DWDM 10mW DFB Butterfly Laser Diode

1. Features:

- High output power(≥10mW)
- High-performance, multiquantum well (MQW) distributed-feedback (DFB) laser chip
- Industry-standard, 14-pin butterfly package. Built-in TEC and optical isolator
- λc of XXXX+/-0.2nm

Reliability: Telcordia GR-468. RoHS

2. Applications:

- DWDM systems;
- Laser sources;
- Fiberoptic sensors

3. Absolute Maximum Ratings:

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Storage temperature	Ts	-	-40	-	85	℃
Operating case temperature	Top	-	-20	-	70	℃
Forward Current	I_F	CW	-	-	200	mA
Laser Reverse Voltage	V_{LR}	-	-	-	2	V
PD Forward Current	I_{FPD}	-	-	-	5	mA
PD Reverse Voltage	V_{RPD}	-	-	-	10	V
TEC current	I_{TEC}	-	-	-1.5	+1.5	A
TEC voltage	V_{TEC}	-	-	-3.5	+3.5	V

4. Optical Characteristics(25℃ laser temperature):

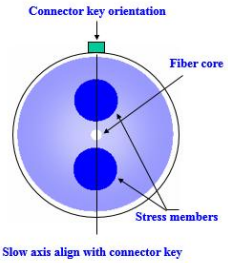
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Center Wavelength	λc	TL=15～35℃, CW	Shown in Section 7			nm
Peak Optical Output Power	PO	-	10	-	-	mW
Spectral Linewidth	LW	FWHM	-	3	5	MHz
Side-mode Suppression Ratio	SMSR	CW	40	50	-	dB
Optical Isolation	-	-	30	-	-	dB
Relative Intensity Noise	RIN	20-1000MHz	-	-	-145	dB/Hz
Wavelength Drift (EOL)	△λ	Testedover25-year lifetime	-	-	±0.1	nm
Wavelength Temperature Coefficient	Δλ/ΔT	TEC temperature at 15℃- -35℃	-	0.09	-	nm/℃
Wavelength Current Coefficient	Δλ/ΔI	-	-	0.01	-	nm/mA

Electrical Characteristics (at 25℃laser temperature)

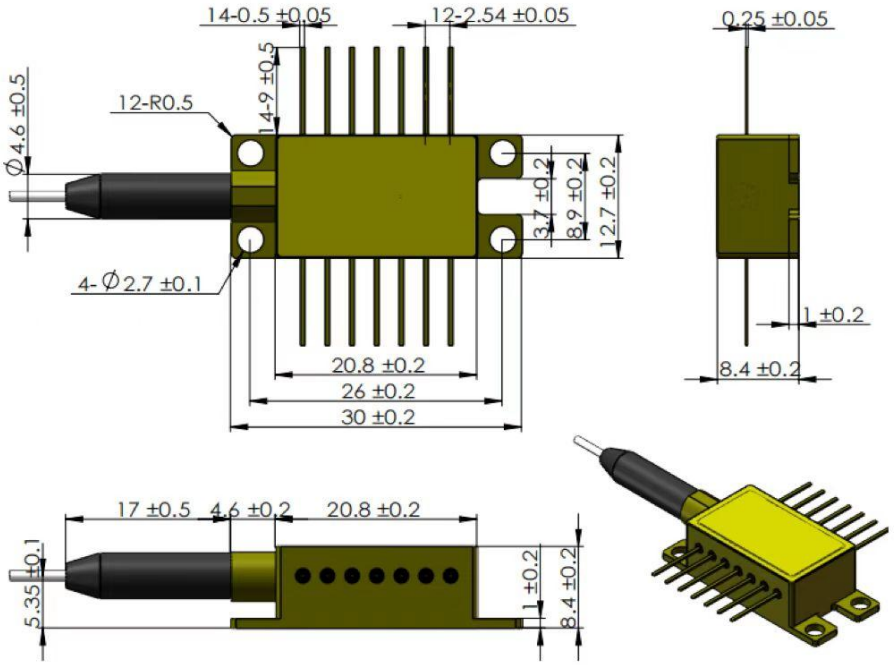
Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Threshold Current	Ith	-	-	10	35	mA
Slope Efficiency	η	PO=10mW(CW)	0.05	0.13	0.2	mW/mA
Operating Current	Iop	PO=10mW(CW)	-	100	150	mA
TEC Set Temperature	Ts	-	15	-	35	℃
Laser Forward Voltage	VF	PO=10mW(CW)	-	1.2	3.0	V
Monitor PD Current	IMPD	PO=10mW(CW)	10	-	2500	μA
Monitor Dark Current	ID	IF=0mA, VRPD=5V	-	-	0.1	μA
Thermistor Current	ITC	-	10	-	100	μA
Thermistor Resistance	RTH	TL=25℃	9.5	10	10.5	KΩ
Thermistor Constant	B	-	3800	-	4100	K
TEC Current	ITEC	TL=25℃, TC=70℃	-1.5	-	+1.5	A
TEC Voltage	VTEC	TL=25℃, TC=70℃	-3.5	-	+3.5	V
TEC Capacity	ΔT	Tc=70℃	-	-	50	℃

5. Optical Fiber Specifications:

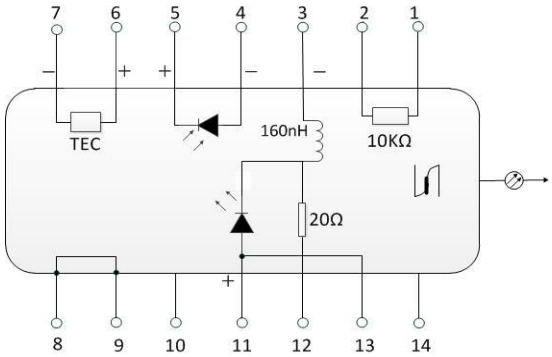
Parameters	Description
Fiber Type	SMF-28e or PM1550
Pigtail Type	900μm loose tube
Pigtail Length	1.0±0.1m
Connector Type	FC/APC



6. Package drawing&PIN-OUT Definition(Unit:mm):

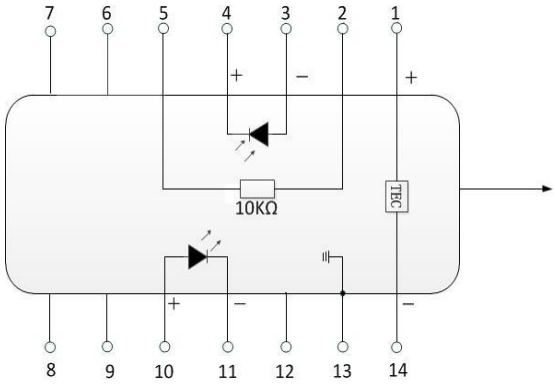


Type 1 telecom pin-layout



PIN	Description	PIN	Description
1	Thermistor	14	NC
2	Thermistor	13	Laser Anode (+)
3	Laser dc Bias(Cathode)(–)	12	Laser RF Cathode (-)
4	PD Monitor Anode (-)	11	Laser Anode (+)
5	PD Monitor Cathode (+)	10	NC
6	TEC(+)	9	Case Ground
7	TEC(–)	8	Case Ground

Type 2 pump pin-layout



PIN	Description	PIN	Description
1	TEC(+)	14	TEC(–)
2	Thermistor	13	Case Ground
3	PD Monitor Anode (-)	12	NC
4	PD Monitor Cathode (+)	11	Laser Cathode (-)
5	Thermistor	10	Laser Anode (+)
6	NC	9	NC
7	NC	8	NC

7. Part Number and Laser Center Wavelength list as below:

Channel	Part Number	Center Wavelength			Unit
		Min.	Typical	Max.	
C63	BFLD-C63-10XX-XX	1527.02	1527.22	1527.42	nm
H62	BFLD-H62-10XX-XX	1527.40	1527.60	1527.80	nm
C62	BFLD-C62-10XX-XX	1527.79	1527.99	1528.19	nm
H61	BFLD-H61-10XX-XX	1528.18	1528.38	1528.58	nm
C61	BFLD-C61-10XX-XX	1528.57	1528.77	1528.97	nm
H60	BFLD-H60-10XX-XX	1528.96	1529.16	1529.36	nm
C60	BFLD-C60-10XX-XX	1529.35	1529.55	1529.75	nm
H59	BFLD-H59-10XX-XX	1529.74	1529.94	1530.14	nm
C59	BFLD-C59-10XX-XX	1530.13	1530.33	1530.53	nm
H58	BFLD-H58-10XX-XX	1530.52	1530.72	1530.92	nm
C58	BFLD-C58-10XX-XX	1530.92	1531.12	1531.32	nm
H57	BFLD-H57-10XX-XX	1531.31	1531.51	1531.71	nm
C57	BFLD-C57-10XX-XX	1531.70	1531.90	1532.10	nm
H56	BFLD-H56-10XX-XX	1532.09	1532.29	1532.49	nm
C56	BFLD-C56-10XX-XX	1532.48	1532.68	1532.88	nm
H55	BFLD-H55-10XX-XX	1532.87	1533.07	1533.27	nm
C55	BFLD-C55-10XX-XX	1533.27	1533.47	1533.67	nm
H54	BFLD-H54-10XX-XX	1533.66	1533.86	1534.06	nm
C54	BFLD-C54-10XX-XX	1534.05	1534.25	1534.45	nm
H53	BFLD-H53-10XX-XX	1534.44	1534.64	1534.84	nm

C53	BFLD-C53-10XX-XX	1534.84	1535.04	1535.24	nm
H52	BFLD-H52-10XX-XX	1535.23	1535.43	1535.63	nm
C52	BFLD-C52-10XX-XX	1535.62	1535.82	1536.02	nm
H51	BFLD-H51-10XX-XX	1536.02	1536.22	1536.42	nm
C51	BFLD-C51-10XX-XX	1536.41	1536.61	1536.81	nm
H50	BFLD-H50-10XX-XX	1536.80	1537.00	1537.20	nm
C50	BFLD-C50-10XX-XX	1537.20	1537.40	1537.60	nm
H49	BFLD-H49-10XX-XX	1537.59	1537.79	1537.99	nm
C49	BFLD-C49-10XX-XX	1537.99	1538.19	1538.39	nm
H48	BFLD-H48-10XX-XX	1538.38	1538.58	1538.78	nm
C48	BFLD-C48-10XX-XX	1538.78	1538.98	1539.18	nm
H47	BFLD-H47-10XX-XX	1539.17	1539.37	1539.57	nm
C47	BFLD-C47-10XX-XX	1539.57	1539.77	1539.97	nm
H46	SBFLD-H46-10XX-XX	1539.96	1540.16	1540.36	nm
C46	BFLD-C46-10XX-XX	1540.36	1540.56	1540.76	nm
H45	BFLD-H45-10XX-XX	1540.75	1540.95	1541.15	nm
C45	BFLD-C45-10XX-XX	1541.15	1541.35	1541.55	nm
H44	BFLD-H44-10XX-XX	1541.55	1541.75	1541.95	nm
C44	BFLD-C44-10XX-XX	1541.94	1542.14	1542.34	nm
H43	BFLD-H43-10XX-XX	1542.34	1542.54	1542.74	nm
C43	BFLD-C43-10XX-XX	1542.74	1542.94	1543.14	nm
H42	BFLD-H42-10XX-XX	1543.13	1543.33	1543.53	nm
C42	BFLD-C42-10XX-XX	1543.53	1543.73	1543.93	nm
H41	BFLD-H41-10XX-XX	1543.93	1544.13	1544.33	nm
C41	BFLD-C41-10XX-XX	1544.33	1544.53	1544.73	nm
H40	BFLD-H40-10XX-XX	1544.72	1544.92	1545.12	nm
C40	BFLD-C40-10XX-XX	1545.12	1545.32	1545.52	nm
H39	BFLD-H39-10XX-XX	1545.52	1545.72	1545.92	nm
C39	BFLD-C39-10XX-XX	1545.92	1546.12	1546.32	nm
H38	BFLD-H38-10XX-XX	1546.32	1546.52	1546.72	nm
C38	BFLD-C38-10XX-XX	1546.72	1546.92	1547.12	nm
H37	BFLD-H37-10XX-XX	1547.12	1547.32	1547.52	nm
C37	BFLD-C37-10XX-XX	1547.52	1547.72	1547.92	nm
H36	BFLD-H36-10XX-XX	1547.91	1548.11	1548.31	nm
C36	BFLD-C36-10XX-XX	1548.31	1548.51	1548.71	nm
H35	BFLD-H35-10XX-XX	1548.71	1548.91	1549.11	nm
C35	BFLD-C35-10XX-XX	1549.12	1549.32	1549.52	nm
H34	BFLD-H34-10XX-XX	1549.52	1549.72	1549.92	nm
C34	BFLD-C34-10XX-XX	1549.92	1550.12	1550.32	nm
H33	BFLD-H33-10XX-XX	1550.32	1550.52	1550.72	nm
C33	BFLD-C33-10XX-XX	1550.72	1550.92	1551.12	nm
H32	BFLD-H32-10XX-XX	1551.12	1551.32	1551.52	nm
C32	BFLD-C32-10XX-XX	1551.52	1551.72	1551.92	nm

H31	BFLD-H31-10XX-XX	1551.92	1552.12	1552.32	nm
C31	BFLD-C31-10XX-XX	1552.32	1552.52	1552.72	nm
H30	BFLD-H30-10XX-XX	1552.73	1552.93	1553.13	nm
C30	BFLD-C30-10XX-XX	1553.13	1553.33	1553.53	nm
H29	BFLD-H29-10XX-XX	1553.53	1553.73	1553.93	nm
C29	BFLD-C29-10XX-XX	1553.93	1554.13	1554.33	nm
H28	BFLD-H28-10XX-XX	1554.34	1554.54	1554.74	nm
C28	BFLD-C28-10XX-XX	1554.74	1554.94	1555.14	nm
H27	BFLD-H27-10XX-XX	1555.14	1555.34	1555.54	nm
C27	BFLD-C27-10XX-XX	1555.55	1555.75	1555.95	nm
H26	BFLD-H26-10XX-XX	1555.95	1556.15	1556.35	nm
C26	BFLD-C26-10XX-XX	1556.35	1556.55	1556.75	nm
H25	BFLD-H25-10XX-XX	1556.76	1556.96	1557.16	nm
C25	BFLD-C25-10XX-XX	1557.16	1557.36	1557.56	nm
H24	BFLD-H24-10XX-XX	1557.57	1557.77	1557.97	nm
C24	BFLD-C24-10XX-XX	1557.97	1558.17	1558.37	nm
H23	BFLD-H23-10XX-XX	1558.38	1558.58	1558.78	nm
C23	BFLD-C23-10XX-XX	1558.78	1558.98	1559.18	nm
H22	BFLD-H22-10XX-XX	1559.19	1559.39	1559.59	nm
C22	BFLD-C22-10XX-XX	1559.59	1559.79	1559.99	nm
H21	BFLD-H21-10XX-XX	1560.00	1560.20	1560.40	nm
C21	BFLD-C21-10XX-XX	1560.41	1560.61	1560.81	nm
H20	BFLD-H20-10XX-XX	1560.81	1561.01	1561.21	nm
C20	BFLD-C20-10XX-XX	1561.22	1561.42	1561.62	nm
H19	BFLD-H19-10XX-XX	1561.63	1561.83	1562.03	nm
C19	BFLD-C19-10XX-XX	1562.03	1562.23	1562.43	nm
H18	BFLD-H18-10XX-XX	1562.44	1562.64	1562.84	nm
C18	BFLD-C18-10XX-XX	1562.85	1563.05	1563.25	nm
H17	BFLD-H17-10XX-XX	1563.25	1563.45	1563.65	nm
C17	BFLD-C17-10XX-XX	1563.66	1563.86	1564.06	nm
H16	BFLD-H16-10XX-XX	1564.07	1564.27	1564.47	nm
C16	BFLD-C16-10XX-XX	1564.48	1564.68	1564.88	nm
H15	BFLD-H15-10XX-XX	1564.89	1565.09	1565.29	nm
C15	BFLD-C15-10XX-XX	1565.30	1565.50	1565.70	nm
H14	BFLD-H14-10XX-XX	1565.70	1565.90	1566.10	nm
C14	BFLD-C14-10XX-XX	1566.11	1566.31	1566.51	nm
H13	BFLD-H13-10XX-XX	1566.52	1566.72	1566.92	nm
C13	BFLD-C13-10XX-XX	1566.93	1567.13	1567.33	nm
H12	BFLD-H12-10XX-XX	1567.34	1567.54	1567.74	nm
C12	BFLD-C12-10XX-XX	1567.75	1567.95	1568.15	nm
H11	BFLD-H11-10XX-XX	1568.16	1568.36	1568.56	nm
C11	BFLD-C11-10XX-XX	1568.57	1568.77	1568.97	nm
H10	BFLD-H10-10XX-XX	1568.98	1569.18	1569.38	nm

C10	BFLD-C10-10XX-XX	1569.39	1569.59	1569.79	nm
H09	BFLD-H09-10XX-XX	1569.81	1570.01	1570.21	nm
C09	BFLD-C09-10XX-XX	1570.22	1570.42	1570.62	nm
H08	BFLD-H08-10XX-XX	1570.63	1570.83	1571.03	nm
C08	BFLD-C08-10XX-XX	1571.04	1571.24	1571.44	nm
H07	BFLD-H07-10XX-XX	1571.45	1571.65	1571.85	nm
C07	BFLD-C07-10XX-XX	1571.86	1572.06	1572.26	nm
H06	BFLD-H06-10XX-XX	1572.28	1572.48	1572.68	nm
C06	BFLD-C06-10XX-XX	1572.69	1572.89	1573.09	nm
H05	BFLD-H05-10XX-XX	1573.10	1573.30	1573.50	nm
C05	BFLD-C05-10XX-XX	1573.51	1573.71	1573.91	nm
H04	BFLD-H04-10XX-XX	1573.93	1574.13	1574.33	nm
C04	BFLD-C04-10XX-XX	1574.34	1574.54	1574.74	nm
H03	BFLD-H03-10XX-XX	1574.75	1574.95	1575.15	nm
C03	BFLD-C03-10XX-XX	1575.17	1575.37	1575.57	nm
H02	BFLD-H02-10XX-XX	1575.58	1575.78	1575.98	nm
C02	BFLD-C02-10XX-XX	1576.00	1576.20	1576.40	nm
H01	BFLD-H01-10XX-XX	1576.41	1576.61	1576.81	nm
C01	BFLD-C01-10XX-XX	1576.83	1577.03	1577.23	nm
Q00	BFLD-Q00-10XX-XX	1577.24	1577.44	1577.64	nm
L00	BFLD-L00-10XX-XX	1577.66	1577.86	1578.06	nm
Q99	BFLD-Q99-10XX-XX	1578.07	1578.27	1578.47	nm
L99	BFLD-L99-10XX-XX	1578.49	1578.69	1578.89	nm
Q98	BFLD-Q98-10XX-XX	1578.90	1579.10	1579.30	nm
L98	BFLD-L98-10XX-XX	1579.32	1579.52	1579.72	nm
Q97	BFLD-Q97-10XX-XX	1579.73	1579.93	1580.13	nm
L97	BFLD-L97-10XX-XX	1580.15	1580.35	1580.55	nm
Q96	BFLD-Q96-10XX-XX	1580.57	1580.77	1580.97	nm
L96	BFLD-L96-10XX-XX	1580.98	1581.18	1581.38	nm
Q95	BFLD-Q95-10XX-XX	1581.40	1581.60	1581.80	nm
L95	BFLD-L95-10XX-XX	1581.82	1582.02	1582.22	nm
Q94	BFLD-Q94-10XX-XX	1582.24	1582.44	1582.64	nm
L94	BFLD-L94-10XX-XX	1582.65	1582.85	1583.05	nm
Q93	BFLD-Q93-10XX-XX	1583.07	1583.27	1583.47	nm
L93	BFLD-L93-10XX-XX	1583.49	1583.69	1583.89	nm
Q92	BFLD-Q92-10XX-XX	1583.91	1584.11	1584.31	nm
L92	BFLD-L92-10XX-XX	1584.33	1584.53	1584.73	nm
Q91	BFLD-Q91-10XX-XX	1584.75	1584.95	1585.15	nm
L91	BFLD-L91-10XX-XX	1585.16	1585.36	1585.56	nm
Q90	BFLD-Q90-10XX-XX	1585.58	1585.78	1585.98	nm
L90	BFLD-L90-10XX-XX	1586.00	1586.20	1586.40	nm
Q89	BFLD-Q89-10XX-XX	1586.42	1586.62	1586.82	nm
L89	BFLD-L89-10XX-XX	1586.84	1587.04	1587.24	nm

Q88	BFLD-Q88-10XX-XX	1587.26	1587.46	1587.66	nm
L88	BFLD-L88-10XX-XX	1587.68	1587.88	1588.08	nm
Q87	BFLD-Q87-10XX-XX	1588.10	1588.30	1588.50	nm
L87	BFLD-L87-10XX-XX	1588.53	1588.73	1588.93	nm
Q86	BFLD-Q86-10XX-XX	1588.95	1589.15	1589.35	nm
L86	BFLD-L86-10XX-XX	1589.37	1589.57	1589.77	nm
Q85	BFLD-Q85-10XX-XX	1589.79	1589.99	1590.19	nm
L85	BFLD-L85-10XX-XX	1590.21	1590.41	1590.61	nm
Q84	BFLD-Q84-10XX-XX	1590.63	1590.83	1591.03	nm
L84	BFLD-L84-10XX-XX	1591.06	1591.26	1591.46	nm
Q83	BFLD-Q83-10XX-XX	1591.48	1591.68	1591.88	nm
L83	BFLD-L83-10XX-XX	1591.90	1592.10	1592.30	nm
Q82	BFLD-Q82-10XX-XX	1592.32	1592.52	1592.72	nm
L82	BFLD-L82-10XX-XX	1592.75	1592.95	1593.15	nm
Q81	BFLD-Q81-10XX-XX	1593.17	1593.37	1593.57	nm
L81	BFLD-L81-10XX-XX	1593.59	1593.79	1593.99	nm
Q80	BFLD-Q80-10XX-XX	1594.02	1594.22	1594.42	nm
L80	BFLD-L80-10XX-XX	1594.44	1594.64	1594.84	nm
Q79	BFLD-Q79-10XX-XX	1594.86	1595.06	1595.26	nm
L79	BFLD-L79-10XX-XX	1595.29	1595.49	1595.69	nm
Q78	BFLD-Q78-10XX-XX	1595.71	1595.91	1596.11	nm
L78	BFLD-L78-10XX-XX	1596.14	1596.34	1596.54	nm
Q77	BFLD-Q77-10XX-XX	1596.56	1596.76	1596.96	nm
L77	BFLD-L77-10XX-XX	1596.99	1597.19	1597.39	nm
Q76	BFLD-Q76-10XX-XX	1597.42	1597.62	1597.82	nm
L76	BFLD-L76-10XX-XX	1597.84	1598.04	1598.24	nm
Q75	BFLD-Q75-10XX-XX	1598.27	1598.47	1598.67	nm
L75	BFLD-L75-10XX-XX	1598.69	1598.89	1599.09	nm
Q74	BFLD-Q74-10XX-XX	1599.12	1599.32	1599.52	nm
L74	BFLD-L74-10XX-XX	1599.55	1599.75	1599.95	nm
Q73	BFLD-Q73-10XX-XX	1599.97	1600.17	1600.37	nm
L73	BFLD-L73-10XX-XX	1600.40	1600.60	1600.80	nm
Q72	BFLD-Q72-10XX-XX	1600.83	1601.03	1601.23	nm
L72	BFLD-L72-10XX-XX	1601.26	1601.46	1601.66	nm
Q71	BFLD-Q71-10XX-XX	1601.68	1601.88	1602.08	nm
L71	BFLD-L71-10XX-XX	1602.11	1602.31	1602.51	nm
Q70	BFLD-Q70-10XX-XX	1602.54	1602.74	1602.94	nm
L70	BFLD-L70-10XX-XX	1602.97	1603.17	1603.37	nm
Q69	BFLD-Q69-10XX-XX	1603.40	1603.60	1603.80	nm
L69	BFLD-L69-10XX-XX	1603.83	1604.03	1604.23	nm
Q68	BFLD-Q68-10XX-XX	1604.26	1604.46	1604.66	nm
L68	BFLD-L68-10XX-XX	1604.68	1604.88	1605.08	nm
Q67	BFLD-Q67-10XX-XX	1605.11	1605.31	1605.51	nm

L67	BFLD-L67-10XX-XX	1605.54	1605.74	1605.94	nm
Q66	BFLD-Q66-10XX-XX	1605.97	1606.17	1606.37	nm
L66	BFLD-L66-10XX-XX	1606.40	1606.60	1606.80	nm
Q65	BFLD-Q65-10XX-XX	1606.84	1607.04	1607.24	nm
L65	BFLD-L65-10XX-XX	1607.27	1607.47	1607.67	nm
Q64	BFLD-Q64-10XX-XX	1607.70	1607.90	1608.10	nm
L64	BFLD-L64-10XX-XX	1608.13	1608.33	1608.53	nm
Q63	BFLD-Q63-10XX-XX	1608.56	1608.76	1608.96	nm
L63	BFLD-L63-10XX-XX	1608.99	1609.19	1609.39	nm
Q62	BFLD-Q62-10XX-XX	1609.42	1609.62	1609.82	nm
L62	BFLD-L62-10XX-XX	1609.86	1610.06	1610.26	nm
Q61	BFLD-Q61-10XX-XX	1610.29	1610.49	1610.69	nm
L61	BFLD-L61-10XX-XX	1610.72	1610.92	1611.12	nm

8.Ordering Information:

BFLD	**-XXXX**	**-XX**	**-XX**	**-XX**	**(-X)**
Laser type	Wavelength	Output power	Fiber type	Connector type	PIN-OUT
DFB Laser	CHxx: XXXX	10: 10mW	SM : Single mode PM : Polarization maintaining	FA : FC/APC SA : SC/APC Other	Nothing: Type 1 2: Type 2

E.g.:BFLD-XXXX-10SM-FA (Order information: XXXXnm DFB Laser diode with 10mW output power, and SM fiber with FC/APC connector, PIN-OUT is Type 1).