

APPLICATIONS

- Optical communication
- Time-resolved fluorescence measurements
- LED/LD temporal characterization
- LiDAR
- Free Space Optics (FSO)

AVAILABLE OPTIONS

- Chip active diameters from 100 μ m & 300 μ m
- Low dark current for high sensitivity
- Low capacitance for high speed (up to 2.5 GHz, depending on package)
- Wide packaging variety: TO packages, fiber pigtails and more

SPECIFICATIONS

High-Speed InGaAs Photodiode				
Part Number	N17L10-T46	N17L30-T46	N17L30-T18	Units
Optoelectronic Characteristics @ 23 °C \pm 2 °C				
Active Diameter	100	300	300	μ m
Responsivity @ 850nm (min/typ)	0.1/0.2	0.1/0.2	0.1/0.2	A/W
Responsivity @ 1300nm (min/typ)	0.8/0.9	0.8/0.9	0.8/0.9	A/W
Responsivity @ 1550nm (typ)	0.95	0.95	0.95	A/W
Dark Current @ 5V (max/typ)	1.0/0.5	5.0/1.0	5.0/1.0	nA
Capacitance @ 5V (max/typ)	1.2/1.0	8.0/4.0	8.0/4.0	pF
Bandwidth w/ 50 Ω -3dB	3	0.8	0.8	GHz min @ 5V
Rise/Fall time $R_L = 50 \Omega$	0.1	0.4	0.4	nS max @ 5V
NEP @ 1550nm (typ)	13 x 10 ⁻¹⁵	18 x 10 ⁻¹⁵	18 x 10 ⁻¹⁵	W/Hz ^{1/2}
Package	TO-46 window cap	TO-46 window cap	TO-18 window cap	
Maximum Ratings @ 23 °C \pm 2 °C				
Storage Temperature	-40 to 125	-40 to 125	-40 to 125	°C
Operating Temperature	-40 to 85	-40 to 85	-40 to 85	°C
Reverse Voltage	25	25	25	V
Reverse Current	10	25	25	mA
Forward Current	10	100	100	mA

Figure 1. InGaAs Response vs. Wavelength vs. Temperature

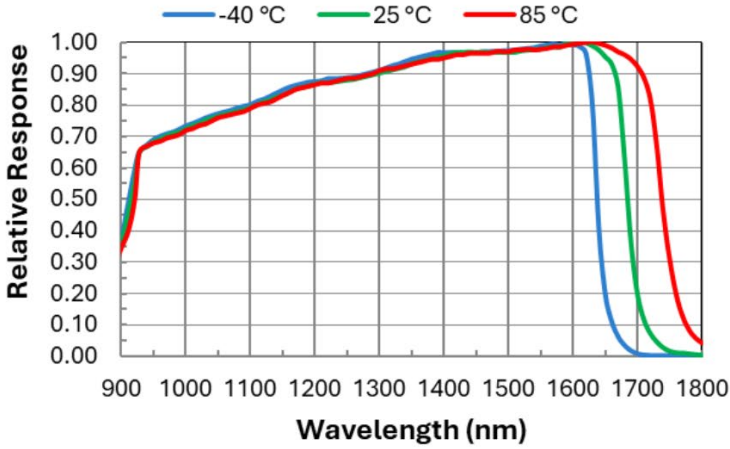


Figure 2. InGaAs Response vs. Wavelength vs. Temperature (Cont.)

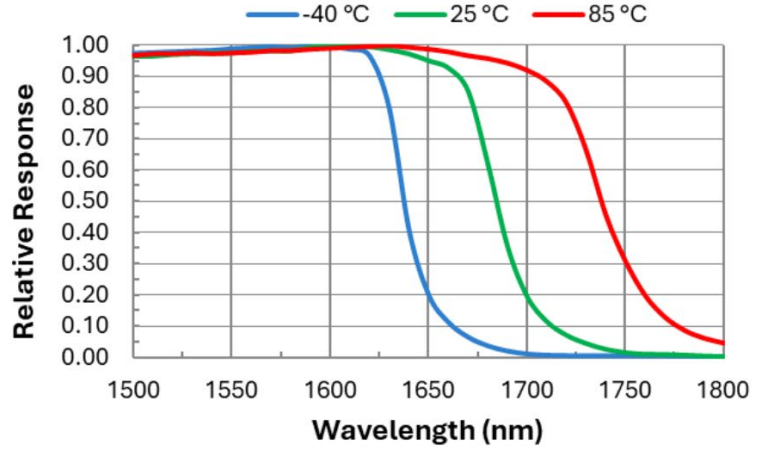


Figure 3. Dark Current vs. Reverse Voltage vs. Diameter

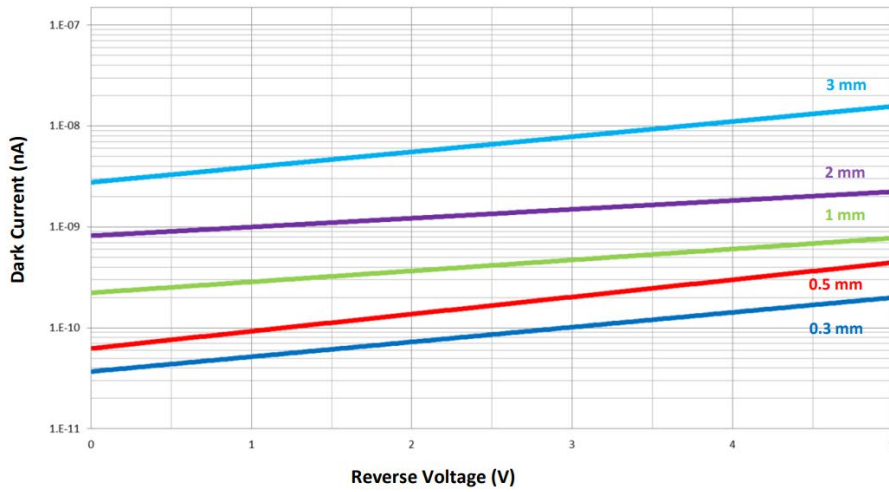
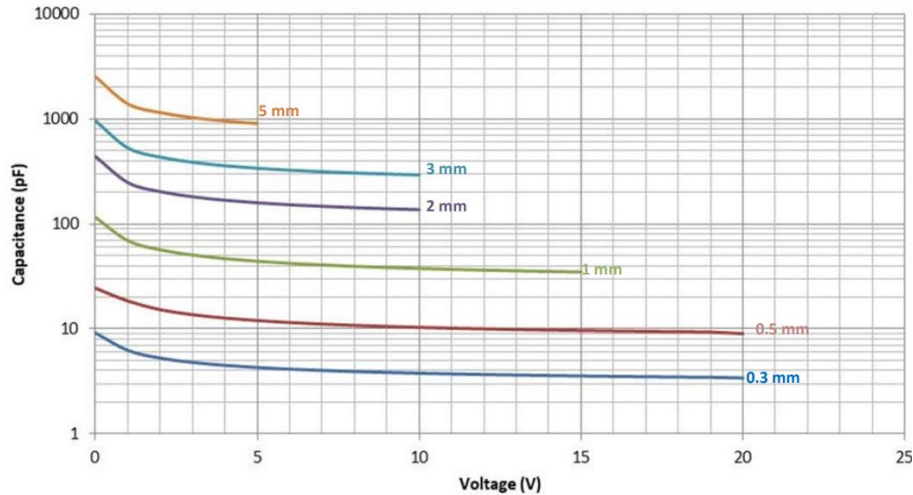


Figure 4. Capacitance (pF) vs. Reverse Voltage (V) vs. Diameter (mm)



PACKAGING CAPABILITIES

Packaging Configurations		
Diameter (μ m)	TO Header	
	TO-46	TO-18
100	•	
300	•	•
Window (Other Options Available)		
Material	Thickness (mm)	
Ball Lens		
Fiber Pigtail		
Molded Clear Glass	0.25	
Borosilicate Glass	0.50	

GPD QUALIFICATIONS

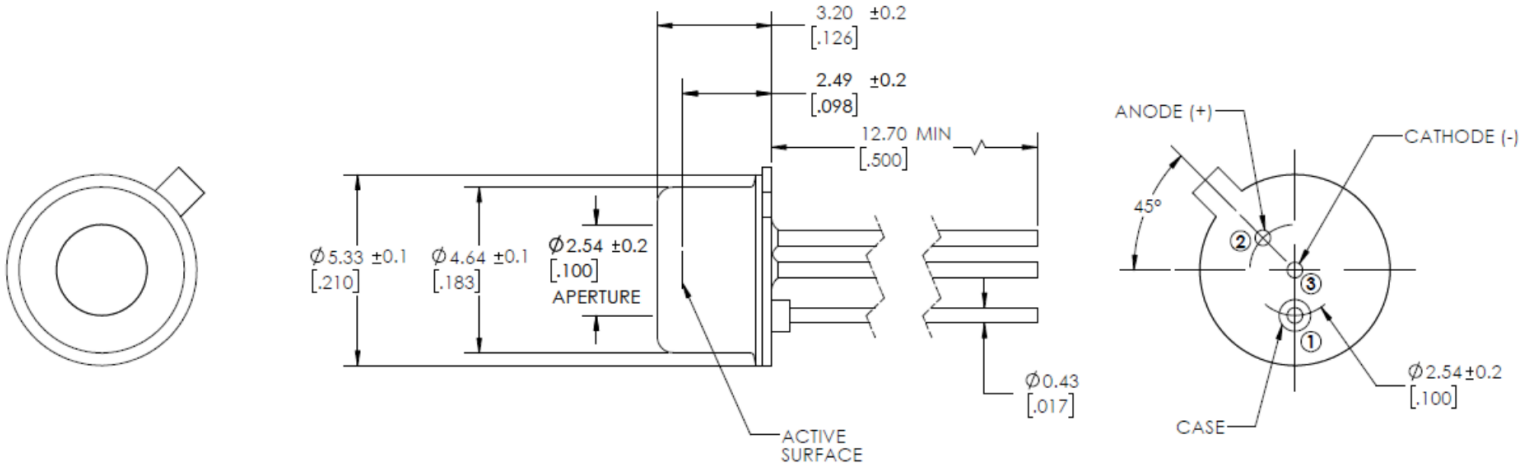
Our compliance, certificates, and capabilities

- ✓ ISO 9001:2005
- ✓ Quality Assurance Provisions
- ✓ DDTC/ITAR registered
- ✓ MIL-STD-883
- ✓ MIL-STD-750
- ✓ Space-qualified designs
- ✓ High-reliable assembly and environmental/radiation test
- ✓ Manufactured in Salem, NH

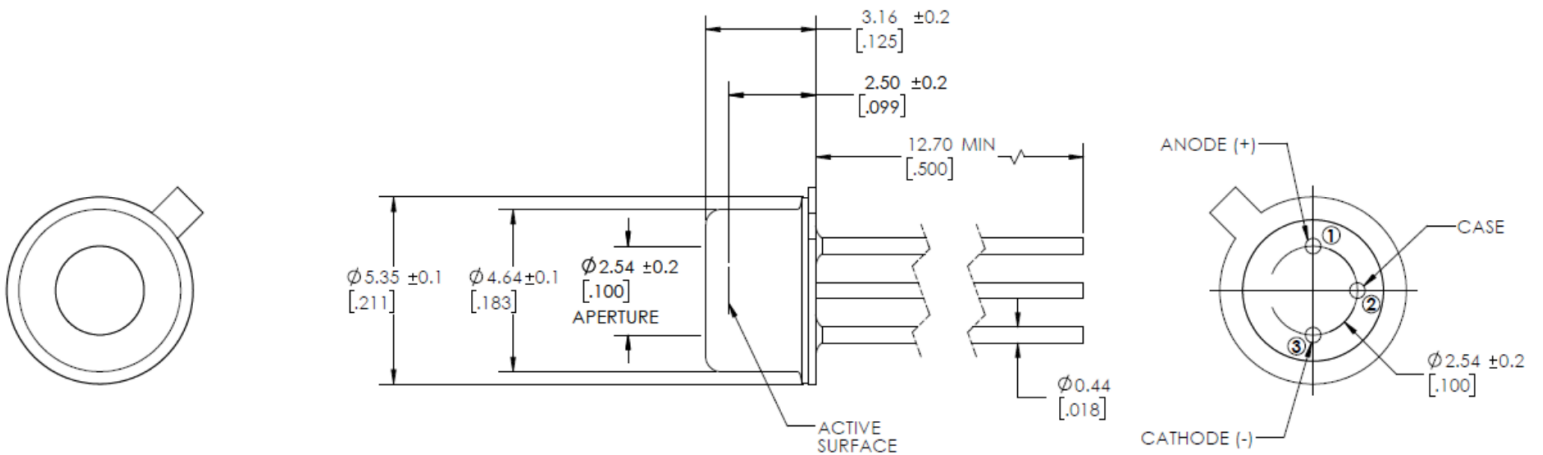


Packaging Outline

TO-46



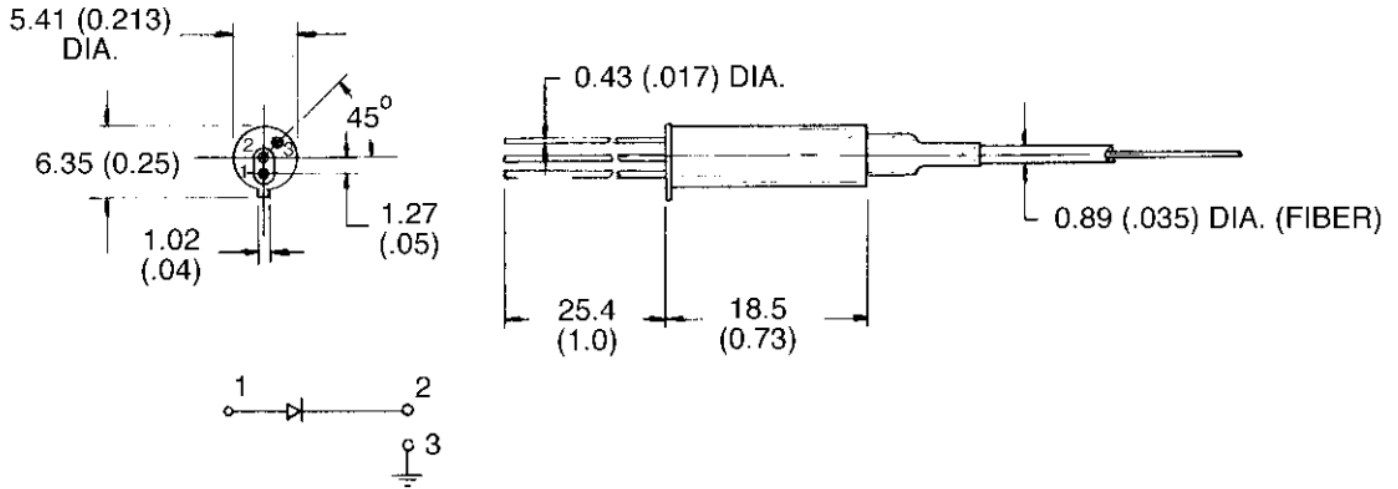
TO-18



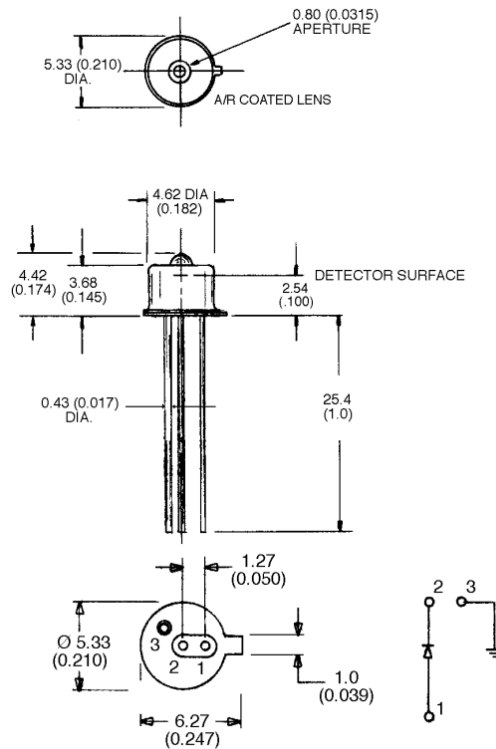
DIMENSIONS IN MM [INCH]

Packaging Outline

TO-46 with Fiber Pigtail



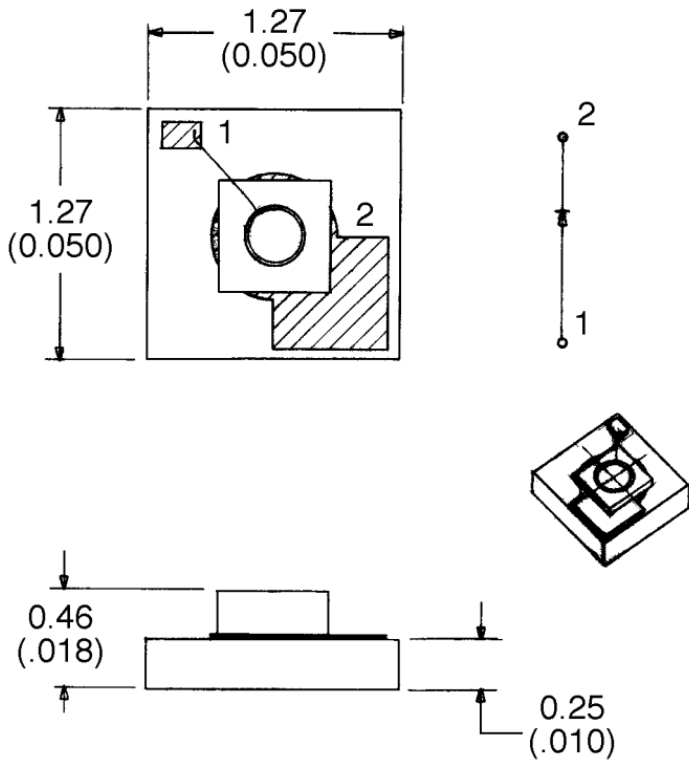
TO-46 with Ball Lens



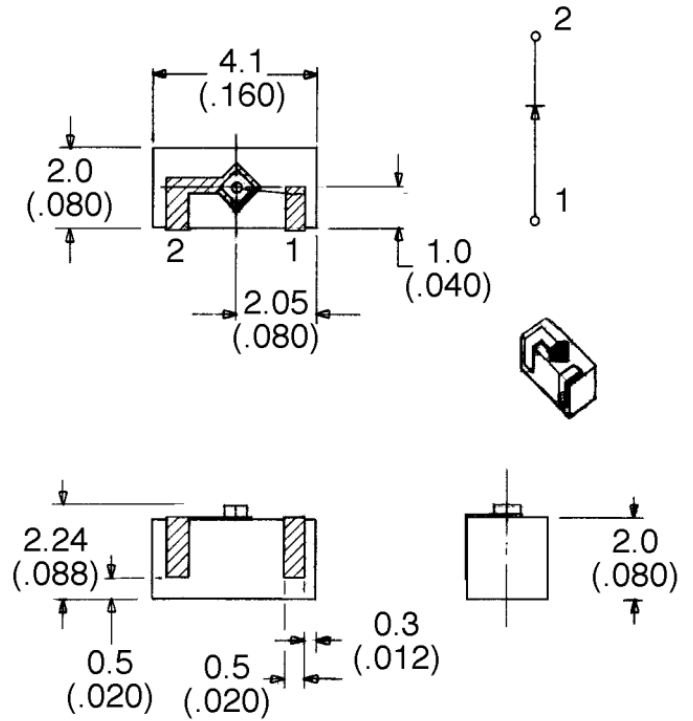
DIMENSIONS IN MM [INCH]

Packaging Outline

Ceramic Sub Mount (1)



Ceramic Sub Mount (2)

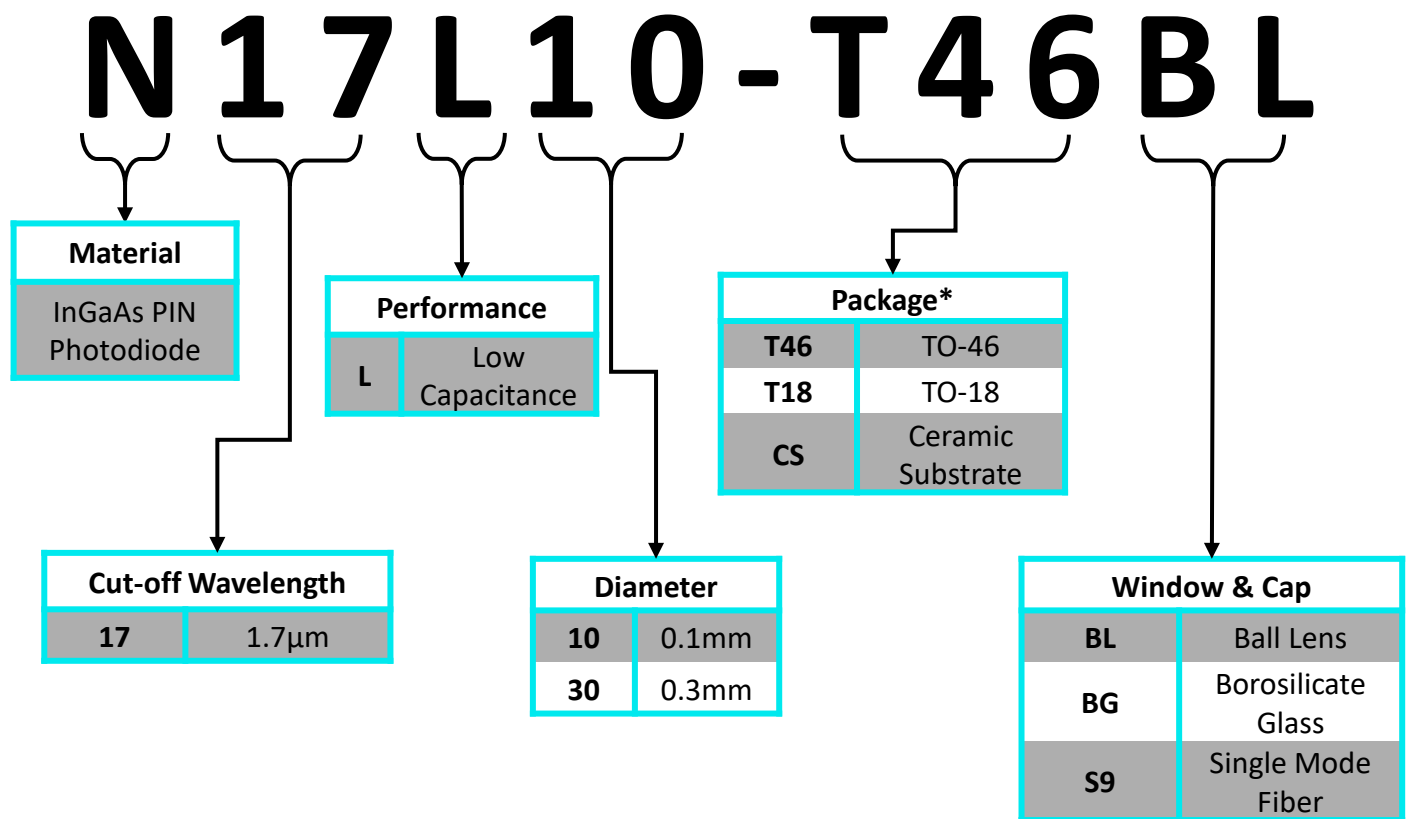


DIMENSIONS IN MM [INCH]

ORDERING INFORMATION

GPD is proud to offer multiple packaging solutions to best fit the needs of your application. Our Standard configurations are mentioned below, and custom packaging is also available.

Selection is based on the size of the photodiode and the package requirements of your application. Refer to packaging capabilities chart below for more information.



NOTE: GPD Optoelectronics may update product details without prior notice, and any use or application of our products is at your own discretion.

Handling and Processing Precautions

Electrostatic Discharge (ESD) Warning

Our detectors are highly susceptible to damage from electrostatic discharge (ESD). To prevent damage, use ESD protective measures, such as grounding straps, when unpacking and handling these devices.

To guarantee the optimal performance of a photodiode, it is crucial to adhere strictly to the device's electrical specifications. Photodiodes are highly sensitive to values that surpass their absolute maximum ratings. Exceeding these limits can lead to damage or total failure of the device. Users should employ handling techniques that avoid electrostatic discharges and other electrical surges during both the handling and operation of these devices.

Cleanroom Packaging and Handling

Our detectors are packaged in a clean state under cleanroom conditions, eliminating the need for cleaning before processing. In fact, cleaning is not recommended as it may introduce contaminants.

Processing Guidelines

To maintain the cleanliness of our detectors:

- Process under the cleanest conditions possible, including clean workplaces and room air.
- Wear suitable gloves or fingerstalls to prevent fingerprint contamination (mainly fats and organic acids).
- Ensure the soldering process is designed to prevent the need for post-soldering cleaning.

Cleaning Optical Windows (if necessary)

If exceptional circumstances require cleaning the optical windows:

- First, identify the type of contamination.
- For loose particles, gently blow them off with nitrogen gas or clean, dry air.
- For attached particles or other contaminating materials, clean with solvents such as isopropyl alcohol, or First Contact™ Polymer