

## IR 级抛光氟化钡 Ba F2 窗片 圆形 0.15-12 $\mu$ m 25.4mm $\varnothing$ x 5mm



### 产品描述

氟化钡能很好应用于光谱组件。氟化钡通常适用于无源 IR 波段（8~14  $\mu$ m）的应用，通常用作热成像的窗片。对于相同厚度，比氟化钙的透射范围进一步延伸到 IR 中大约 1mm。主要用于 IR 应用，并注意到具有 IR 抛光的视窗可能在由低纯度 BaF<sub>2</sub> 晶体制成的 VUV 中具有受限的透射性能。氟化钡通过真空 Stockbarger 技术生长。与 CaF<sub>2</sub> 不同，BaF<sub>2</sub> 不以天然状态存在，并且所有材料必须化学合成，使得 BaF<sub>2</sub> 生产相对昂贵。氟化钡容易裂开，对热冲击非常敏感。它抛光好可以蚀刻。不是所有的晶体都是由 zui 高等级的化学品制造的；对于 IR 级光学器件，较低规格是足够的并且降低了成本，然而在 UV 和 VUV 中的透射受到限制。zui 高纯度的氟化钡 VUV 材料可以被认为是快闪烁级。

### 产品型号

BAFP25.4-5

### 应用领域

快速闪烁体材料

热成像窗片

高能物理实验



## 核心参数

| 工作波长            | 规格尺寸                       |
|-----------------|----------------------------|
| 0.15-12 $\mu$ m | 25.4mm $\varnothing$ x 5mm |

## 详细参数

|                   |                                                |
|-------------------|------------------------------------------------|
| 透射波段范围:           | 0.15~12 $\mu$ m (注意: IR 级可能在 UV 下的性能受限)        |
| 折射率:              | 1.45@5 $\mu$ m                                 |
| 反射损耗:             | 6.5% at 5% (2 个表面)                             |
| 吸收系数:             | $3.2 \times 10^{-4} \text{cm}^{-1}$ @6 $\mu$ m |
| 吸收峰:              | 47 $\mu$ m                                     |
| dn / dT:          | $-15.2 \times 10^{-6} / ^\circ\text{C}$        |
| dn / d $\mu$ = 0: | 1.95 $\mu$ m                                   |
| 密度:               | 4.89g / cc                                     |
| 熔点:               | 1386 $^\circ\text{C}$                          |
| 导热率:              | $11.72 \text{W m}^{-1} \text{K}^{-1}$ @ 286K   |
| 热膨胀:              | $18.1 \times 10^{-6} / ^\circ\text{C}$ @273K   |
| 硬度:               | Knoop 82 with 500g indenter                    |
| 比热容量:             | $410 \text{J Kg}^{-1} \text{K}^{-1}$           |



|            |                                                 |
|------------|-------------------------------------------------|
| 介电常数:      | 7.33 at 1MHz                                    |
| 杨氏模量 (E) : | 53.07GPa                                        |
| 剪切模量 (G) : | 25.4GPa                                         |
| 体积模量 (K) : | 56.4GPa                                         |
| 弹性系数:      | $C_{11} = 89.2$ $C_{12} = 40.0$ $C_{44} = 25.4$ |
| 表观弹性极限:    | 26.9MPa (300psi)                                |
| 泊松比:       | 0.343                                           |
| 溶解性:       | 0.17g / 100g water, 23°C                        |
| 分子量:       | 175.36                                          |
| 类型/结构:     | 立方 CaF <sub>2</sub> , Fm3m, (111) 裂解            |

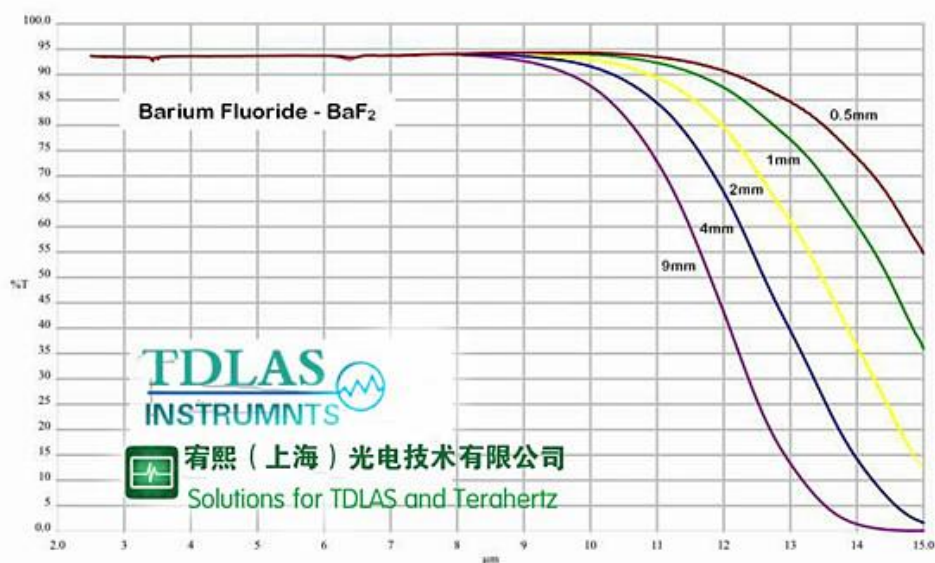
折射率: (No = Ordinary Ray 普通射线)

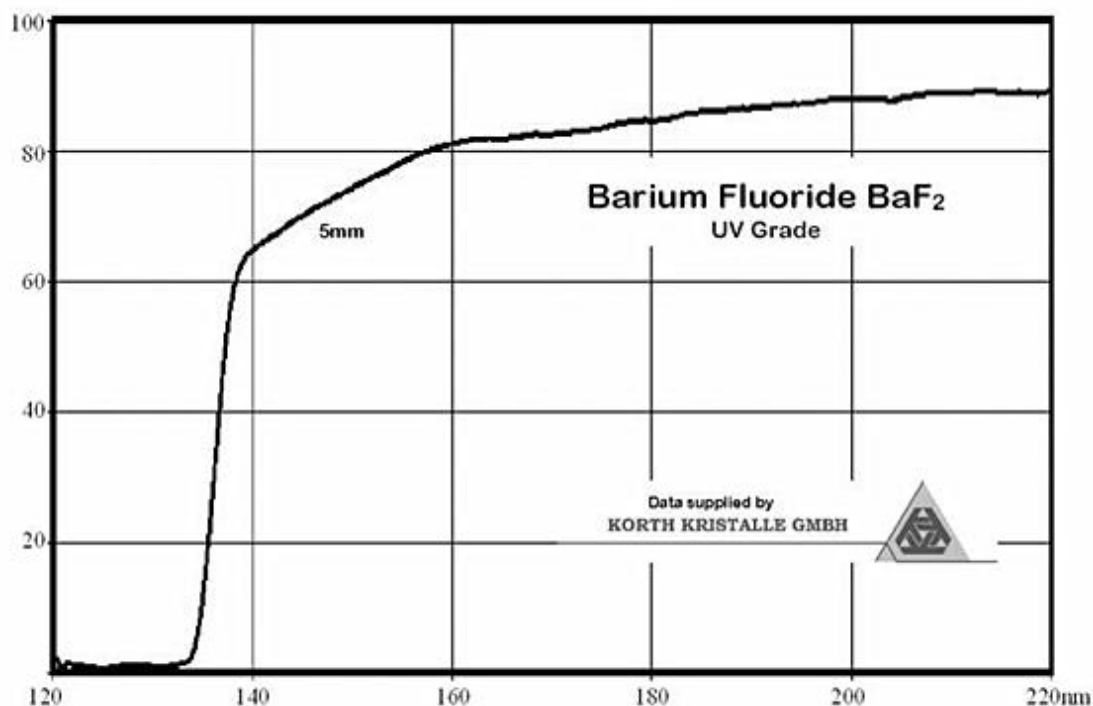
| μm     | No     | μm     | No     | μm     | No     |
|--------|--------|--------|--------|--------|--------|
| 0.1408 | 1.8150 | 0.1452 | 1.7820 | 0.1477 | 1.7670 |
| 0.1500 | 1.6780 | 0.2000 | 1.557  | 0.2652 | 1.5122 |
| 0.2803 | 1.5066 | 0.2893 | 1.5039 | 0.2967 | 1.5019 |
| 0.3021 | 1.5004 | 0.3130 | 1.4978 | 0.3254 | 1.4952 |
| 0.3403 | 1.4925 | 0.3466 | 1.4915 | 0.3610 | 1.4894 |

|        |         |        |        |        |        |
|--------|---------|--------|--------|--------|--------|
| 0.3663 | 1.4887  | 0.4046 | 1.4844 | 0.5461 | 1.4759 |
| 0.5893 | 1.4744  | 0.6438 | 1.4730 | 0.6563 | 1.4727 |
| 0.7065 | 1.4718  | 0.8521 | 1.4699 | 0.8944 | 1.4694 |
| 1.0140 | 1.4685  | 1.1287 | 1.4678 | 1.3673 | 1.4667 |
| 1.5295 | 1.4661  | 1.6810 | 1.4656 | 1.7012 | 1.4655 |
| 1.9701 | 1.4647  | 2.3254 | 1.4636 | 2.6738 | 1.4623 |
| 3.2434 | 1.4602  | 3.4220 | 1.4594 | 5.1380 | 1.4501 |
| 5.5490 | 1.44732 | 6.2380 | 1.4422 | 6.6331 | 1.4390 |
| 7.0442 | 1.4353  | 7.2680 | 1.4331 | 9.7240 | 1.4051 |
| 10.346 | 1.3936  |        |        |        |        |

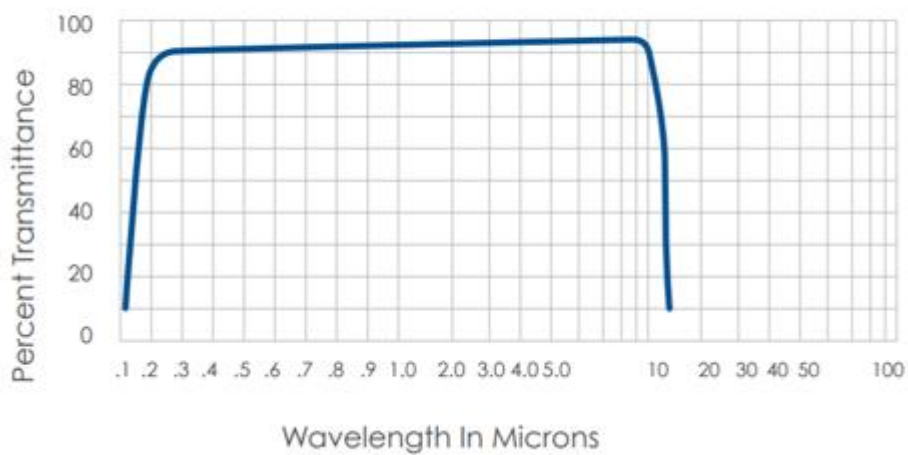
## 特性曲线

光谱透射曲线:





Transmittance  $\tau(\lambda)$  vs. Wavelength  $\lambda$



## 订购信息

BaF2 圆形窗片:

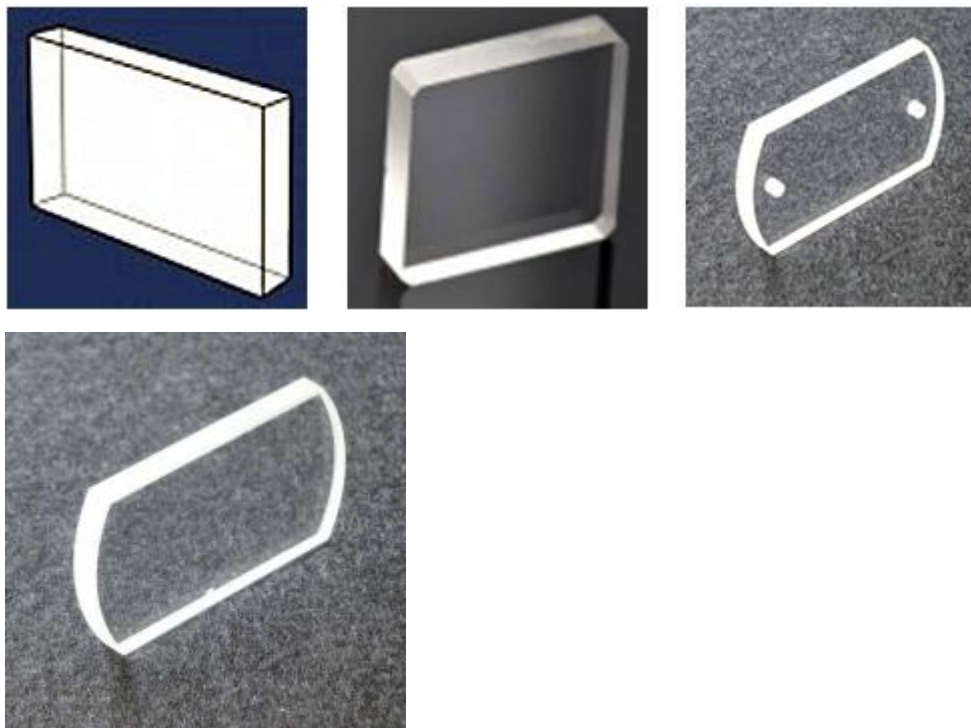


## 订购信息:

| 订购型号       | 产品规格           | 直径          | 厚度     | 性质          |
|------------|----------------|-------------|--------|-------------|
| BAFP10-0.5 | 10mm Ø x 0.5mm | +0.0/-0.1mm | ±0.1mm | IR polished |
| BAFP10-2   | 10mm Ø x 2mm   | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP12-2   | 12mm Ø x 2mm   | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP13-1   | 13mm Ø x 1mm   | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP13-2   | 13mm Ø x 2mm   | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP15-2   | 15mm Ø x 2mm   | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP16-1   | 16mm Ø x 1mm   | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP16-3   | 16mm Ø x 3mm   | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP19-2   | 19mm Ø x 2mm   | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP20-1   | 20mm Ø x 1mm   | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP20-2   | 20mm Ø x 2mm   | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP22-0.5 | 22mm Ø x 0.5mm | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP25-1   | 25mm Ø x 1mm   | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP25-2   | 25mm Ø x 2mm   | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP25-3   | 25mm Ø x 3mm   | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP25-4   | 25mm Ø x 4mm   | +0.0/-0.1mm | ±0.1mm | IR Polished |

|              |                              |             |        |             |
|--------------|------------------------------|-------------|--------|-------------|
| BAFP25.4-0.5 | 25.4mm Ø x 0.5mm             | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP25.4-1   | 25.4mm Ø x 1mm               | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP25.4-2   | 25.4mm Ø x 2mm               | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP25.4-4   | 25.4mm Ø x 4mm               | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP25.4-5   | 25.4mm Ø x 5mm               | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP25.4-6   | 25.4mm Ø x 6mm               | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP30-1     | 30mm Ø x 1mm                 | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP30-2     | 30mm Ø x 2mm                 | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP32-3D    | 32mm Ø x 3mm 打孔<br>(Drilled) | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP32-3     | 32mm Ø x 3mm                 | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP35-5     | 35mm Ø x 5mm                 | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP38-3     | 38mm Ø x 3mm                 | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP40-5     | 40mm Ø x 5mm                 | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP50-3     | 50mm Ø x 3mm                 | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP63-5     | 63mm Ø x 5mm                 | +0.0/-0.1mm | ±0.1mm | IR Polished |
| BAFP75-3     | 75mm Ø x 3mm                 | +0.0/-0.1mm | ±0.1mm | IR Polished |

## BaF2 方形窗片



### 订购信息:

| 订购型号          | 产品规格                                | 性质          |
|---------------|-------------------------------------|-------------|
| BAFP10-10-1   | 10mm x 10mm x 1mm                   | IR polished |
| BAFP16-16-1.5 | 16mm x 16mm x 1.5mm                 | IR Polished |
| BAFP20-10-1   | 20mm x 10mm x 1mm                   | IR Polished |
| BAFP25-12-2   | 25mm x 12mm x 2mm                   | IR Polished |
| BAFP41-23-4D  | 41mm x 23mm x 4mm 端部呈圆形 打孔(Drilled) | IR Polished |
| BAFP41-23-4   | 41mm x 23mm x 4mm 端部呈圆形             | IR Polished |
| BAFP76-26-1   | 76mm x 26mm x 1mm 端部呈圆形             | IR Polished |

请注意，这些窗口有时是普通矩形，有时是从 41mm  $\varnothing$  窗口切割而成，因此端部呈圆形。