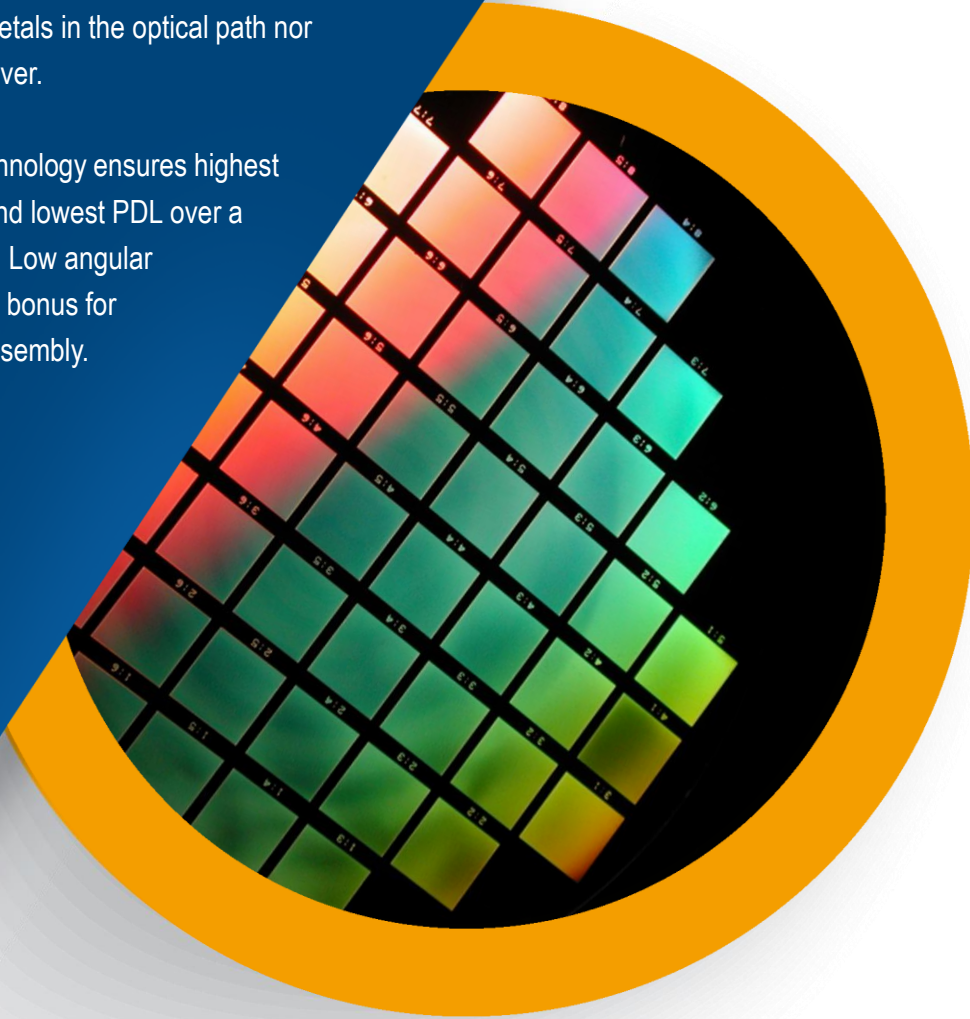


**100% dielectric gratings offer unbeatable environmental and thermal stability combined with high efficiency, low PDL performance**

Polarization independent (PING) telecom gratings from lbsen are produced by holographic/lithographic stepper technology in 100% dielectric materials. This leads to unbeatable thermal and environmental stability, with no polymers, epoxies, gelatins or metals in the optical path nor in the grating whatsoever.

Advanced etching technology ensures highest diffraction efficiency and lowest PDL over a very broad bandwidth. Low angular sensitivity is an added bonus for module design and assembly.



## **PING Grating**

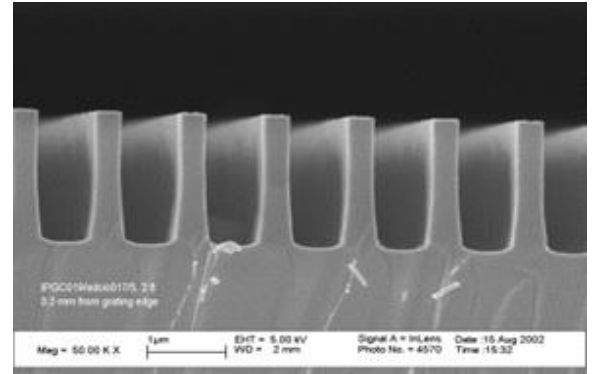
**1765 l/mm PING for 850 nm band**

**PING-Sample-021**

# 1765 l/mm PING for 850 nm band

## PING-Sample-021

| Benefits  |
|---|
| High efficiency, low PDL, broad spectral bandwidth                      |
| Transmission gratings give much greater alignment tolerances            |
| Low transmitted wavefront distortion                                    |
| High tolerance to illumination angle of incidence                       |
| Two grating designs are possible, offering compact design possibilities |
| Unbeatable thermal & environmental stability & lifetime                 |

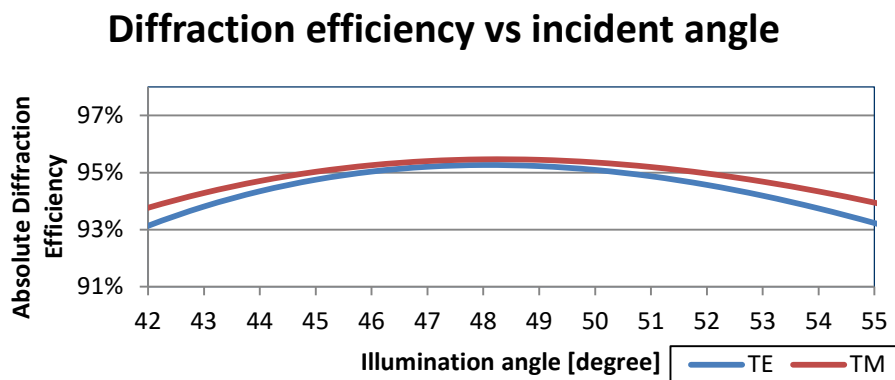
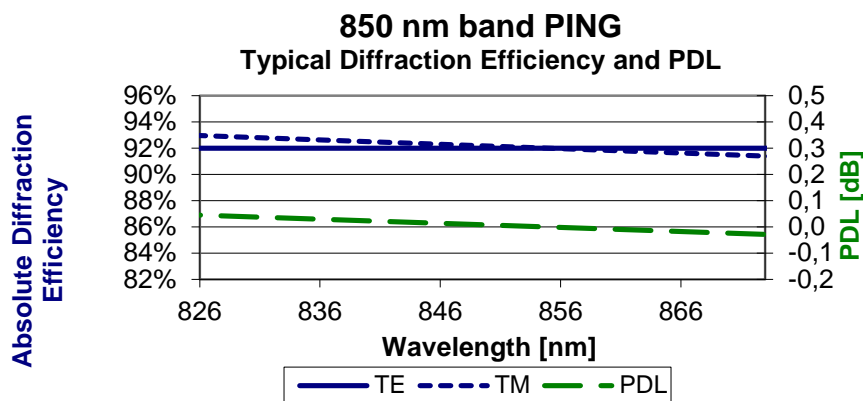


| Parameter                        | Specification  |
|----------------------------------|--|
| Materials                        | 100% dielectric materials  |
| Grating area                     | 18 mm x 12 mm  |
| Chip size                        | 20.5 mm x 16 mm  |
| Chip thickness                   | 0.625 mm   |
| Grating resolution               | 1764.7 l/mm  |
| PDL                              | <0.25 dB   |
| Angle of incidence (AOI)         | 49.9 degrees   |
| Diffraction efficiency (TE & TM) | >80%   |
| Bandwidth                        | 795 nm – 885 nm  |
| Production technology            | Holographic/lithographic stepper and RIE etching                 |
| Maximum operating temperature    | >500 degrees C   |
| Packaging and shipment           | Gelpak containers. Manufactured and sealed in class 10 cleanroom |
| Cleaning recommendation          | First contact. Available from Photonic Cleaning                  |

# 1765 l/mm PING for 850 nm band

## PING-Sample-021

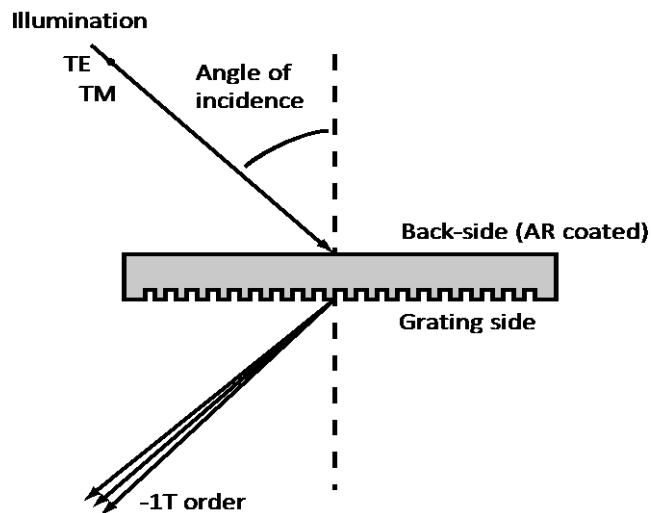
### Typical grating performance



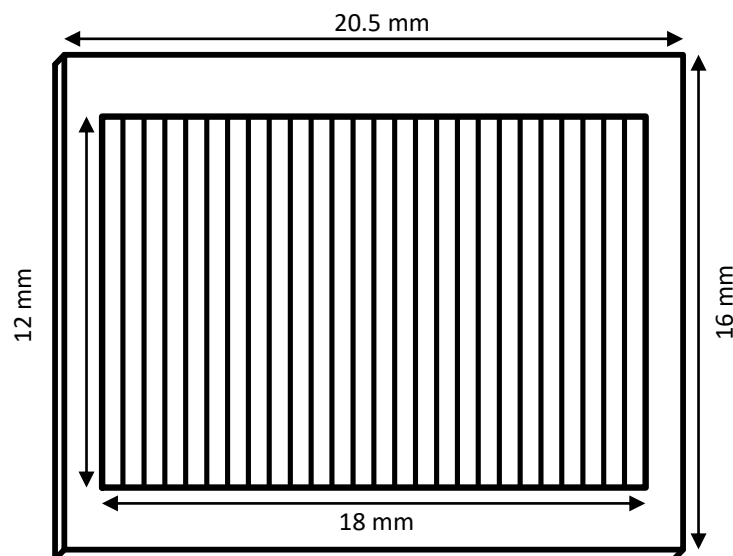
# 1765 l/mm PING for 850 nm band

## PING-Sample-021

### Configuration/Definitions



### Drawing



Specifications are subject to change without notice.

The above grating is an example of Ibsen's capabilities. Ibsen operates as grating partner for our customers, from being an integrated part of the grating and device / instrument design phase, to the manufacturing of prototypes, to volume manufacturing of OEM gratings.