

# Periodically Poled Lithium Niobate (PPLN)

## Product Description

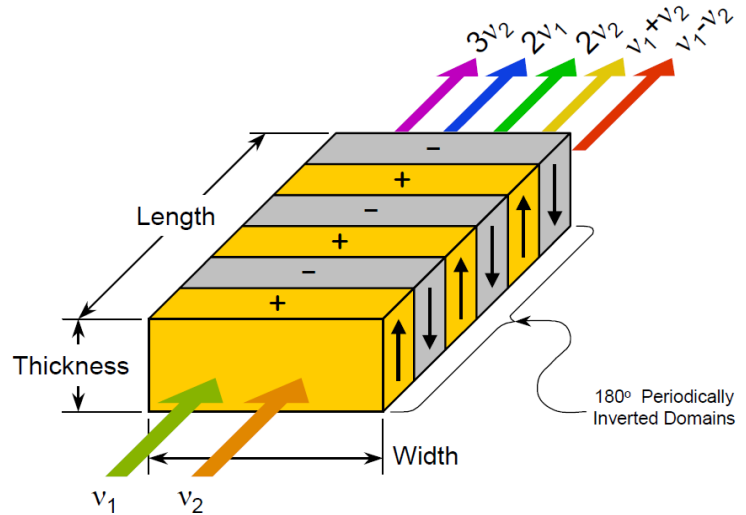
Periodically Poled Lithium Niobate chips offer a cost effective method for visible and mid-infrared frequency generation. A multi-step lithographic and electric field poling process effects a permanent change in the non-linear properties of Lithium Niobate. Using quasi-phase matching, with a selection of periods, crystal widths and lengths, PPLN offers users an alternative to dedicated frequency conversion crystals.

## Applications

- IR/Mid-IR laser generation
- Infrared Jamming
- Visible Light Generation
- 1<sup>st</sup> order or higher order wavelength conversion
- Remote Sensing

## Features

- Difference and Sum Frequency Generation
- Broad-Range, Precise Frequency Conversion
- High Conversion Efficiency from Low Peak-Power Laser Sources
- Offers Pathway to Compact Designs for Portable Systems
- Single and Multiple Gratings Available



Specifications	
Chip Thickness (standard)	0.5mm and 1.0mm
Chip Width (standard)	5.0mm and 10.0mm (custom up to 40mm)
Chip Length (standard)	10, 20, 30, 40, 50mm (custom up to 60mm)
Single Grating Periods	Many periods available in the range 6.7 to 100+ $\mu\text{m}$ (plus custom periods)
Multiple Grating Periods	Many multiple grating designs available
Fan-out QPM	To customer specifications
Type I and Type II Phase Matching	To customer specifications
AR Optical Coatings	double band, triple band, broadband
Parallelism (arc min)	< 10 (custom < 1)
Flatness	$\lambda/10$
Scratch/Dig	10/5
Material Property	LiNbO <sub>3</sub>
Transparency Range	330nm - 5500nm
Refractive Index	2.2
Nonlinearity	d21= -2.6pm/V
	d31= -4.6pm/V
	d33= 25pm/V
Surface Damage Threshold for 10ns (J/cm <sup>2</sup> )	10
Phasematching Schemes	QPM
* The above figures are based on wavelength at 1064nm and software "SNLO"	