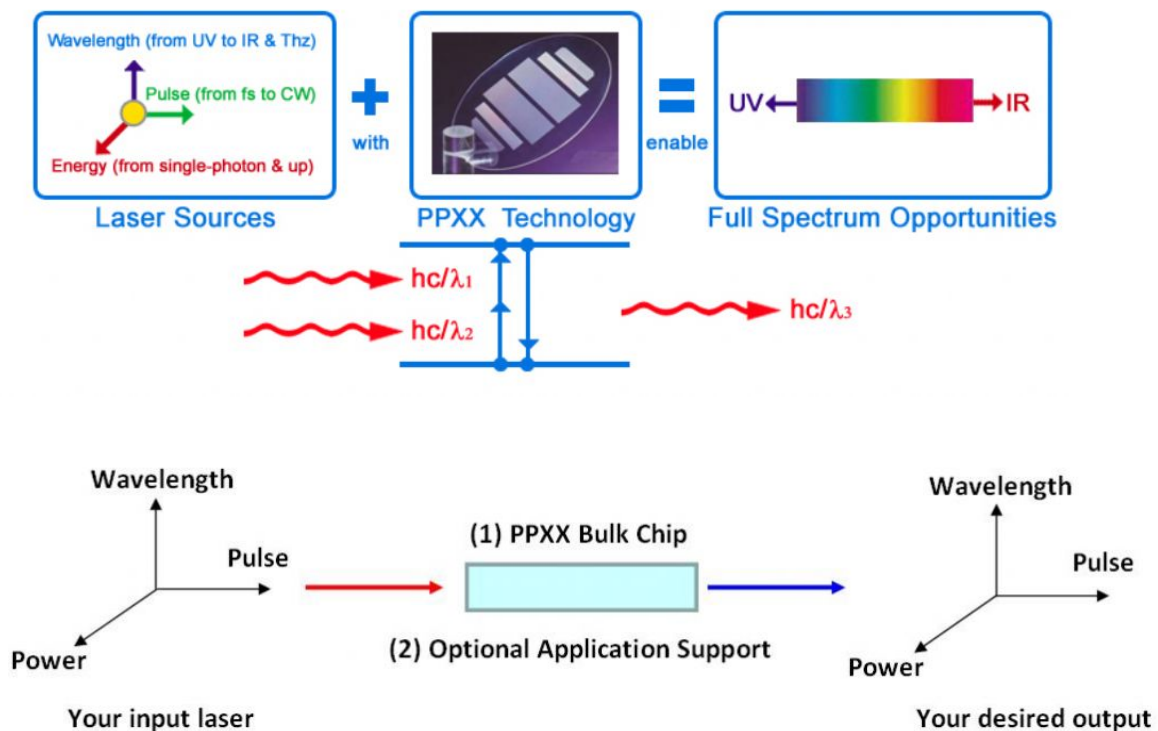


## PPXX 散装芯片 ( PPXX Bulk Chips )

Quasi Phase Matching (QPM) based PPXX enables new wavelength generation and spectrum engineering that is difficult or impossible to achieve by conventional nonlinear materials. With full spectrum PPXX chips (MgO:LN, MgO:LT) and suitable nonlinear frequency conversion schemes (SHG, SFG, DFG, OPA, OPG, OPO, etc), one can achieve desired output wavelengths (from UV/ Visible to IR/THz) and special functions (spectrum inversion, comb spectrum conversion, arbitrary spectrum engineering, etc) efficiently.

HCP provides the following full spectrum PPXX Bulk chip configurations and specs to meet your application requirement. We can help you to design suitable QPM periods and QPM structures for selected PPLN/PPLT materials to achieve desired phase-matching and spectrum at specified operation temperature with consideration of input & output power/energy as well as their spectrum/pulse properties. Please also challenge us with your special requests.



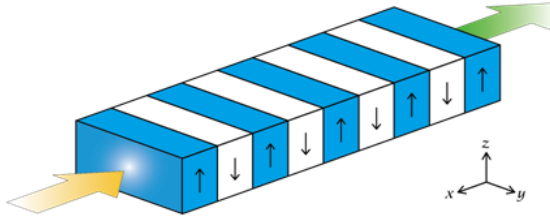
Your Selection of Full Spectrum PPXX Bulk Chips	
<b>(1) Achieve your desired input/output by suitable PPXX bulk chips and its conversion configuration</b>	
Input /Output	CW / pulsed waves at specified power and wavelengths (from UV/VIS to IR/THz)
Chip Materials (Ref-1)	MgO:CLN, MgO:CLT
Chip Structures (Ref-2)	* Single, Multiple, Fan-out, Chirp, Cascade. * WGM, Photonics Crystal Structures. * Combination of above (such as single + multiple/fan-out) and other arbitrary spectrum shape at your specification.
Conversion Configurations (Ref-3)	SHG, SFG, DFG, OPA, OPG, OPO, etc.
Physical Dimension	L (Length): 0.3 ~ 80 mm; W (Width): 0.5 ~ 16 mm; T (Thickness): 0.3 / 0.5 / 1 / 2 / 3 mm
Dimension Specification (Ref-4)	P / G / Q ; Flat/ Angle polish optically
Surface Specification (Ref-4)	A1 / A2 / A3
<b>(2) Optional Application Support: Accessories &amp; Services</b>	
Application Accessories	Chip holders; Oven; Temperature Controller; IR Sensing Card
Application Services	Precision polishing; AR/HR Coating; Metal Deposition; Modulation

## Ref-1: Materials and Application Wavelength

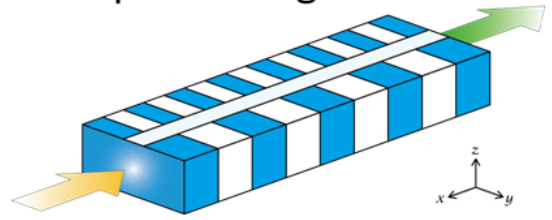
	5mol% MgO doped Lithium Niobate (MgO:CLN)	8mol% MgO doped Lithium Tantalate (MgO:CLT)	Beta Barium Borate (BBO)	Lithium Triborate (LBO)	Potassium Titanyl Phosphate (KTP)
Transparency range (nm)	330 - 5500	280 - 5500	190 -3500	155 -3200	350 - 4400
Nonlinearity (pm/V)	d33 ~ 25	d33 ~ 13.8	d22 ~2.22 d31 ~ 0.16	d31 ~ 1.09 d32 ~ 1.17	d31 ~ 1.95 d32 ~ 3.9

## Ref-2: Chip Structure

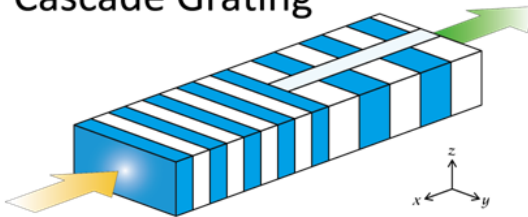
Single Grating



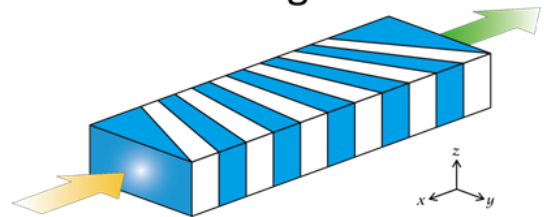
Multiple Grating



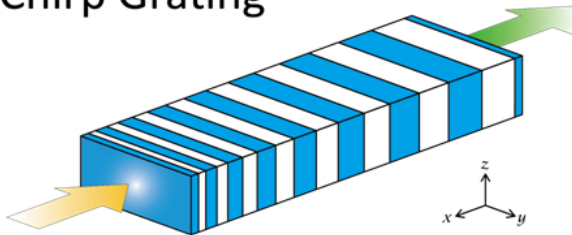
Cascade Grating



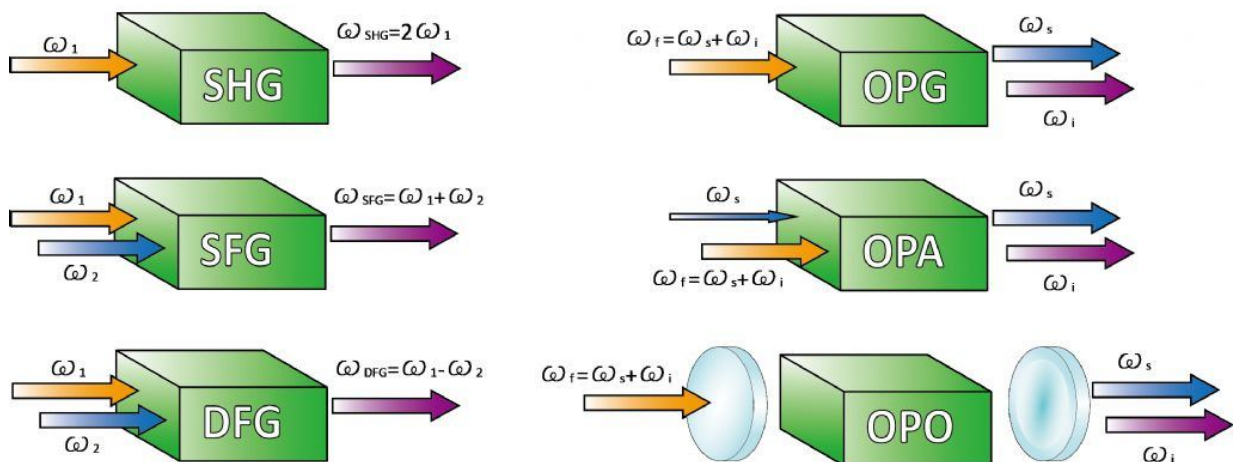
Fan-out Grating



Chirp Grating



Ref-3: Conversion Configuration





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Ref-4: Dimension and Surface Specification

Dimension Specification	P	G	Q
Parallelism S1//S2 (0°± )	3'	5'	5'
Perpendicularity (90°± )	15'	21'	35'
△X (mm)	± 0.2 when X ≥ 5mm; ± 0.1 when X < 5mm		
△Y (mm)	± 0.1	± 0.1	± 0.1
△Z (mm)	± 0.05	± 0.05	± 0.05

Surface Specification	A1	A2	A3
S/D (Scratch/Dig)- Based on MIL-O-13830	10/5	20/10	20/20
C.A (%) in Z (Thickness)	80	80	80
C.A (%) in Y (Width)	90	90	90
Chipping in S1, S2	No chipping within C.A.		
Flatness (λ@633nm )	λ/10	λ/6	λ/6