

38.1mm Dia. x 2mm Thick, 3-5µm AR Coated & DLC Coated, ISP Optics Silicon (Si) Window | DLC35-SI-W-38-2

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Diamond-Like Carbon (DLC) Coated Silicon Windows

Stock **#24-647** CLEARANCE **5 In Stock**

-

1

+

£349<sup>.60</sup>

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| General                                                   |               |
|-----------------------------------------------------------|---------------|
| Protective Window                                         | Type:         |
| Arrow on substrate edge points towards DLC coated surface | Note:         |
| DLC35-SI-W-38-2                                           | Model Number: |

| Physical & Mechanical Properties |                          |
|----------------------------------|--------------------------|
| Protective as needed             | Bevel:                   |
|                                  |                          |
| 85                               | Clear Aperture (%):      |
|                                  |                          |
| 32.38                            | Clear Aperture CA (mm):  |
|                                  |                          |
| 38.10 +0.00/-0.13                | Diameter (mm):           |
|                                  |                          |
| 2.00 ±0.13                       | Thickness (mm):          |
|                                  |                          |
| Fine Ground                      | Edges:                   |
|                                  |                          |
| 1,150.00                         | Knoop Hardness (kg/mm²): |
|                                  |                          |
| <3                               | Parallelism (arcmin):    |
|                                  |                          |
| 0.27                             | Poisson's Ratio:         |
|                                  |                          |
| 140                              | Young's Modulus (GPa):   |

| Optical Properties                                                    |                                        |
|-----------------------------------------------------------------------|----------------------------------------|
| S1: DLC Coating<br>S2: BBAR (3000-5000nm)                             | Coating:                               |
|                                                                       |                                        |
| AR: R <sub>avg</sub> ≤0.5% @ 3000 - 5000nm                            | Coating Specification:                 |
|                                                                       |                                        |
| 3.422 @ 5µm                                                           | Index of Refraction (n <sub>d</sub> ): |
|                                                                       |                                        |
| Silicon (Si)                                                          | Substrate:                             |
|                                                                       |                                        |
| λ/10 @ 10.6µm                                                         | Surface Flatness (P-V):                |
|                                                                       |                                        |
| 40-20                                                                 | Surface Quality:                       |
|                                                                       |                                        |
| 3000 - 5000                                                           | Wavelength Range (nm):                 |
|                                                                       |                                        |
| AR: -80 to +160 per MIL-C-48497C<br>DLC: -80 to +160 per MIL-C-48497C | Coating Temperature (°F):              |

| Material Properties |                                                              |
|---------------------|--------------------------------------------------------------|
| 2.55                | Coefficient of Thermal Expansion CTE (10 <sup>-6</sup> /°C): |
|                     |                                                              |
| 2.33                | Density (g/cm³):                                             |

| Environmental & Durability Factors                              |                                  |
|-----------------------------------------------------------------|----------------------------------|
| AR: Moderate, per MIL-C-48497C<br>DLC: Severe, per MIL-C-48497C | Coating Abrasion:                |
|                                                                 |                                  |
| AR: per MIL-C-48497C<br>DLC: per MIL-C-48497C                   | Coating Adhesion:                |
|                                                                 |                                  |
| AR: 24 Hours per MIL-C-48497C<BR>DLC: 24 Hours per MIL-C-48497C | Coating Humidity:                |
|                                                                 |                                  |
| AR: N/A<br>DLC: ≥24 Hours Immersion per MIL-C-675C              | Coating Salt Solubility:         |
|                                                                 |                                  |
| AR: N/A<br>DLC: ≥72 Hours per MIL-C-675                         | Coating Salt Spray:              |
|                                                                 |                                  |
| AR: per MIL-C-48497<br>DLC: per MIL-C-48497                     | Coating Solubility and Cleaning: |
|                                                                 |                                  |
| AR: N/A<br>DLC: ≥1,000 Wipes of Sand/Slurry per TS-1888         | Coating Wiper Durability:        |

| Regulatory Compliance |                             |
|-----------------------|-----------------------------|
| Compliant             | RoHS 2015:                  |
|                       |                             |
| View                  | Certificate of Conformance: |
|                       |                             |
| Compliant             | Reach 240:                  |

# Product Details

- Meets Severe Abrasion Requirements of MIL-F-48616 and MIL-C-48497C
  - High Transmission from 3 – 5µm
  - Ideal for Harsh Environments
  - [Diamond-Like Carbon \(DLC\) Coated Germanium Windows](#) Also Available
- ISP Optics Diamond-Like Carbon (DLC) Coated Silicon Windows provide anti-reflection coating on one surface and a specially designed DLC coating on the other surface, making these windows highly durable and ideal for harsh environments. The DLC Coated surface is designed to withstand temperature cycling from -80 to +160°F, salt spray for a continuous period of 72 hours, and 1,000 wiper oscillations in a sand and slurry mixture. Further, these windows meet the MIL-F-48616 and MIL-C-48497C requirements for severe abrasion. Silicon features a Knoop Hardness of 1150 and low density, making it tougher than germanium substrates and suitable for weight-sensitive applications, respectively. ISP Optics Diamond-Like Carbon (DLC) Coated Silicon Windows are engineered for 3 to 5µm, making them ideal for infrared defense applications such as thermal imaging.

## Technical Information

| Specification            | AR Coating                   | DLC Coating                             |
|--------------------------|------------------------------|-----------------------------------------|
| Adhesion                 | per MIL-C-48497C             | per MIL-C-48497C                        |
| Abrasion                 | Moderate, per MIL-C-48497C   | Severe, per MIL-C-48497C                |
| Humidity                 | 24 Hours per MIL-C-48497C    | 24 Hours per MIL-C-48497C               |
| Salt Solubility          | -                            | ≥24 Hours Immersion per MIL-C-675C      |
| Salt Spray               | -                            | ≥72 Hours per MIL-C-675                 |
| Temperature (°F)         | -80 to +160 per MIL-C-48497C | -80 to +160 per MIL-C-48497C            |
| Solubility and Cleaning  | per MIL-C-48497              | per MIL-C-48497                         |
| Wiper                    | -                            | ≥1,000 Wipes of Sand/Slurry per TS-1888 |
| Coating Temperature (°F) | -80 to +160 per MIL-C-48497C | -80 to +160 per MIL-C-48497C            |

## Custom

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  - Tight tolerances and complex geometries
  - Scalable production—from prototype to volume
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