GWU-Lasertechnik

PPLN WAVEGUIDES

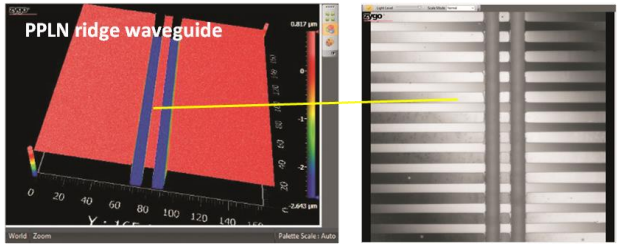
Product Specifications & Selection Guide

HC PHOTONICS CORP.

PPLN WAVEGUIDE CHIPS

A waveguide can be manufactured on a periodically poled crystal to form a frequency conversion waveguide in a PPLN bulk chip. PPLN bulk chips are easy to use and can handle higher optical power (up to a few Watts or more).

PPLN waveguide chips provide much higher conversion efficiency and thus enable several applications beyond what can be realized by PPLN bulk.



Key Features

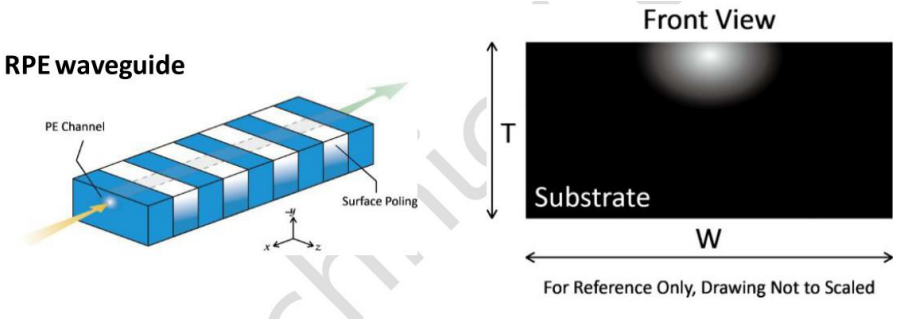
- Standard-in-stocks for your “quick plug-in” nonlinear frequency mixing applications
- available for up-conversion (SHG/ SFG) and down-conversion (DFG/ OPA/OPG) frequency mixing con-figurations
- available for visible to mid-IR generation; also contact us for UV and THz
- available for uniform or chirped QPM structures

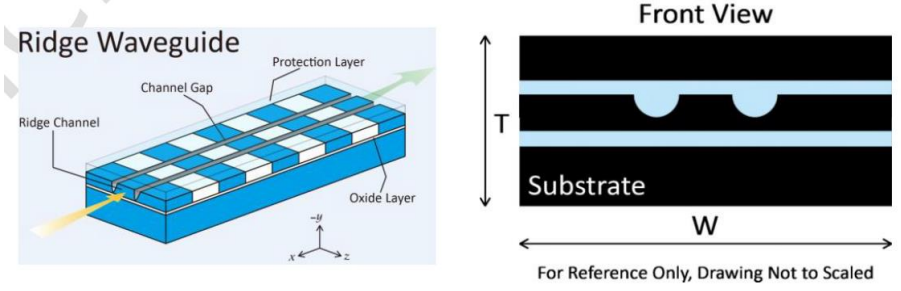
PPLN WAVEGUIDE STRUCTURES

HCP provides two types of waveguide structures satisfy the requirement of the different applications:

- proton in-diffused (RPE) waveguides
- ridge waveguides

Compared to the traditional ion or proton in-diffused waveguide, the ridge waveguide has a high damage threshold and wide-operation wavelength range due to the high refractive index difference of the core ($LiNbO_3$) and the cladding. The good confinement leads to good conversion efficiency and feasibility of extremely low propagation losses.





STOCK ITEMS

Most of the waveguides are manufactured upon request, but some of them are available in stock for popular applications. See the typical specification below and just inquiry us with your specific wavelength.

Serial #	pump λ (nm)	output λ (nm)	MFD(um^2)	numerical aperture	propagation loss (dB/cm)	normalized efficiency (%/W/cm^2)	Temperature slope (˚C/nm)
WG-B	900-1000	450-500	4.90x4.09	0.13x0.15	0.9 (0.7)	160 (250)	~13
WG-G	1000-1200	500-600	4.90x4.09	0.15x0.17	1.0 (0.7)	160 (200)	~11
WG-R	1200-1400	600-700	5.56x4.30	0.15x0.20	1.0 (0.75)	70 (80)	~10
WG-E	1400-1600	700-800	5.62x4.31	0.18x0.23	1.0 (0.85)	50 (65)	~8
WG-T	1900-2200	950-1100	5.65x4.35	0.23x0.30	1.1 (1.0)	20 (35)	2.5-5.0

*1 MFD (mode field diameter) tolerance +/-10%

*2 Normalized efficiency has a tolerance of +/-20% on the specified value (e.g. WG-G: 160-240%/W/cm^2)

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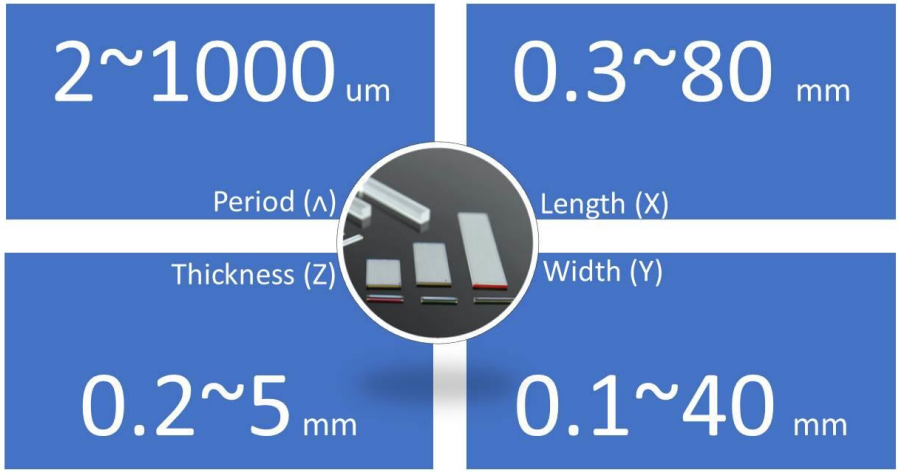

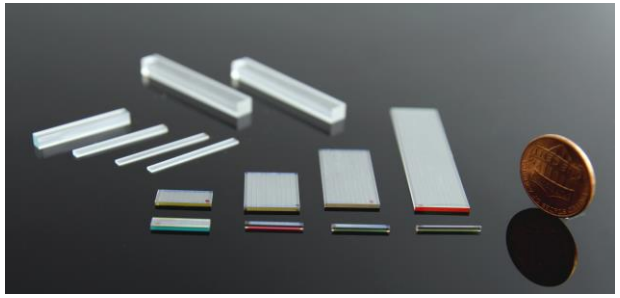

If you have any questions or if you need more information, please contact us!

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