

## DL-53X8AR Series

### Uncooled **1550 nm MQW-DFB LD** for CATV return path application

#### DESCRIPTION

DL-53X8AR series are designed for coupling a single mode optical fiber with 1550 nm MQW-DFB uncooled laser diode. DL-53X8AR series are the best kits as light source for CATV return path application.

#### FEATURES

- | 1550 nm Uncooled DFB Laser Diode with MOW Structure
- | High Reliability, Long Operation Life
- | Single Frequency Operation with High SMSR
- | -20 to 85°C operation without active cooling
- | Built-in InGaAs monitor photodiode
- | Low Inter-modulation Distortion
- | Built-in Isolator

#### CHARACTERISTICS

ELECTRICAL AND OPTICAL CHARACTERISTICS (T <sub>C</sub> = 25°C)						
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>th</sub>	Threshold Current	CW, Room Temperature CW, Over Temperature		10	15 50	mA mA
I <sub>op</sub>	Operation Current	CW, Room temperature CW, Over Temperature			50 100	mA mA
V <sub>op</sub>	Operating Voltage	CW, I <sub>F</sub> =I <sub>op</sub>		1.2	1.5	V
P <sub>f</sub>	Optical Output Power Part No.:DL-5338AR DL-5348AR DL-5358AR	CW, I <sub>F</sub> =I <sub>op</sub>		2.0 3.0 4.0		mW mW mW
λ <sub>c</sub>	Central Wavelength	CW, I <sub>F</sub> =I <sub>op</sub>	1530	1550	1570	nm
SMSR	Side Mode Suppression Ratio	CW, I <sub>F</sub> =I <sub>op</sub>	30	35		nm
ΔP <sub>f</sub> /P <sub>f</sub>	Tracking Error	APC, -20~85 °C	-1		1	dB
I <sub>m</sub>	PD monitor Current	CW, I <sub>F</sub> =I <sub>op</sub> , V <sub>RD</sub> =1V	100		1500	μA
I <sub>D</sub>	PD Dark Current	V <sub>RD</sub> =5V			0.1	μA
C <sub>t</sub>	PD Capacitance	V <sub>RD</sub> =5V, f=1 MHz		10	15	pF
IMD2	Second-Order Intermodulation	(*1)			-50	dBc
IMD3	Third-Order Intermodulation	(*1)			-55	dBc
CNR	Carrier to Noise Ratio	(*2)	51			dB
BF	Bandpass Flatness	Peak to Valley, 10~300MHz			1.0	dB
RIN	Relative Intensity Noise	f=5~300 MHz			-145	dB/Hz
Iso	Optical Isolation	λ =1550 nm	30			dB

Note: \*1. 20 Km fiber loss, 2-tone (13 MHz and 19 MHz), OMI=0.1 for each RF Channel.

\*2. 1-tone with OMI=0.2, through 20 km fiber.

\*\*\*\*\*  
**ABSOLUTE MAXIMUM RATINGS**

Stress in excess of the absolute maximum rating can cause permanent damage to the device. These are absolute stress rating only. Functional operation of the device is not implied at these or any other conditions in excess of these given in the operational sections of the datasheet. Exposure to absolute ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Min	Max	Unit
Optical Output Power (5338AR / 5348AR / 5358AR)	P <sub>o</sub>		3 / 4 / 5	mW
LD Reverse Voltage	V <sub>RL</sub>		2	V
PD Reverse Voltage	V <sub>RD</sub>		10	V
PD Forward Current	I <sub>FD</sub>		1	mA
Soldering Temperature	T <sub>solder</sub>		260 / 10	°C / sec
Operating Temperature Range	T <sub>op</sub>	-20	85	°C

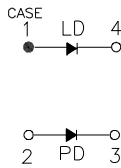
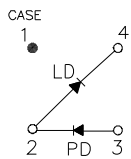
**PRECAUTIONS for USE**

- ESD protection is imperative. Use of grounding straps, anti-static mats, and other ESD protective equipment is recommended when handling or testing any junction photodiodes.
- Fiber pigtails should be handled with less than 10N pull and with a bending radius greater than 30 mm.

**MECHANICAL DIMENSION (mm) and PIN ASSIGNMENT**

Type B

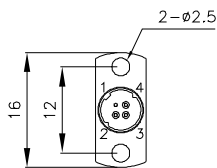
Type C



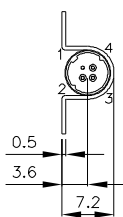
P/N	H
DL-5338AR-XXXX	9
DL-5348AR-XXXX	10.9
DL-5358AR-XXXX	10.9



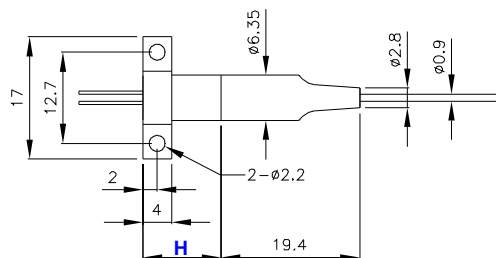
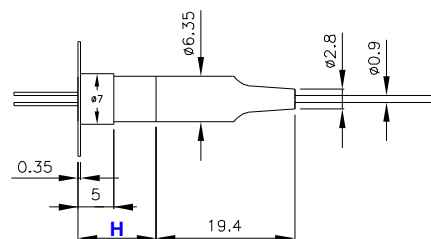
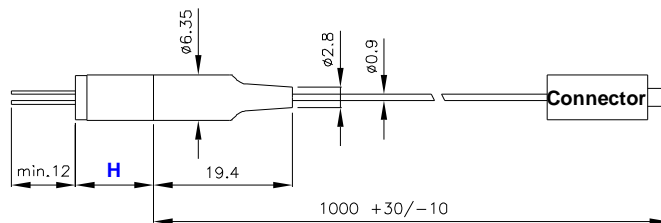
**Flangeless**



**Vertical Flange**



**Horizontal Flange**



ORDER INFORMATION

Part No.: D L - 5 3   AR -    S

Code	Pout (mW)
3	2
4	3
5	4

Code	Pin Assignment
5	Type B
8	Type C

Code	Flange
V	Vertical
H	Horizontal
X	No Flange

Code	Isolator
S	Single-Stage

Code	Connector
S	SC/PC
F	FC/PC
T	ST/PC
L	LC/PC
X	No connector
SA	SC/APC
FA	FC/APC
TA	ST/APC
LA	LC/APC

Code	Application
AR	CATV Return Path

**Note:** Specifications subject to change without notice.

\*\*\*\*\*

## Revision History

Version	Subject	Release Date
1.0	Initial datasheet	2008/6/1

\*\*\*\*\*