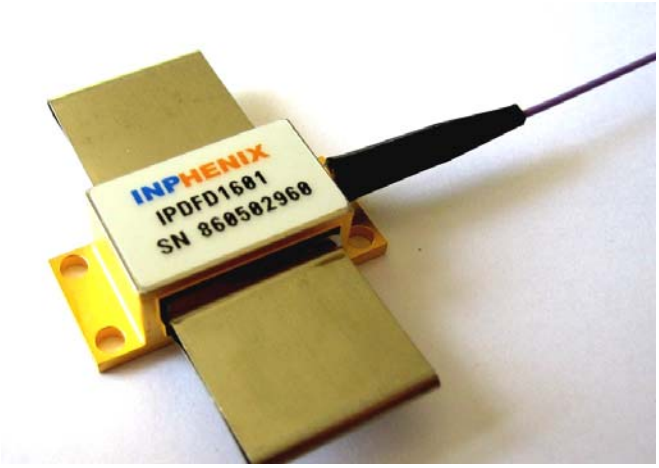
Product Specification, Revision 2.0

INPHENIX

1520nm Distributed Feedback Laser Diode Device

IPDFD1501



Features

- High output power
- Narrow linewidth
- High side mode suppression

Applications

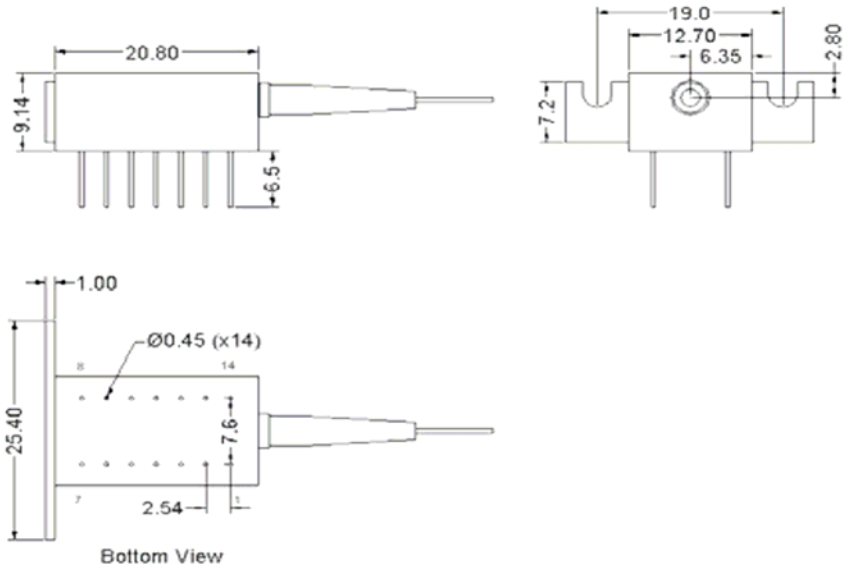
- Optic sensor

Device Specifications

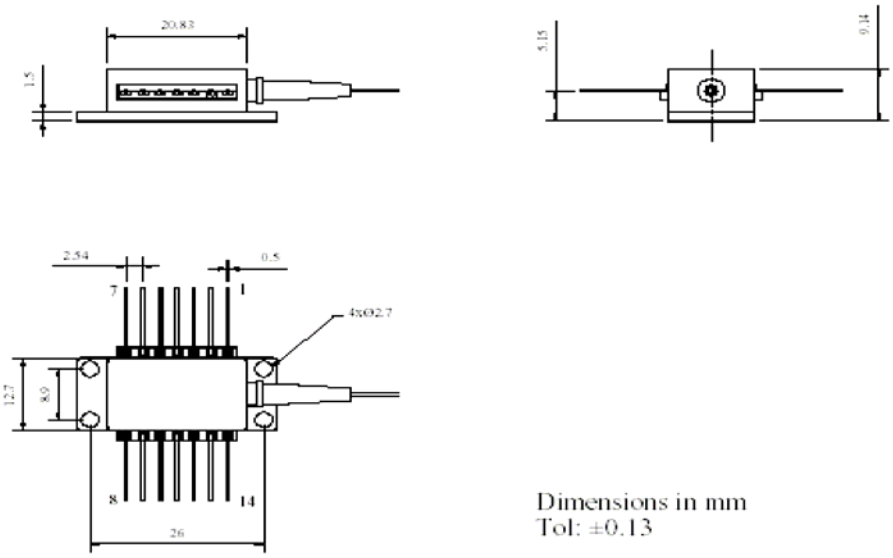
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Threshold Current	*I*th	-	-	25	mA	CW
Operating Current	*I*op	-	-	100	mA	CW, Pf= *P*op
Output Power	*P*op	5	-	-	mW	CW, I= *I*op
Slope Efficiency	*S*e	-	0.15	-	W/A	CW, Pf= *P*op
Forward Voltage	*V*f	-	-	-	V	CW, Pf= *P*op
Peak Wavelength	λp	1505	-	1523	nm	CW, Pf= *P*op
Spectral Width	Δλ	-	-	0.2	nm	CW, Pf= *P*op, 20 dB down
Peak Wavelength Drift	Dλ	-	-	-	nm/°C	CW, Pf= *P*op
Side Mode Suppression Ratio	SMSR	35	-	-	dB	CW, Pf= *P*op

INPHENIX

Package Dimensions



14-Pin DIL Package



14-Pin BUT Package

INPHENIX

Pin Definition

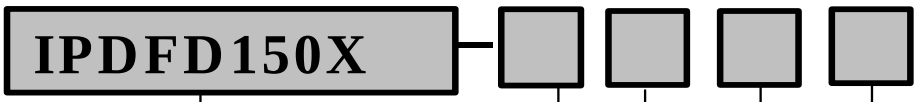
14-pin DIL package				14-pin BUT package			
Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	TEC(+)	8	PD(+)	1	Thermistor	8	NC
2	NC	9	LD(-)	2	Thermistor	9	NC
3	NC	10	Case	3	LD(-)	10	NC
4	NC	11	Thermistor	4	PD(+)	11	NC
5	LD(+)	12	Thermistor	5	PD(-)	12	LD (-)
6	NC	13	NC	6	TEC (+)	13	LD (+) Case GND
7	PD(-)	14	TEC (-)	7	TEC (-)	14	NC

Absolute Maximum Ratings

Parameter	**Min.**	**Max.**	**Unit**
Operating Temperature	– 20	70	°C
Storage Temperature	– 40	85	°C
TEC Drive Current	-	1.5	A
TEC Drive Voltage	-	3.6	V
Maximum Current	150		mA
Thermistor Resistance	10kΩ @ 25°C		
SLD Chip Temperature Setting	25°C		
Fiber Type	SMF		
Fiber Jacket	900 μm or 250 μm tight buffer		
Package	14-pin DIL/14-pin BUT, Others available		

INPHENIX

Part Numbering Structure



Model:
IPDFD1501: 1520nm DFB Laser Device
IPDFD1502: 1550nm DFB Laser Device

Package:
1: 14-pin DIL
3: 14-pin Butterfly

Fiber Type:
1: SM Fiber
2: PM Fiber

Jacket Type:
1: 900μm
2: 250μm tight buffer

Connector Type:

0: No Connector	3=FC/APC	6= Deleted
1=Deleted	4=FC/UPC	7=SC/APC
2= Deleted	5= Deleted	8=SC/UPC

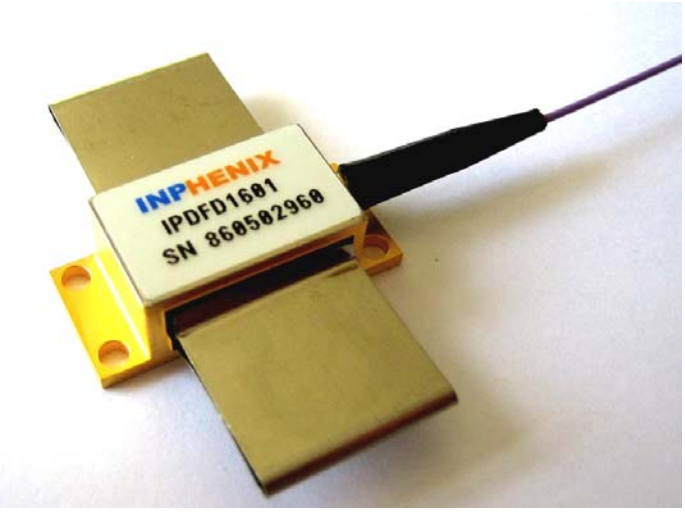
Example: IPDFD1502-1110: 1550nm DFB LD in 14-pin DIL with 900 μm SM fiber,without connector.

海纳光学
电话：0755-84870203
网址：www.highlightoptics.com

INPHENIX

1550nm Distributed Feedback Laser Diode Device

IPDFD1502



Features

- High output power
- Narrow linewidth
- High side mode suppression

Applications

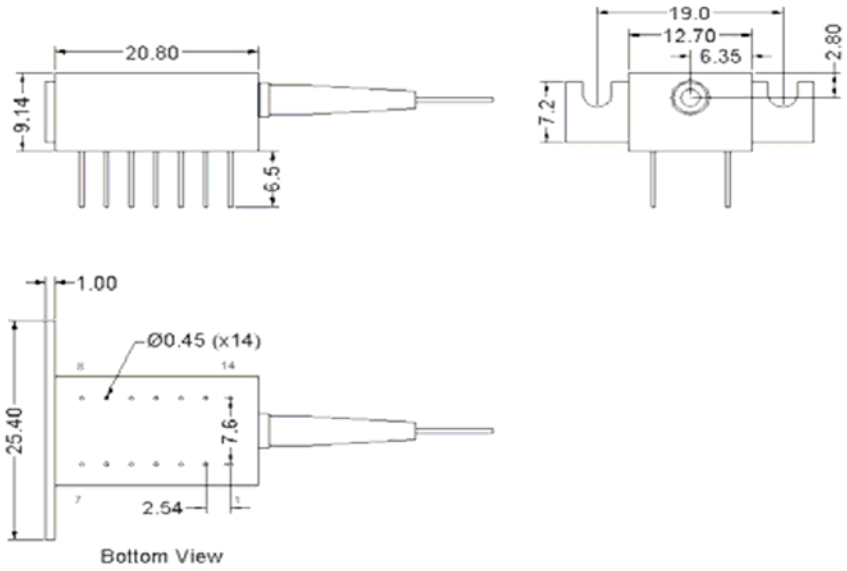
- Fiber optic sensor
- Metrology

Device Specifications

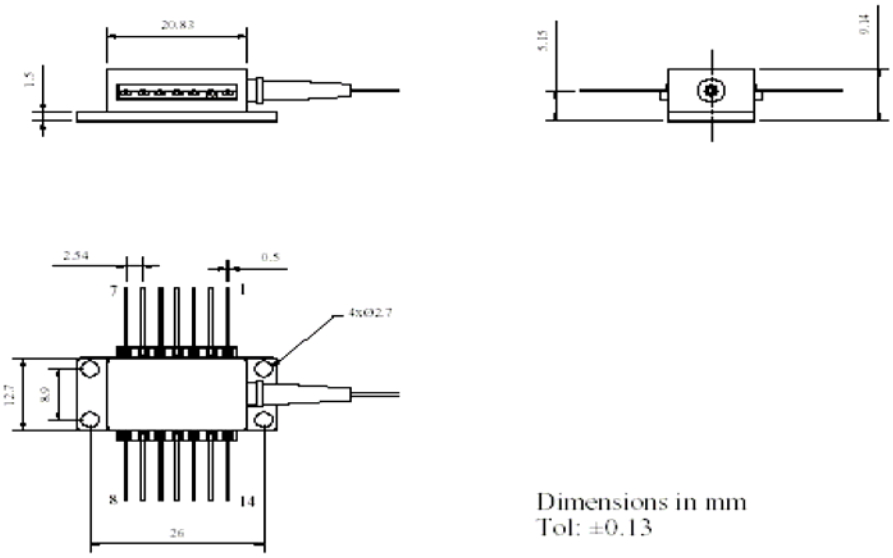
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Threshold Current	*I*th	-	-	20	mA	CW
Operating Current	*I*op	-	-	120	mA	CW, Pf= *P*op
Output Power	*P*op	5	-	-	mW	CW, I= *I*op
Slope Efficiency	*S*e	-	0.15	-	W/A	CW, Pf= *P*op
Forward Voltage	*V*f	-	-	-	V	CW, Pf= *P*op
Peak Wavelength	λp	1530	-	1570	nm	CW, Pf= *P*op
Spectral Width	Δλ	-	-	0.2	nm	CW, Pf= *P*op, 20 dB down
Peak Wavelength Drift	Dλ	-	-	-	nm/°C	CW, Pf= *P*op
Side Mode Suppression Ratio	SMSR	35	-	-	dB	CW, Pf= *P*op

INPHENIX

Package Dimensions



14-Pin DIL Package



14-Pin BUT Package

INPHENIX

Pin Definition

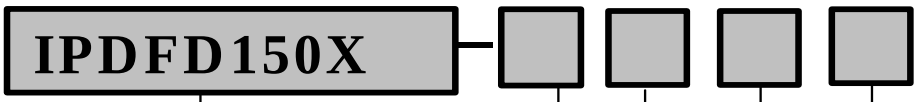
14-pin DIL package				14-pin BUT package			
Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	TEC(+)	8	PD(+)	1	Thermistor	8	NC
2	NC	9	LD(-)	2	Thermistor	9	NC
3	NC	10	Case	3	LD(-)	10	NC
4	NC	11	Thermistor	4	PD(+)	11	NC
5	LD(+)	12	Thermistor	5	PD(-)	12	LD (-)
6	NC	13	NC	6	TEC (+)	13	LD (+) Case GND
7	PD(-)	14	TEC (-)	7	TEC (-)	14	NC

Absolute Maximum Ratings

Parameter	Min.	Max.	Unit
Operating Temperature	– 20	70	°C
Storage Temperature	– 40	85	°C
TEC Drive Current	-	1.5	A
TEC Drive Voltage	-	3.6	V
Maximum Current	170		mA
Thermistor Resistance	10kΩ @ 25°C		
SLD Chip Temperature Setting	25°C		
Fiber Type	SMF		
Fiber Jacket	900 μm or 250 μm tight buffer		
Package	14-pin DIL/14-pin BUT, Others available		

INPHENIX

Part Numbering Structure



Model:
IPDFD1501: 1520nm DFB Laser Device
IPDFD1502: 1550nm DFB Laser Device

Package:
1: 14-pin DIL
3: 14-pin Butterfly

Fiber Type:
1: SM Fiber
2: PM Fiber

Jacket Type:
1: 900µm
2: 250µm tight buffer

Connector Type:

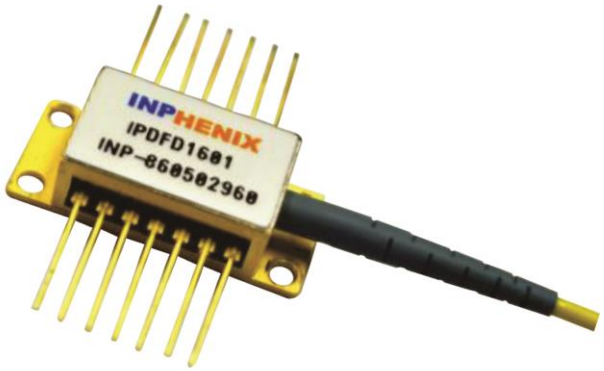
0: No Connector	3=FC/APC	6= Deleted
1=Deleted	4=FC/UPC	7=SC/APC
2= Deleted	5= Deleted	8=SC/UPC

Example: IPDFD1502-1110: 1550nm DFB LD in 14-pin DIL with 900 µm SM fiber,without connector.

INPHENIX

1550nm Distributed Feedback Laser Diode Device

IPDFD1503



Features

- High output power
- Narrow linewidth
- High side mode suppression

Applications

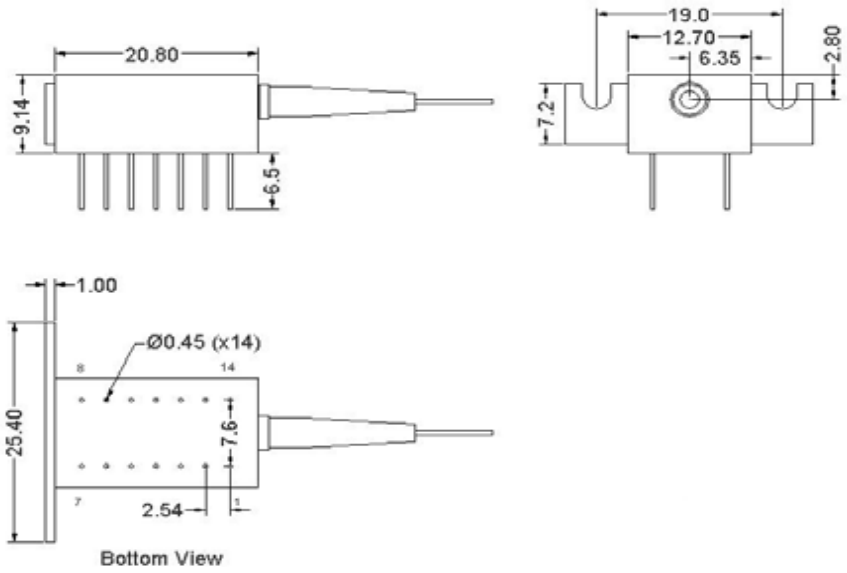
- LiDAR
- Fiber optic sensor
- Metrology

Device Specifications

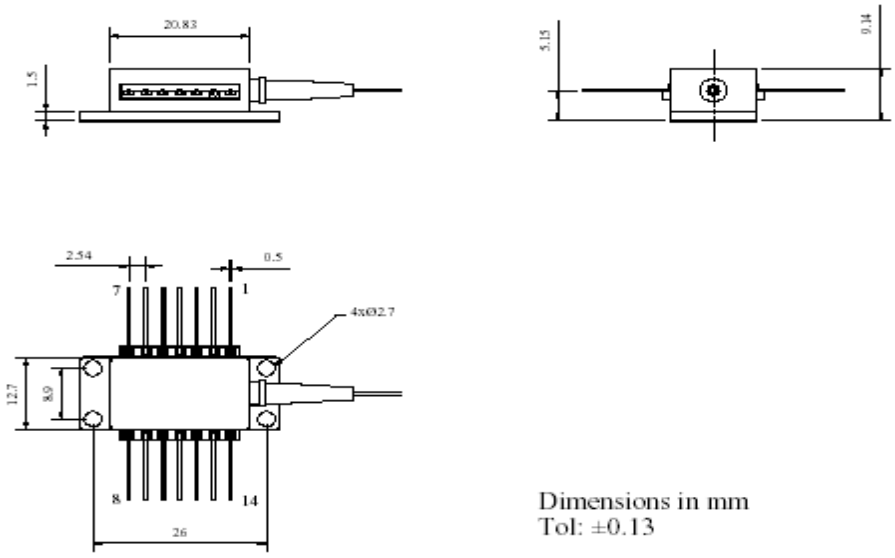
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Threshold Current	*I*th	-	15	-	mA	CW
Operating Current	*I*op	-	250	-	mA	CW, Pf= *P*op
Output Power	*P*op	20	30	-	mW	CW, I= *I*op
Slope Efficiency	*S*e	-	0.15	-	W/A	CW, Pf= *P*op
Forward Voltage	*V*f	-	-	2.5	V	CW, Pf= *P*op
Peak Wavelength	λp	-	1550	-	nm	CW, Pf= *P*op
Linewidth	Δλ	-	50	100	kHz	CW, Pf= *P*op
Peak Wavelength Drift	Dλ	-	-	-	nm/°C	CW, Pf= *P*op
Side Mode Suppression Ratio	SMSR	35	-	-	dB	CW, Pf= *P*op

INPHENIX

Package Dimensions



14-Pin DIL Package



14-Pin BUT Package

INPHENIX

Pin Definition

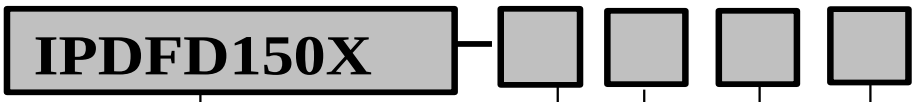
14-pin DIL package				14-pin BUT package			
Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	TEC(+)	8	PD(+)	1	Thermistor	8	NC
2	NC	9	LD(-)	2	Thermistor	9	NC
3	NC	10	Case	3	LD(-)	10	NC
4	NC	11	Thermistor	4	PD(+)	11	NC
5	LD(+)	12	Thermistor	5	PD(-)	12	LD (-)
6	NC	13	NC	6	TEC (+)	13	LD (+) Case GND
7	PD(-)	14	TEC (-)	7	TEC (-)	14	NC

Absolute Maximum Ratings

Parameter	Min.	Max.	Unit
Operating Temperature	– 20	70	°C
Storage Temperature	– 40	85	°C
TEC Drive Current	-	1.5	A
TEC Drive Voltage	-	3.6	V
Maximum Current	350		mA
Thermistor Resistance	10kΩ @ 25°C		
SLD Chip Temperature Setting	25°C		
Fiber Type	SMF		
Fiber Jacket	900 μm or 250 μm tight buffer		
Package	14-pin DIL/14-pin BUT, Others available		

INPHENIX

Part Numbering Structure



Model:
IPDFD1503: 1550nm DFB Laser Device

Package:
1: 14-pin DIL
3: 14-pin Butterfly

Fiber Type:
1: SM Fiber
2: PM Fiber

Jacket Type:
1: 900μm
2: 250μm tight buffer

Connector Type:

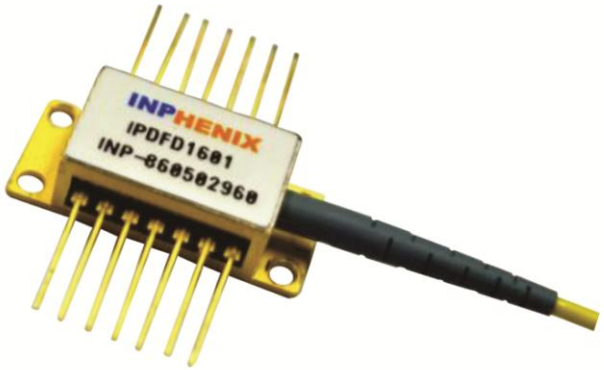
0: No Connector	3=FC/APC	6= Deleted
1=Deleted	4=FC/UPC	7=SC/APC
2= Deleted	5= Deleted	8=SC/UPC

Example: IPDFD1503-1110: 1550nm DFB LD in 14-pin DIL with 900 μm SM fiber,without connector.

INPHENIX

16XXnm Distributed Feedback Laser Diode Device

IPDFD16XX (1665/1653nm)



Features

- High Output Power
- Narrow Linewidth
- High Side Mode Suppression

Applications

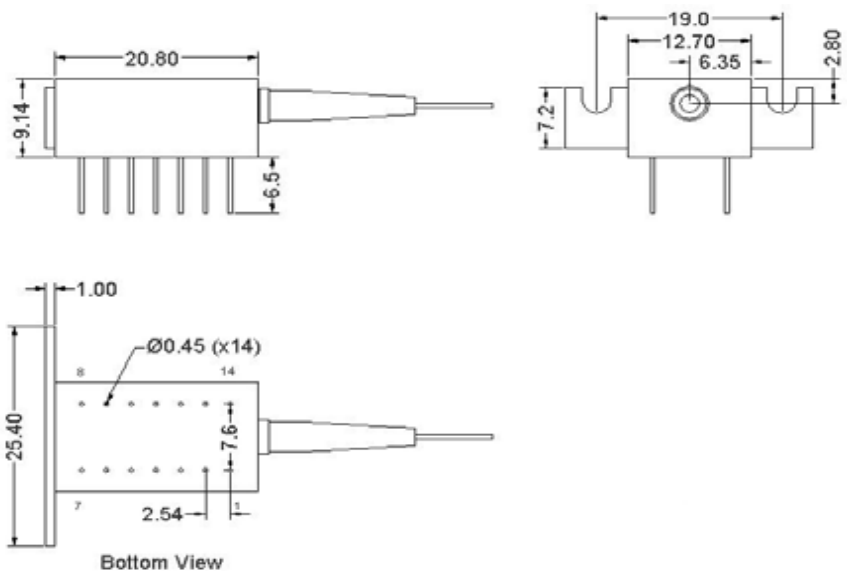
- Fiber Optic Sensor
- Methane Sensor

Device Specifications

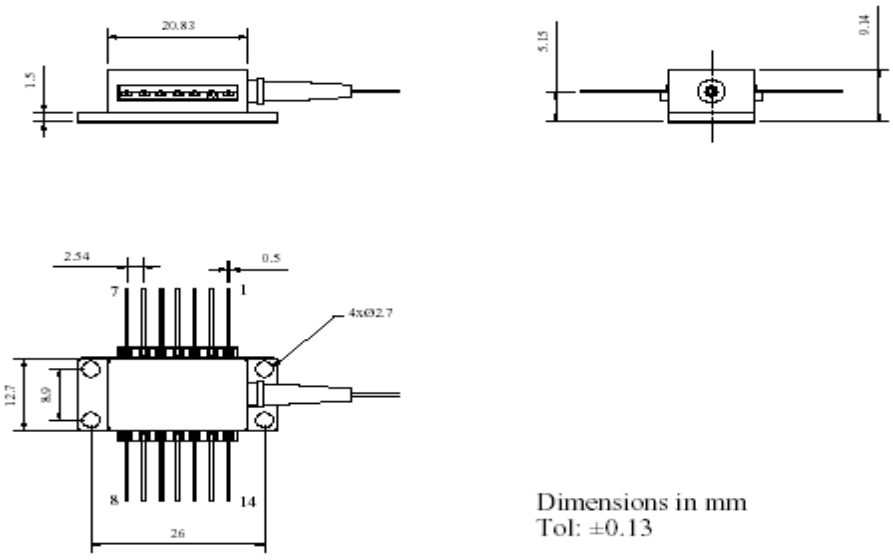
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Threshold Current	*I*th	-	10	25	mA	CW
Operating Current	*I*op	-	-	80	mA	CW, Pf= *P*op
Output Power	*P*op	3	5	-	mW	CW, I= *I*op
Slope Efficiency	*S*e	-	0.07	-	W/A	CW, Pf= *P*op
Forward Voltage	*V*f	-	-	2	V	CW, Pf= *P*op
Peak Wavelength (IPDFD1601)	λp	1660	1665	1670	nm	CW, Pf= *P*op
Peak Wavelength (IPDFD1602)	λp	1650	1653	1659	nm	CW, Pf= *P*op
Spectral Width	Δλ	-	-	0.2	nm	CW, Pf= *P*op
Peak Wavelength Drift	Dλ	-	-	0.14	nm/℃	CW, Pf= *P*op
Side Mode Suppression Ratio	SMSR	35	-	-	dB	CW, Pf= *P*op

INPHENIX

Package Dimensions



14-Pin DIL Package



14-Pin BUT Package

INPHENIX

Pin Definition

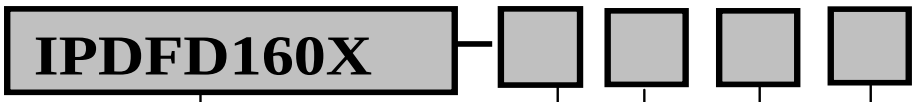
14-pin DIL package				14-pin BUT package			
Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	TEC(+)	8	PD(+)	1	Thermistor	8	NC
2	NC	9	LD(-)	2	Thermistor	9	NC
3	NC	10	Case	3	LD(-)	10	NC
4	NC	11	Thermistor	4	PD(+)	11	NC
5	LD(+)	12	Thermistor	5	PD(-)	12	LD (-)
6	NC	13	NC	6	TEC (+)	13	LD (+) Case GND
7	PD(-)	14	TEC (-)	7	TEC (-)	14	NC

Absolute Maximum Ratings

Parameter	**Min.**	**Max.**	**Unit**
Operating Temperature	– 20	70	℃
Storage Temperature	– 40	85	℃
TEC Drive Current	-	1.5	A
TEC Drive Voltage	-	3.6	V
Thermistor Resistance	10kΩ @ 25 ℃		
SLD Chip Temperature Setting	25 ℃		
Fiber Type	SMF		
Fiber Jacket	900 μm or 250 μm tight buffer		
Package	14-pin DIL/14-pin BUT, Others available		

INPHENIX

Part Numbering Structure



Model:
IPDFD1601: 1665nm DFB Laser Device
IPDFD1602: 1653nm DFB Laser Device

Package:
1: 14-pin DIL
3: 14-pin Butterfly

Fiber Type:
1: SM Fiber
2: PM Fiber

Jacket Type:
1: 900μm
2: 250μm tight buffer

Connector Type:

0: No Connector	3=FC/APC	6= Deleted
1=Deleted	4=FC/UPC	7=SC/APC
2= Deleted	5= Deleted	8=SC/UPC

Example: IPDFD1602-1110: 1653nm DFB LD in 14-pin DIL with 900 μm SM fiber, without connector.