

Optoelectronics Components Data Sheet

■ DE-0775 Series

2.5Gbps, 2mW DFB Laser Diode Coaxial Module for CWDM transmission applications

Description

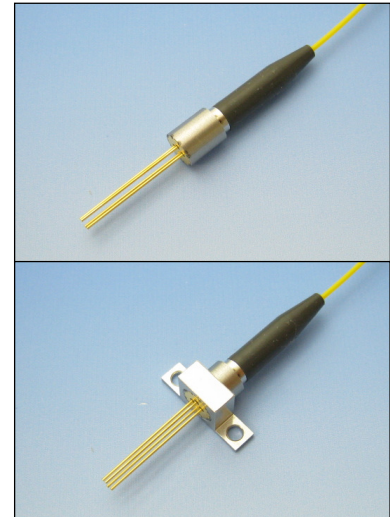
DE-0775 series are 1270~1610nm, 2.5Gbps laser diode (LD) modules of coaxial pigtail type. These modules consist of a multi quantum well distributed feed-back (MQW-DFB) LD, a monitor photo diode (PD), a single-stage optical isolator, a single-mode fiber and a coaxial package. These modules are suitable for building coarse wavelength division multiplexing (CWDM) transmission systems.

Features

- ◆ Fiber output power : 2mW Min.
- ◆ Side mode suppression ratio : 30dB Min.
- ◆ 18 wavelength channel with 20nm space at 1270~1610nm
- ◆ MQW DFB-LD structure
- ◆ ~2.5Gbps operating bit rate
- ◆ Built-in single-stage optical isolator
- ◆ Hermetically sealed LD devices
- ◆ YAG laser spot welding for high reliability
- ◆ Coaxial package
- ◆ 0 to +70 °C operating temperature range

Applications

- CWDM Transmission Systems



Absolute Maximum Ratings

(Tc=25°C, unless otherwise specified)

Parameter	Symbol	Ratings	Unit	Conditions
Fiber output power	Pf	5	mW	CW
LD reverse voltage	V _{RL}	2	V	---
LD forward current	If	150	mA	---
Monitor PD Reverse voltage	V _{RP}	15	V	---
Monitor PD Forward current	I _{FP}	2	mA	---
Storage temperature	T _{stg}	-40 ~ +100	°C	---
Operating temperature	T _c	0 ~ +70	°C	---
Soldering temperature	T _s	260	°C	10sec, >2mm

Electrical and Optical Characteristics

(Tc=0 to 70°C, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
Fiber output power	Pf	CW	2	---	---	mW	
Threshold current	I _{th}	CW, Tc=25°C	---	10	15	mA	
		CW, Tc=70°C	---	45	50		
Operation current	I _{op}	CW, Pf=2mW	Tc=25°C	---	35	45	mA
			Tc=70°C	---	90	100	
Operation voltage	V _{op}	CW, Pf=2mW, Tc=25°C	---	1.1	1.5	V	
Peak wavelength	λ _p	CW, Pf=2mW, Tc=25°C	(Note *1)			nm	
Spectrum width	Δλ	CW, Pf=2mW, Tc=25°C, -20dB	---	---	1	nm	
Side mode suppression ratio	SMSR	CW, Pf=2mW	30	---	---	dB	
Rise & Fall time	t _r , t _f	20-80%, I _b =I _{th} , I _{pp} =40mA Pf=2mW, Tc=25°C	---	0.1	0.15	ns	
Monitor PD output current	I _m	V _R =1V, Pf=2mW, Tc=25°C	0.08	---	1.0	mA	
Monitor PD dark current	I _d	V _{RP} =5V, Tc=25°C	---	---	0.1	μA	
Monitor PD Capacitance	C _t	V _{RP} =5V, Tc=25°C	---	10	20	pF	
Tracking Error	TE	CW, I _m (@Tc=25°C) =constant	-1	---	1	dB	

Note *1 : Peak wavelength specifications
A Type : Wavelength tolerance $\pm 2\text{nm}$ (@ $T_c=25^\circ\text{C}$)

Type	Peak Wavelength			Unit
	Min.	Typ.	Max.	
DE-0775-127A	1268	1270	1272	nm
DE-0775-129A	1288	1290	1292	
DE-0775-131A	1308	1310	1312	
DE-0775-133A	1328	1330	1332	
DE-0775-135A	1348	1350	1352	
DE-0775-137A	1368	1370	1372	
DE-0775-139A	1388	1390	1392	
DE-0775-141A	1408	1410	1412	
DE-0775-143A	1428	1430	1432	
DE-0775-145A	1448	1450	1452	
DE-0775-147A	1468	1470	1472	
DE-0775-149A	1488	1490	1492	
DE-0775-151A	1508	1510	1512	
DE-0775-153A	1528	1530	1532	
DE-0775-155A	1548	1550	1552	
DE-0775-157A	1568	1570	1572	
DE-0775-159A	1588	1590	1592	
DE-0775-161A	1608	1610	1612	

B Type : Wavelength tolerance $\pm 3\text{nm}$ (@ $T_c=25^\circ\text{C}$)

Type	Peak Wavelength			Unit
	Min.	Typ.	Max.	
DE-0775-127B	1267	1270	1273	nm
DE-0775-129B	1287	1290	1293	
DE-0775-131B	1307	1310	1313	
DE-0775-133B	1327	1330	1333	
DE-0775-135B	1347	1350	1353	
DE-0775-137B	1367	1370	1373	
DE-0775-139B	1387	1390	1393	
DE-0775-141B	1407	1410	1413	
DE-0775-143B	1427	1430	1433	
DE-0775-145B	1447	1450	1453	
DE-0775-147B	1467	1470	1473	
DE-0775-149B	1487	1490	1493	
DE-0775-151B	1507	1510	1513	
DE-0775-153B	1527	1530	1533	
DE-0775-155B	1547	1550	1553	
DE-0775-157B	1567	1570	1573	
DE-0775-159B	1587	1590	1593	
DE-0775-161B	1607	1610	1613	

Optical Fiber Characteristics

Parameter	Min.	Typ.	Max.	Unit
Fiber type	Single mode			---
Mode field diameter	8	9	10	μm
Clad diameter	123	125	127	μm
Concentricity error	---	---	1	μm
Cladding non-circularity	---	---	2	%
Mode field non-circularity	---	---	6	%
Cut off wavelength	1270	---	---	nm
Jacket diameter	0.8	0.9	1	mm
Bending Radius	20	---	---	mm
Tensile strength fiber case	5	---	---	N
Length	---	(1000)	---	mm
Connector	FC type / SPC SC type / SPC MU type / SPC			

Ordering information

DE-0775-□□□□-□□

Code	Wavelength (Typ.) @25°C	Status
127	1270nm	Preliminary
129	1290nm	
131	1310nm	
133	1330nm	
135	1350nm	
137	1370nm	
139	1390nm	
141	1410nm	In production
143	1430nm	
145	1450nm	
147	1470nm	
149	1490nm	
151	1510nm	
153	1530nm	
155	1550nm	
157	1570nm	
159	1590nm	
161	1610nm	

Code	Wavelength Tolerance
A	±2nm
B	±3nm

Wavelength Tolerance

Code	Flange type
N	No flange
H	Horizontal type
V	Vertical type

Flange type

Code	Connector type
S	SC/SPC
F	FC/SPC
M	MU/SPC

Connector type

Wavelength channel

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