

## Features

- Up to 300mW CW output power.
- Fiber Bragg Grating available for increased wavelength stability ( $\pm 0.5$  nm).
- High Quality, Reliability, & Performance

## Applications

- Telecommunication
- Cable TV
- Fiber Lasers
- Optical Data Storage
- Graphics

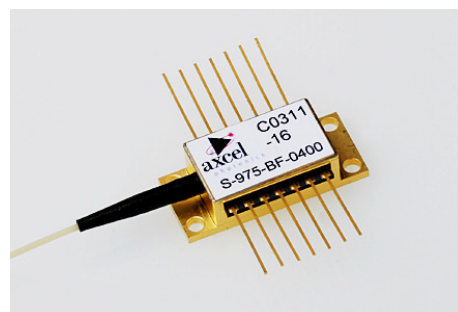
## Product Specifications

### 975nm Single-Mode 14-Pin Butterfly Module Laser Diodes

#### Description:

High brightness, high quality, and high reliability are the foundation of our single mode product line. Axcel's 975nm single mode laser modules are available with up to 300mW of continuous output power from a 14-pin butterfly packaged fiber. All chips are mounted on a 2.1mm or 3.0mm COS within the package and come standard with an internal thermistor, TEC, and photodiode. Axcel's trademark laser chip design offers un-measurable degradation and long lifetimes that make our chips among the most reliable in the industry today. Our 980nm single mode line serves a broad range of applications including, telecommunication, cable TV, fiber lasers, optical data storage, spectral analysis, and graphics.

Fiber Bragg Grating options are available at 974-979nm wavelengths. The grating offers greater wavelength stability to within 0.5nm! More options are available upon request. Please view our website for mechanical drawings of our module packages.



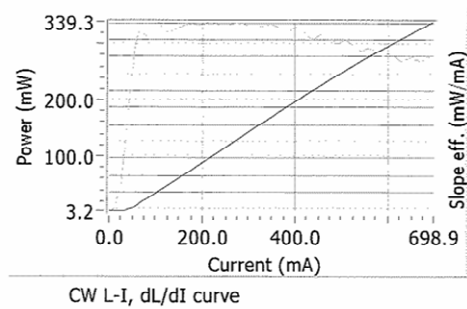
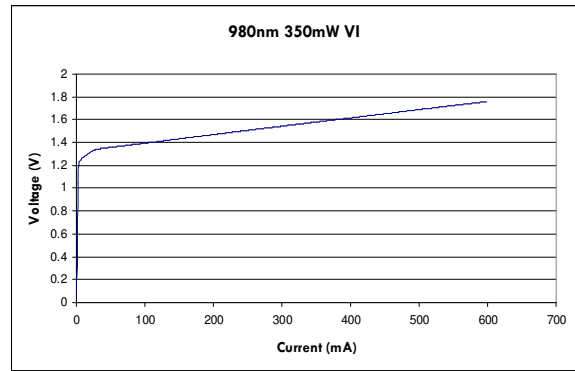
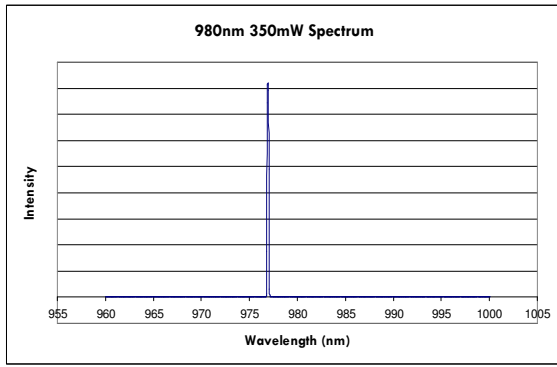
### Performance Data for Single-Mode 975nm Butterfly module devices

Parameter	Unit	300mW			250mW w/ FBG			220mW			180mW w/FBG		
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max
Wavelength	nm	970	975	980	974.5	975.0	975.5	970	975	980	974.5	975.0	975.5
Spectrum FWHM	nm	-	0.5	2.0	-	0.2	0.5	-	0.5	2.0	-	0.2	0.5
Operating Power (P <sub>o</sub> )	mW	-	300	-	-	250	-	-	220	-	-	180	-
Operating Current (I <sub>o</sub> )	mA	-	490	580	-	490	580	-	380	450	-	380	450
Operating Voltage (V <sub>o</sub> )	V	-	2.0	2.3	-	2.0	2.3	-	2.0	2.3	-	2.0	2.3
Lifetime	years	25	-	-	25	-	-	25	-	-	25	-	-
Threshold (I <sub>th</sub> )	mA	-	30	50	-	30	50	-	30	50	-	30	50
Slope Efficiency (dP/dI)	W/A	0.60	0.71	-	0.45	0.54	-	0.60	0.71	-	0.45	0.54	-
TEC Voltage	V	-	-	2.9	-	-	2.9	-	-	3.2	-	-	3.2
TEC Current	A	-	-	7.5	-	-	7.5	-	-	2.0	-	-	2.0
Storage Temp.	°C	-40	-	80	-40	-	80	-40	-	80	-40	-	80
Operating Temp. (T <sub>op</sub> )	°C	0	25	75	0	25	75	0	25	75	0	25	75
Lead Soldering Temp. (5 sec)	°C	-	-	250	-	-	250	-	-	250	-	-	250

Note: 1) Specifications are subject to change without notice.

2) All Axcel Photonics products are TE polarized

## 975nm Single Mode Butterfly Module Performance Data Graphs



### Determining Your Product number:

MM—WWW—PPP—XYZ—(custom add-ons)  
(package)-(wavelength)-(power)-(options)

### Standard Product Configurations

#### Package:

BF 14-pin Butterfly  
BH 14-pin Butterfly (high-power)

#### Wavelength:

975 975nm

#### Power Options:

0180 180mW  
0220 220mW  
0250 250mW  
0300 300mW

#### X Option (aperture size)

P PM fiber for Module

#### Y Option (wavelength tolerance)

P PM Fiber Bragg Grating  
5 ±5nm

#### Z Option (additional options)

0 none  
A FC connector

Please note: These are our standard product configurations. Other options may be available, please inquire about any additional options that you may require when contacting our Sales Team.

#### 180mW Series

BF-975-0180-PP0

#### 220mW Series

BF-975-0220-P50

#### 250mW Series

BH-975-0250-PP0

#### 300mW Series

BH-975-0300-P50

### Safety

Caution: Laser light emitted from any diode laser is invisible and may be harmful to the human eye. Avoid looking directly into the diode laser aperture when the device is in operation.

Note: The use of optical instruments with this product will increase eye hazard.

### ESD Caution

Always handle diode lasers with extreme care to prevent electrostatic discharge, the primary cause of unexpected diode failure. You can prevent ESD by always wearing wrist straps, grounding all applicable work surfaces, and following extremely rigorous anti-static techniques when handling diode lasers.

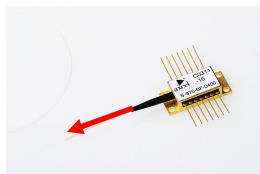
### Operating Considerations

Operating the diode laser outside of its maximum ratings may cause device failure or a safety hazard. Power supplies used with the component must be employed such that the maximum peak optical power cannot be exceeded. CW diode lasers may be damaged by excessive drive current or switching transients. When using power supplies, the diode laser should be connected with the main power on and the output voltage at zero. The current should be increased slowly while monitoring the diode laser output power and the drive current. Device degradation accelerates with increased temperature, and therefore careful attention to minimize the case temperature is advised. A proper heat-sink for the diode laser on a thermal radiator will greatly enhance laser life.

### Power Output Danger Label

**WARNING! Invisible laser radiation is emitted from devices as shown below**

### 21 CFR 1040.10 Compliance



Because of the small size of these devices, each of the labels shown are attached to the individual shipping container. They are illustrated here to comply with 21 CFR 1040.10 as applicable under the Radiation Control for Health and Safety Act of 1968.