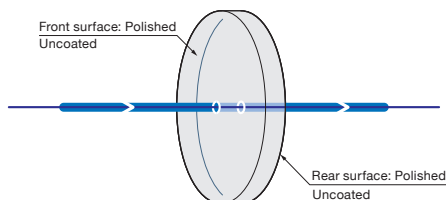


Silicon is a mono crystal primarily used in semi-conductor and is non-absorptive at 1.2µm to 6µm IR regions. It is used here as an optical component for IR region applications.

- These silicon windows do not transmit at 1µm region or below, therefore its main application is in IR regions.
- Because of its high thermal conductivity, it is suitable for use as a high power laser mirror.

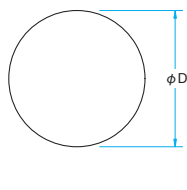


### Schematic



### Outline Drawing

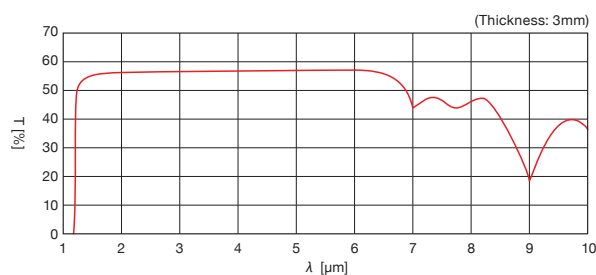
(in mm)



- Tolerance Diameter  $\phi D_{\pm 0.1}$
- Thickness  $t \pm 0.1$

### Typical Transmittance Data

T: Transmission



### Specifications

|                               |                        |
|-------------------------------|------------------------|
| Material                      | Silicon Single Crystal |
| Parallelism                   | <3'                    |
| Surface Quality (Scratch-Dig) | 40-20                  |
| Clear aperture                | 90% of real diameter   |

### Guide

- ▶ For transmittance at visible regions optics, we recommend to use ZnSe IR spectrum windows.
- ▶ For product sizes and wedges which are not listed on our website or in our catalog, please contact our Sales Division with your requests.

### Attention

- ▶ Silicon windows have a shiny metal surface; it reflects and absorbs but does not transmit in the visible regions.
- ▶ Silicon windows surface reflection results in transmittance loss of 53%. (measured data 1 surface reflection at 27%)

### Physics

| Wavelength [µm]               | Refractive Index                            |
|-------------------------------|---|
| 1.2                           | 3.519                                       |
| 1.3                           | 3.503                                       |
| 1.4                           | 3.494                                       |
| 1.5                           | 3.483                                       |
| 1.6                           | 3.473                                       |
| 1.8                           | 3.462                                       |
| 2.0                           | 3.454                                       |
| 2.2                           | 3.449                                       |
| 2.4                           | 3.445                                       |
| 2.6                           | 3.441                                       |
| 2.8                           | 3.437                                       |
| 3.0                           | 3.435                                       |
| 3.4                           | 3.433                                       |
| 3.6                           | 3.431                                       |
| 3.8                           | 3.431                                       |
| 4.0                           | 3.430                                       |
| 4.5                           | 3.428                                       |
| 5.0                           | 3.426                                       |
| 5.5                           | 3.425                                       |
| 6.0                           | 3.424                                       |
| Density                       | 2.33g/cm <sup>3</sup>                       |
| Thermal Conductivity          | 129W·m <sup>-1</sup> K <sup>-1</sup> (40°C) |
| Thermal Expansion Coefficient | 4.2×10 <sup>-6</sup> /°C (25°C)             |

### Specifications

| Part Number    | Diameter φD [mm] | Thickness t [mm] |
|----------------|------------------|------------------|
| OPSI-30C03-2-3 | φ30              | 3                |
| OPSI-40C04-2-3 | φ40              | 4                |
| OPSI-50C05-2-3 | φ50              | 5                |

### Compatible Optic Mounts

LHF-30S, -40S, -50S

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