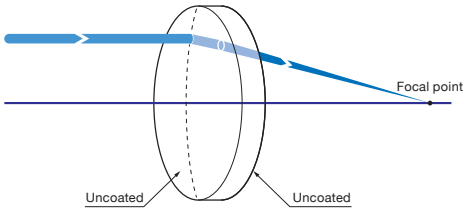
Calcium Fluoride Plano Convex Lens | SLCFU

RoHS | Catalog Code W3189

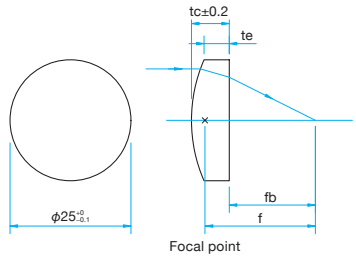
Calcium fluoride (CaF_2) is a crystal which has excellent transmission characteristics in a wide wavelength range from ultraviolet (200nm) to near-infrared (8μm).

- Impurities and crystal defects were reduced, and the transmission characteristics in the ultraviolet region were increased. CaF_2 is used for the range from the ultraviolet to the infrared.
- When compared with other crystals, CaF_2 has high durability to moisture, and it can be treated the same as the general optical elements.
- Since CaF_2 is isotropic crystal, birefringence (polarization characteristics) does not occur.

Schematic



Outline Drawing (in mm)

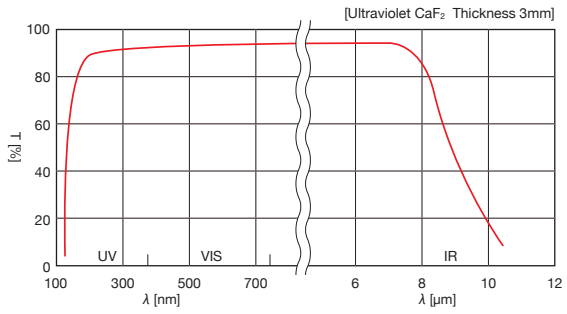


●Chamfer
Ridge line <C0.3
●Tolerance
Focal length ±3%

Specifications

Part Number	Focal length f [mm]	Back focal length fb [mm]	Edge thickness te [mm]	Center thickness tc [mm]
SLCFU-25-50P	50	48	2.0	6.4
SLCFU-25-100P	100	98	2.0	4.1
SLCFU-25-150P	150	148	2.0	3.4
SLCFU-25-200P	200	198	2.0	3.0

Typical Transmittance Data T: Transmission



Specifications

Material	CaF_2 for Optical Crystal
Design Wavelength	5μm
Coating	Uncoated
Surface Reflectance	3% (per side)
Shape	Spherical Plano Convex, Polished Both Surfaces
Centration	<3′
Clear Aperture	90% of diameter
Surface Quality (Scratch–Dig)	60–40

Guide

- It is available with an AR coating to reduce the transmission loss at the requested wavelength.
- It is also available for products with different size and focal lengths that are not listed in on the website or in the catalog.

Attention

- It may be broken and be cleavaged by a sudden temperature change and shock. CaF_2 has low hardness and scratch upon contact with metal and glass. Please use very carefully.
- There is not an anti-reflection coating on the surfaces and the loss due to surface reflection (3% per surface) results in transmittance of about 94%.

Wavelength dependency data of the focal length (CaF_2 plano convex)

Wavelength	0.2μm	0.6328μm	1.064μm	2.94μm	5.0μm	7.0μm
Focal length f [mm]	40.4	46.2	47.7	47.8	50.0	54.2
	80.8	92.4	93.3	95.6	100.0	108.1
	121.2	138.6	140.0	143.4	150.0	162.5
	161.5	184.8	186.7	191.2	200.0	216.7

Physics

Wavelength [nm]	Refractive Index
193.5	1.502
200.0	1.496
248.4	1.467
308.0	1.453
355.0	1.446
404.7	1.442
488.0	1.437
632.8	1.433
694.3	1.432
780.0	1.430
1064	1.429
2000	1.424
3000	1.418
4000	1.410
5000	1.399
6000	1.386
7000	1.369
8000	1.350
9000	1.327
Density	$3.18 g/cm^3$
Thermal Conductivity	$9.71 W \cdot m^{-1} K^{-1}$
Thermal Expansion Coefficient	24×10^{-6}/°C (20 - 60°C)