/A
			0.03	—	0.25		
Operating Current	I <sub>op</sub>	CW, Pf=1.0mW	—	—	90	mA	
Center Wavelength	$\lambda_c$	CW, Pf=1.0mW	Tc=+25°C	1290	—	1330	nm
			1255	—	1360		
Spectral Width (RMS)	$\Delta \lambda$	CW, Pf=1.0mW	—	2	4.5	nm	
Forward Voltage	V <sub>F</sub>	CW, Pf=1.0mW	—	1	1.6	V	
Monitor Photocurrent	I <sub>m</sub>	CW, Pf=1.0mW	100	300	1500	$\mu$ A	
Monitor Dark Current	I <sub>d</sub>	V <sub>R</sub> =10V	Tc=+25°C	—	—	100	nA
			—	—	—	300	
Tracking Error	$\Delta$ Pf	Tc=-40°C, 85°C	—	$\pm 0.5$	$\pm 1.0$	dB	
Isolation	—		—	30	—	dB	
Modulation Bandwidth	B	1dB down, Pf=1.0mW	500	—	—	MHz	
2nd Order Inter-modulation Distortion	IMD2	Note 1	—	—	-53	dBc	
3rd Order Inter-modulation Distortion	IMD3	Note 1	—	—	-53	dBc	
Relative Intensity Noise	RIN	Note 2	—	—	-130	dB/Hz	

Note 1 Pf=1.0mW, Tc=25°C,

2-Tone Test: f<sub>1</sub>=13MHz, f<sub>2</sub>=19MHz, 20%/tone optical Modulation Index,

Measurement Frequency(IMD2): f=6MHz, 32MHz

Measurement Frequency(IMD3): f=7MHz, 25MHz

7dB optical loss (20km singlemode fiber),

40dB optical return loss

Note 2 CW, Pf=1.0mW, Tc=25°C, f=5MHz to 200MHz

7dB optical loss (20km singlemode fiber),

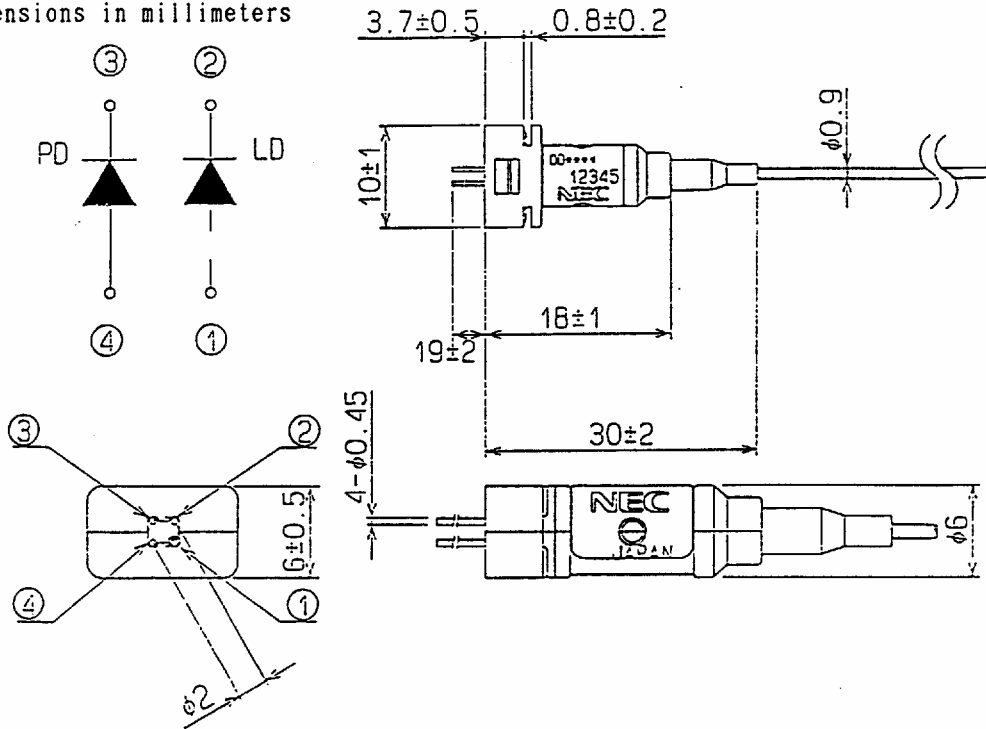
40dB optical return loss

3. MECHANICAL SPECIFICATIONS

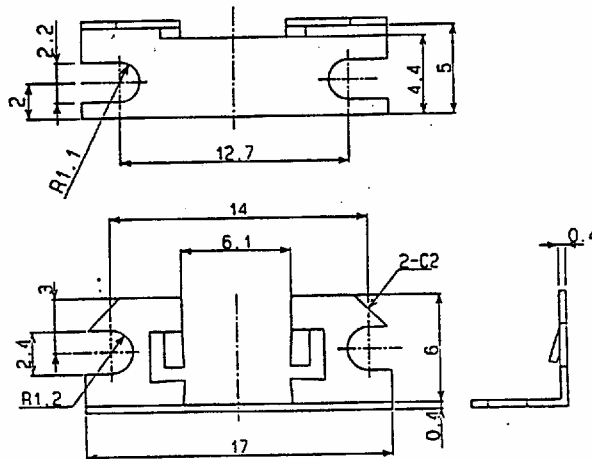
Fiber Type:	SMF
Buffer Diameter:	$0.9 \pm 0.1$ mm
Fiber Length:	$1\text{m} \pm 0.10\text{m}$
Connector:	SC/SPC (Optical Return Loss $\geq 40\text{dB}$ @1310nm)

4. OUTLINE DRAWING

Dimensions in millimeters



The bracket for mounting the OD-S493 to a PWB is available optionally. Part number of the bracket is OD-S328B.



Dimension of the bracket (OD-S328B)