

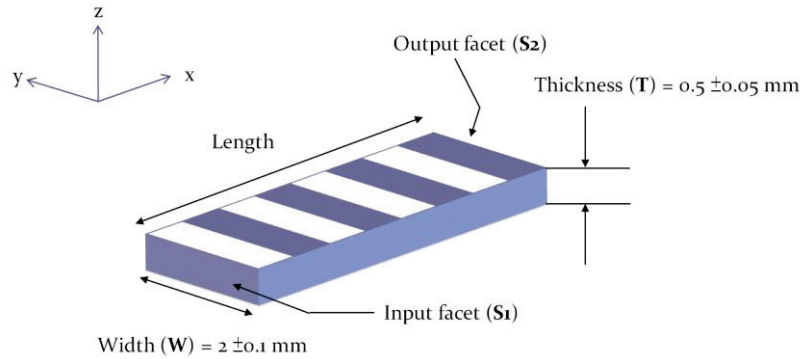
TYPE	sub TYPE	Geometry	Period (um)	Cross section (mm x mm)	TYPE	sub TYPE	Geometry	Period (um)	Cross section (mm x mm)
SHVIS	SA	single	5.28	2.0 x 0.5	SHNIR	MC	multiple	33.3-36.0	12.3 x 1.0
	SB		6.92			FA	fanout	18.0-21.0	
	SC		8.15		SFVIS	MA	multiple	6.90-8.10	7.9 x 0.5
	MA	5.17-5.32	MB	11.25-12.45		7.9 x 1.0			
	MB	6.13-6.29	MC	14.9-18.5		12.3 x 1.0			
	MC	6.45-6.75	FA	fanout		6.90-8.10	12.3 x 0.5		
	MD	6.83-7.00	DFMIR	MA		multiple	18.20-20.90	12.3 x 1.0	
	ME	8.15-8.65		MB			20.60-23.30		
	MF	8.90-9.45		MC	23.5-29.8				
SHRED	MA	multiple	9.7-11.05	12.3 x 1.0	OPMIR	FA	fanout	20.50-23.50	3.0 x 3.0
	MB		11.25-12.45			SA	27.50	2.0 x 2.0	
	MC		12.35-13.55			SB	29.00	3.0 x 3.0	
	MD		13.8-15.8			SC	31.30		
SHNIR	SA	single	19.36	2.0 x 1.0	SD	32.25	12.3 x 1.0		
	MA	multiple	18.20-20.90	12.3 x 1.0	MA	multiple		27.58-31.59	
					FA	fanout	27.50~31.60		
TYPE	sub TYPE	Geometry	Period (um)	Cross section (mm x mm)	TYPE	sub TYPE	Geometry	Period (um)	Cross section (mm x mm)
FSHVIS	MB	multiple	6.13-6.29	9.6 x 0.5	FSHNIR	FA	fanout	18.0-21.0	14.0 x 1.0
	MC		6.45-6.75			FB		28.0-33.6	
	MD		6.83-7.00		FSFVIS	MA	multiple	6.90-8.10	9.6 x 0.5
	ME		8.15-8.65			MB		11.25-12.45	9.6 x 1.0
	MF		8.90-9.45			MA		multiple	20.50~23.50
FSHNIR	MA	multiple	18.20-20.90	14.0 x 1.0	FOPMIR	FA	fanout	27.58-31.59	14.0 x 1.0
	MB		28.40-33.60			FB		27.50-31.60	
	*ER		19.65-19.65		FSHVIS	*YT	multiple	6.3-6.3	14.0 x 0.5
	*TM		29.3-29.3						

*ER/TM/YT: The length refers to the length of poled region (from 0.1mm to 1mm and step 0.1mm). The physical crystal length is 1mm for all Femto-series.

Regular Length(mm): 10/25/50; Ultrafast Length(mm): 0.3/0.5/1.0 (Fanout: 1mm only)
 (* The length refers to the length of poled region. The physical crystal length is 1mm for all Femto-series.)

type	sub type	Source	Input (nm)	Output (nm)	QPM period (um)	AR coating (nm)	Applications
SHVIS	SA	Diode	976	488	5.28	488(R<0.5%) /976(R<0.3%)	Holography/Life science
	SB	Nd ³⁺ Family	1064	532	6.92	532(R<0.5%) /1064(R<0.3%)	Medical/Display/Life science/Surgery /Holography
	SC	Diode/Yb ³⁺ fiber	1122	561	8.15	561(R<0.5%) /1122(R<0.3%)	Lifescience/Microscopy
SHVIS	MA	Diode laser	970-994	485-497	5.17, 5.20, 5.23, 5.26,5.29,5.32	485~590(R<0.5%) /970-1180(R<0.5%)	Holography /Microscopy /Life science /Display/Medical
	MB		1020-1040	510-520	6.13, 6.16, 6.19, 6.23,6.26,6.29		
	MC	Yb ³⁺ fiber family	1040-1070	520-535	6.45, 6.51, 6.57, 6.63,6.69,6.75		
	MD		1060-1085	529-542	6.83, 6.86, 6.90, 6.93,6.96,7.00		
	ME	Extend Yb ³⁺	1120-1150	560-575	8.15, 8.25, 8.35, 8.45,8.55,8.65		Metrology/Life science/Medical
	MF	/Raman amplifier	1150-1180	575-590	8.90, 9.01,9.12, 9.23,9.34,9.45		

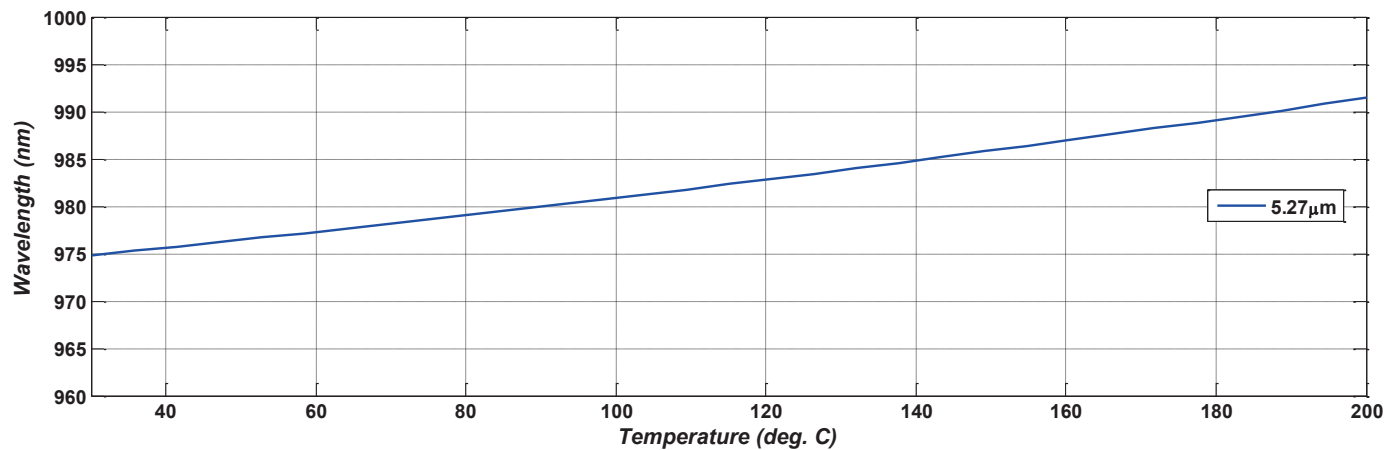
- Chip Lay-Out



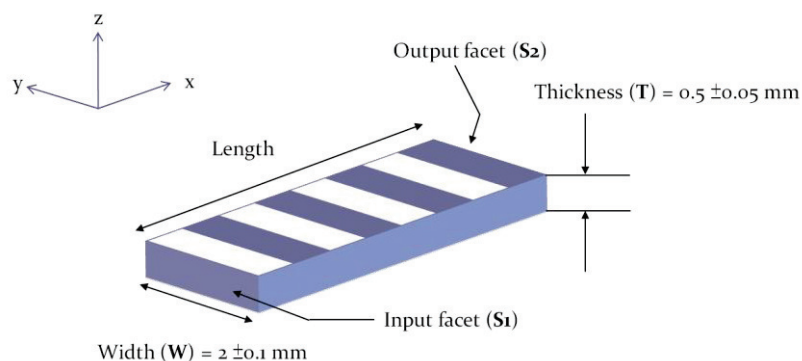
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	5.27	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S ₁ /S ₂ facets)	488 (R < 0.5%) / 976 (R < 0.3%) nm	Spectral Analyzer
Aperture Size	2.0 x 0.5 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 ± 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



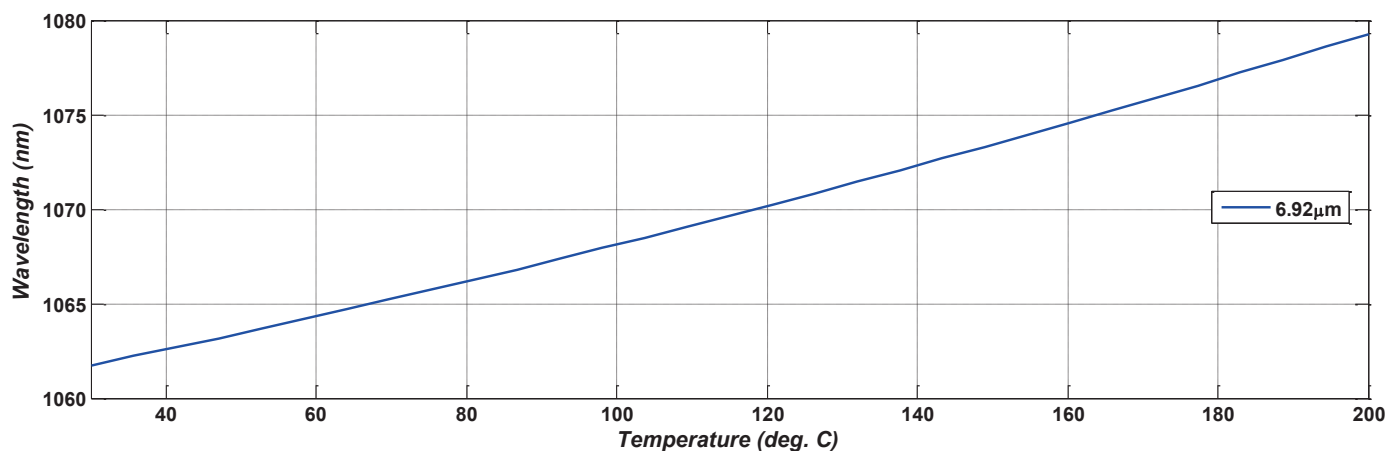
- Chip Lay-Out



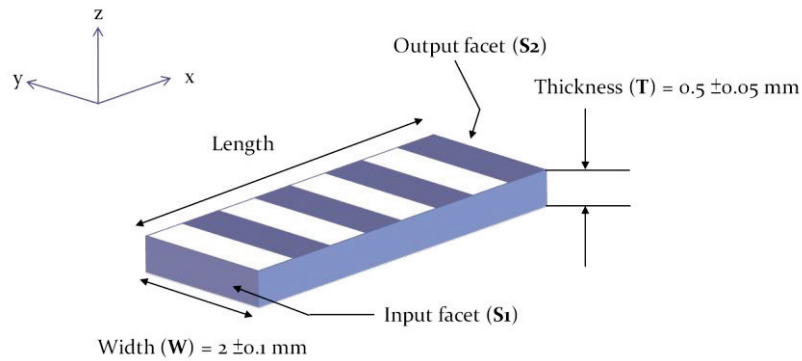
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	6.92	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S ₁ /S ₂ facets)	532 (R < 0.5%) /1064 (R < 0.3%) nm	Spectral Analyzer
Aperture Size	2.0 x 0.5 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 ± 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



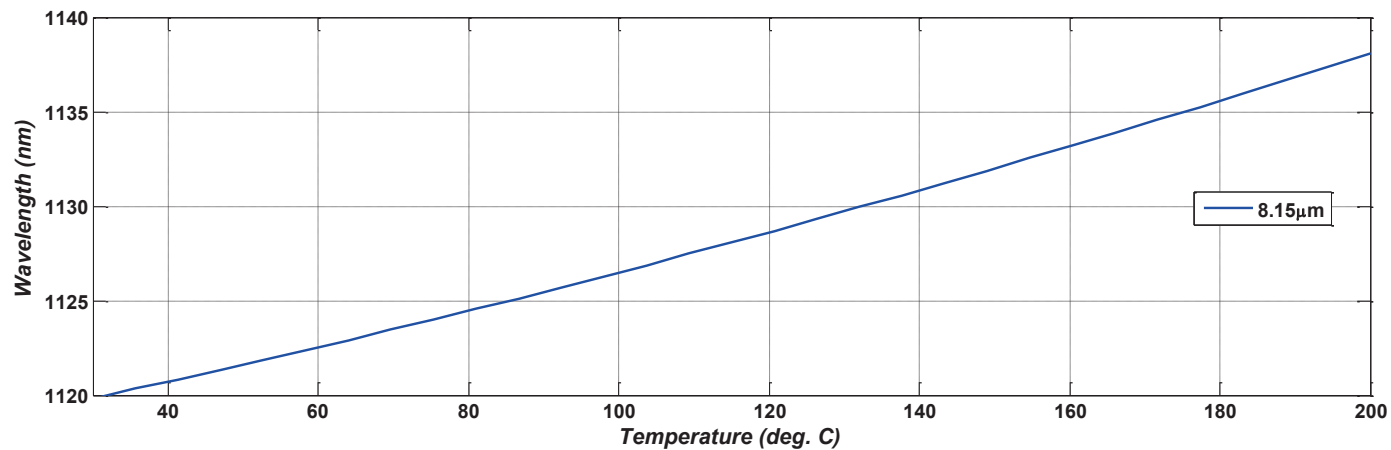
- Chip Lay-Out

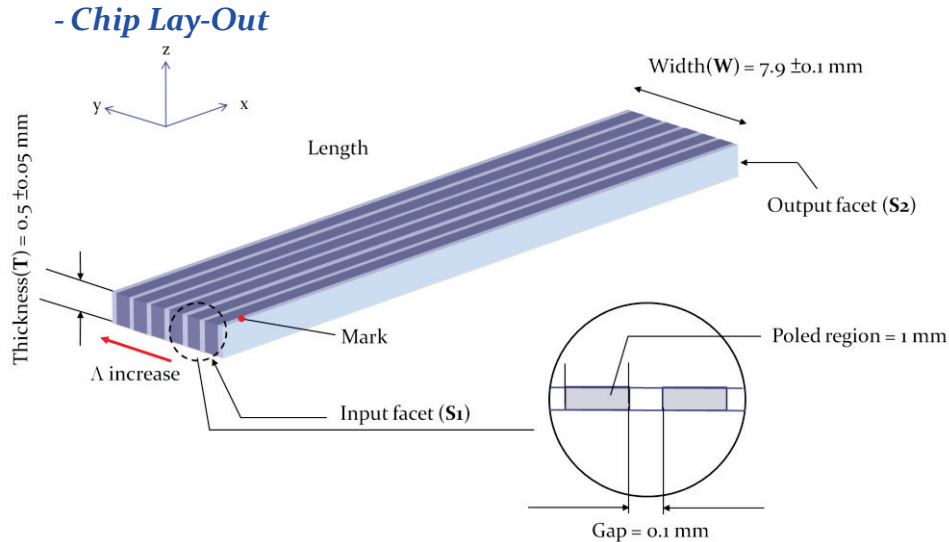


[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	8.15	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S ₁ /S ₂ facets)	561 (R < 0.5%) /1122 (R < 0.3%) nm	Spectral Analyzer
Aperture Size	2.0 x 0.5 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 ± 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve

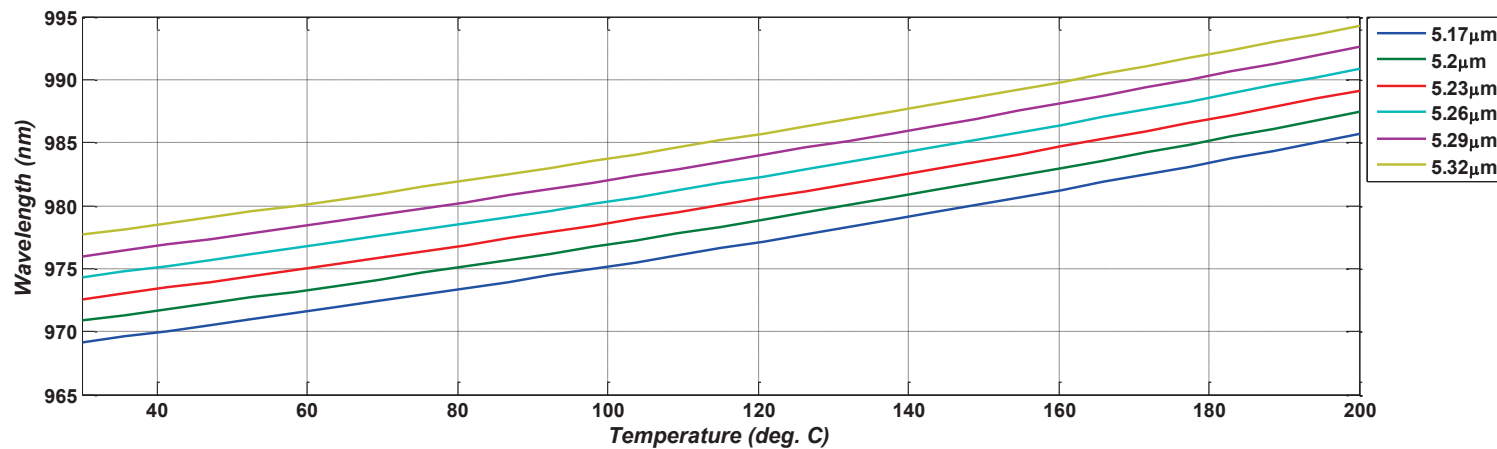




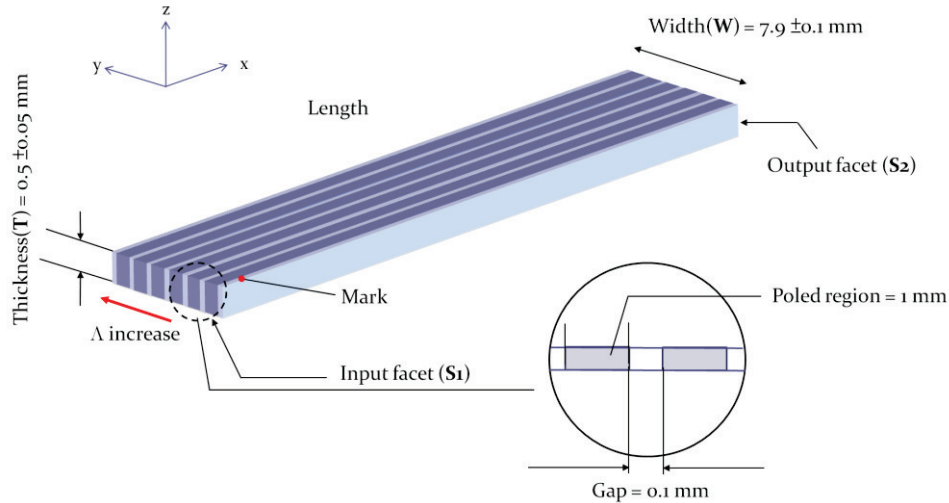
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ, μm)	5.17, 5.20, 5.23, 5.26, 5.29, 5.32	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	≤5' / 21'	Autocollimator
Flatness	≤λ/6 (λ=633nm)	Interferometer
Scratch/Dig	≤20/10	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @485~590(R<0.5%) /970~1180(R<0.5%) nm	Spectral Analyzer
Aperture Size	7.9 x 0.5 mm ² (W x T)	Cutting Machine
Available Length	10/25 /50 ± 0.2 mm	
Channel Clear Aperture	≥80% (T), ≥90% (W)	NA

- Phase Matching Tuning Curve



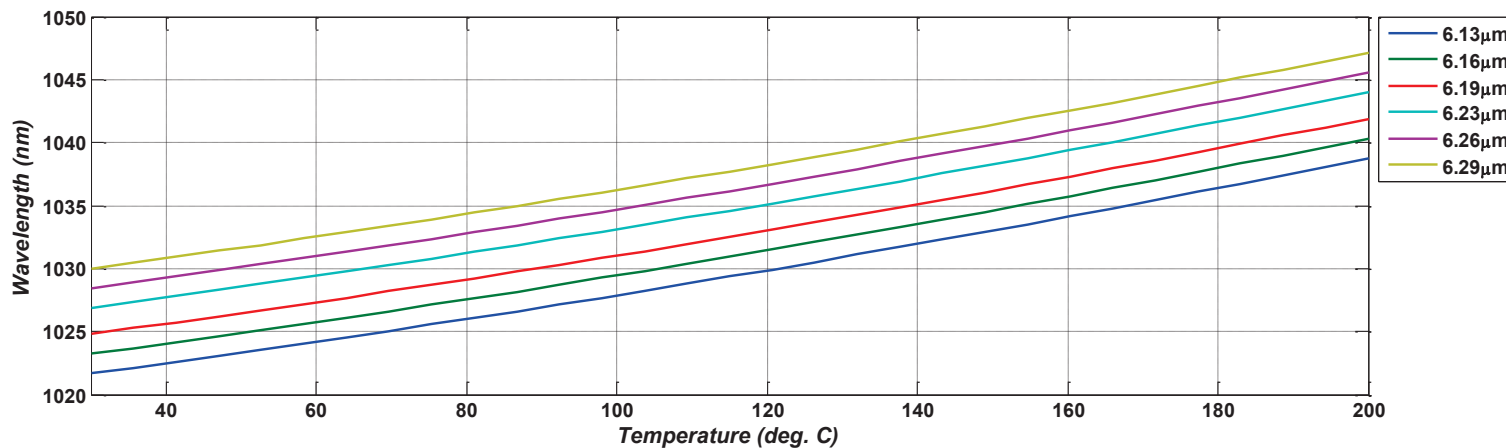
- Chip Lay-Out



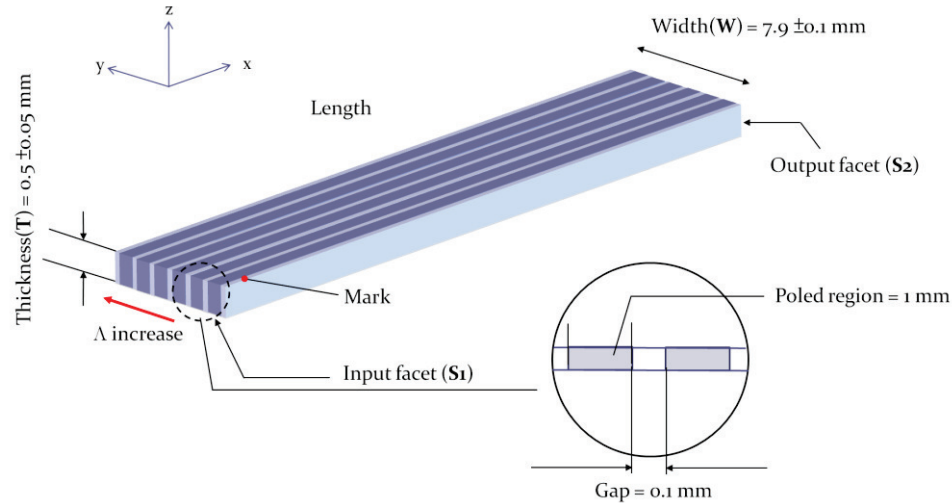
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	6.13, 6.16, 6.19, 6.23, 6.26, 6.29	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @485~590(R<0.5%) /970~1180(R<0.5%) nm	Spectral Analyzer
Aperture Size	7.9 x 0.5 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 \pm 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



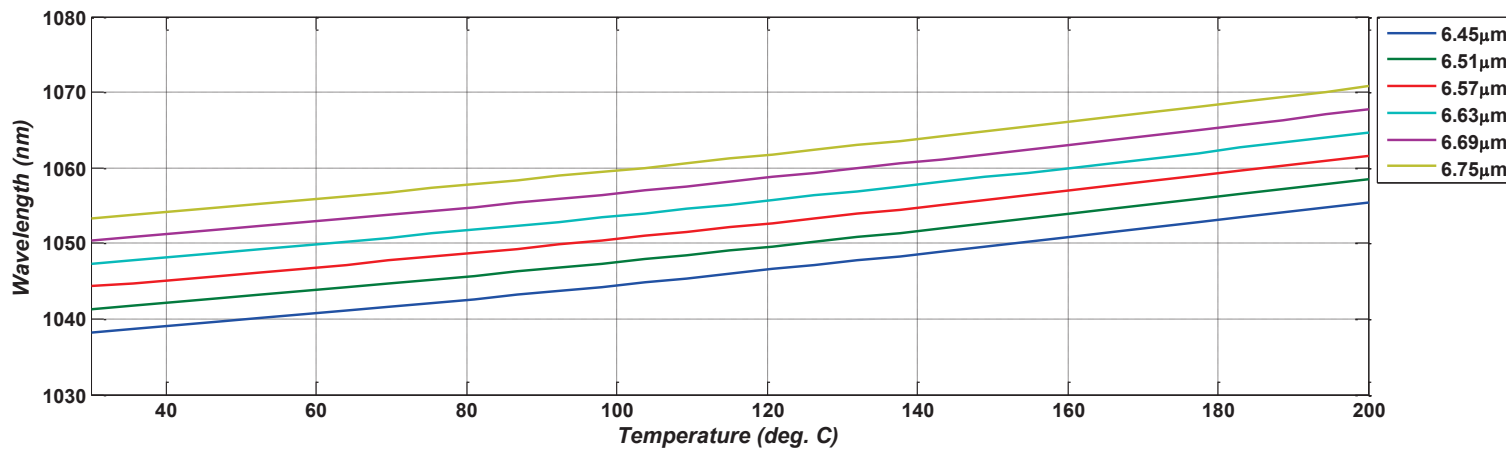
- Chip Lay-Out



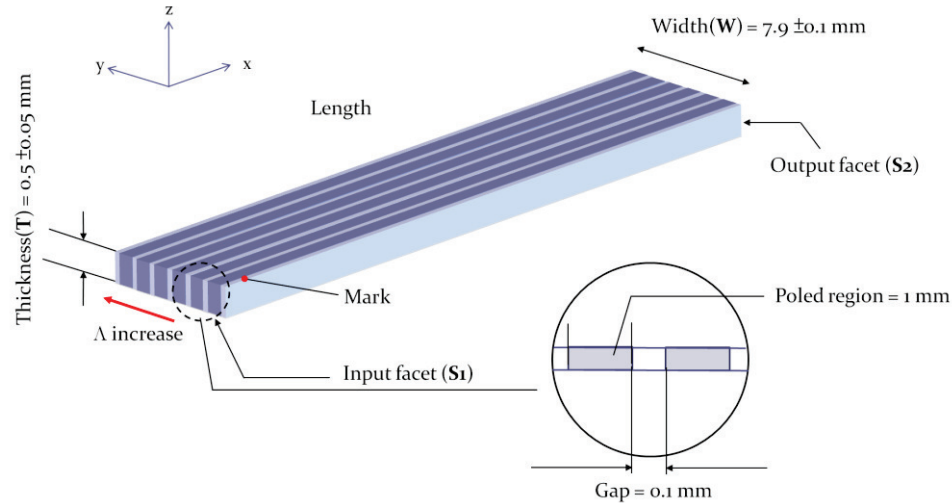
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	6.45, 6.51, 6.57, 6.63, 6.69, 6.75	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @485~590(R<0.5%) /970~1180(R<0.5%) nm	Spectral Analyzer
Aperture Size	7.9 x 0.5 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 \pm 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



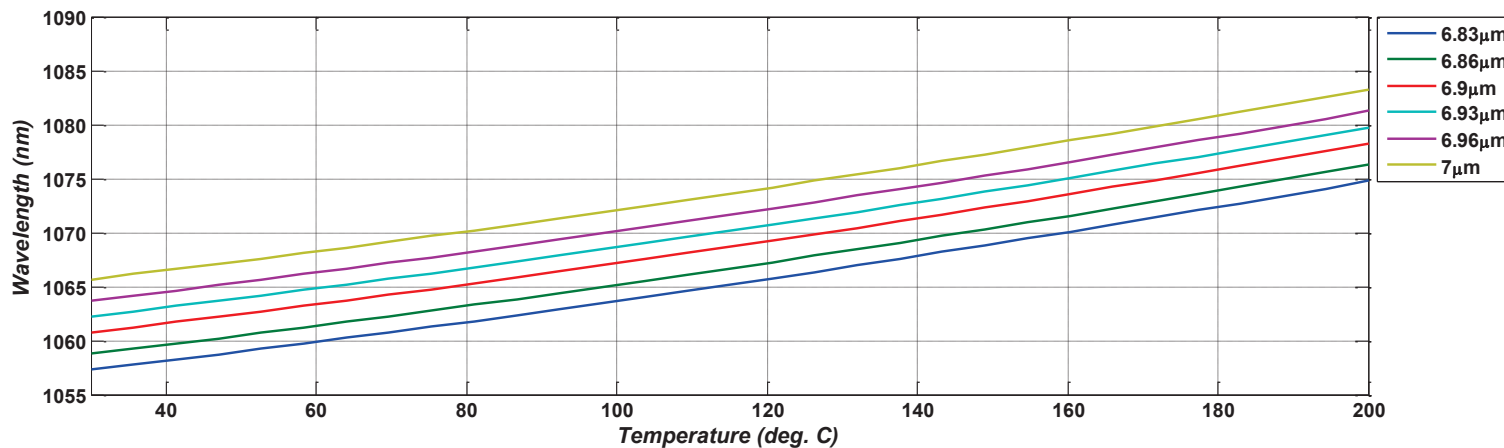
- Chip Lay-Out



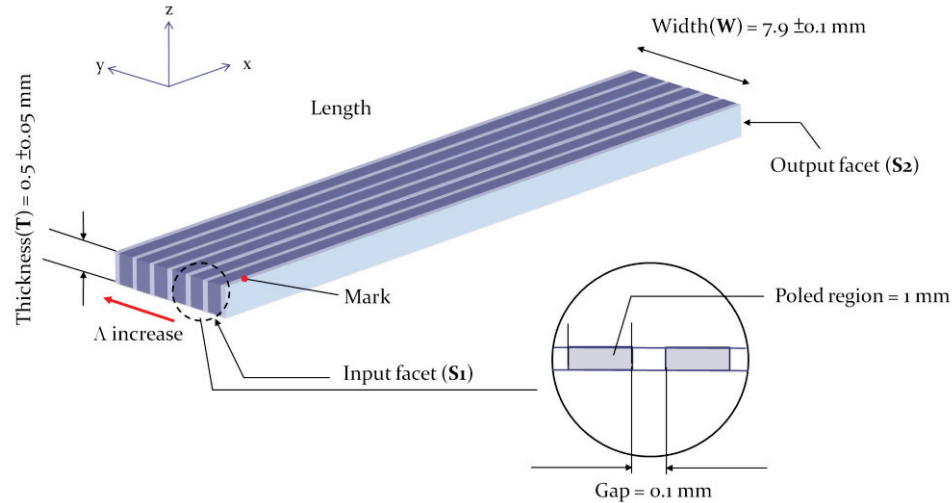
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	6.83, 6.86, 6.90, 6.93, 6.96, 7.00	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @485~590 (R<0.5%) /970~1180 (R<0.5%) nm	Spectral Analyzer
Aperture Size	7.9 x 0.5 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



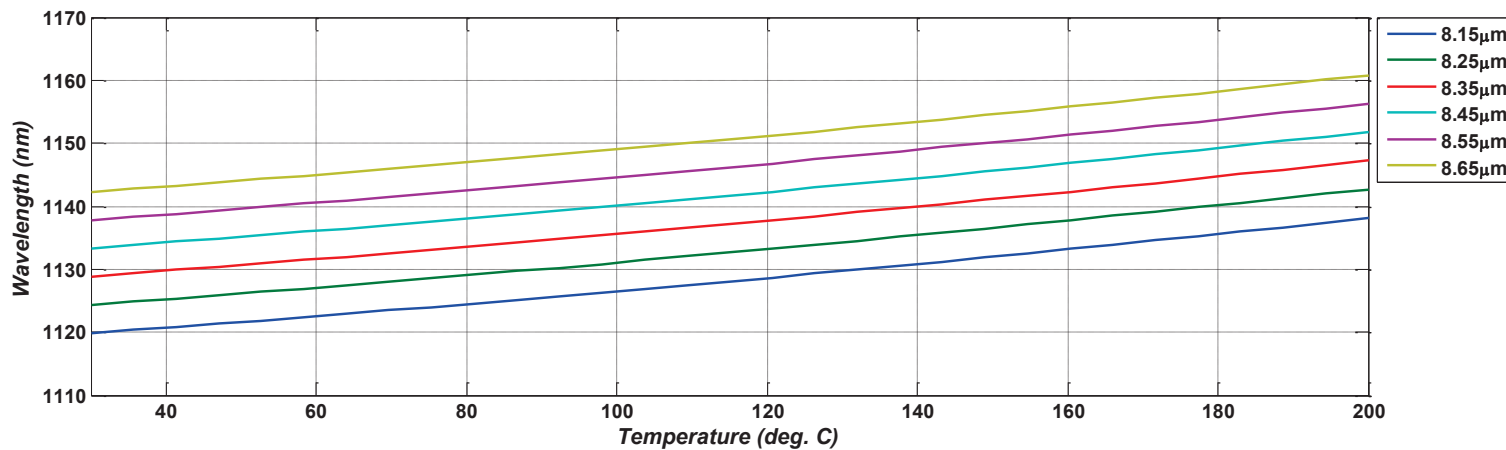
- Chip Lay-Out



[Image for reference only. Not for scale.]

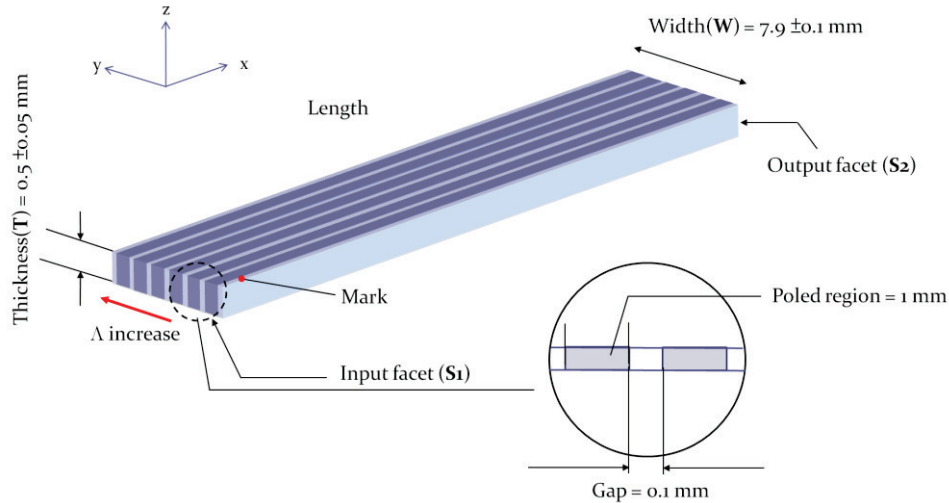
Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	8.15, 8.25, 8.35, 8.45, 8.55, 8.65	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @485~590(R<0.5%) /970~1180(R<0.5%) nm	Spectral Analyzer
Aperture Size	7.9 x 0.5 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 \pm 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



Periodically Poled Lithium Niobate (PPLN) Chip : *SHVIS-MF*

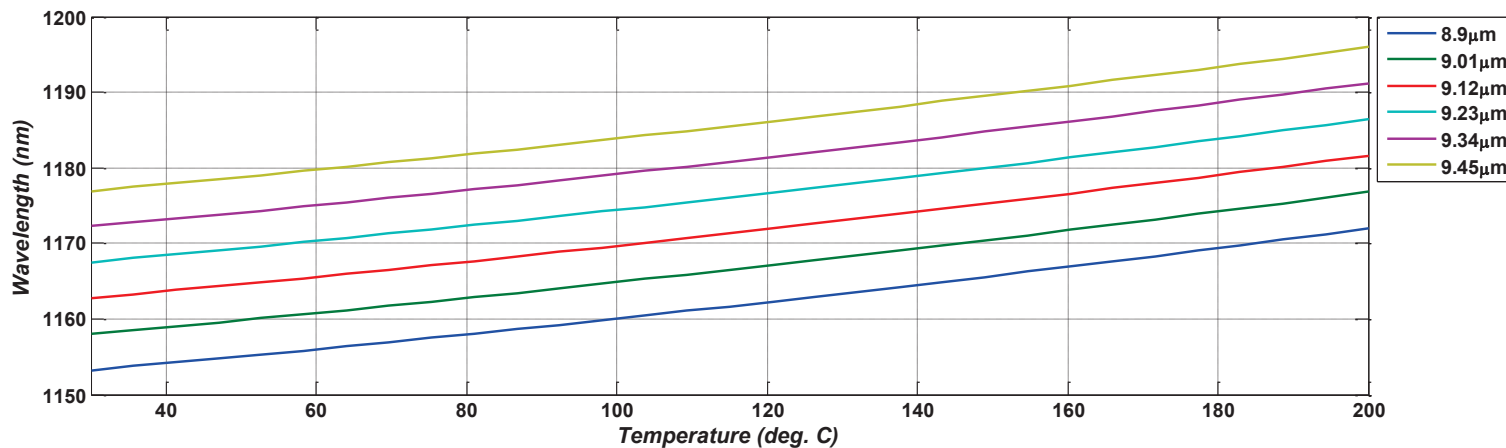
- Chip Lay-Out



[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	8.90, 9.01, 9.12, 9.23, 9.34, 9.45	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @485~590(R<0.5%) /970~1180(R<0.5%) nm	Spectral Analyzer
Aperture Size	7.9 x 0.5 mm ² (W x T)	Cutting Machine
Available Length	10/25 /50 ± 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

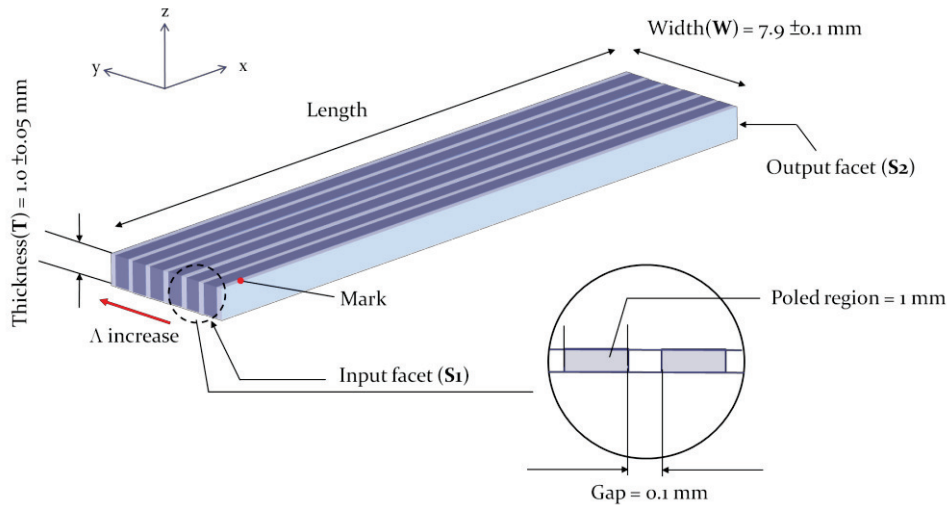
- Phase Matching Tuning Curve



type	sub type	Source	Input (nm)	Output (nm)	QPM period (um)	AR coating (nm)	Applications
SHRED	MA	Raman laser/Parametric oscillator	1200-1250	600-625	9.70, 9.97, 10.24, 10.51, 10.78, 11.05	590-680(R<0.5%) /1180-1360(R<0.5%)	Quantum storage/Optical memory/STED microscopy
	MB		1250-1300	625-650	11.25, 11.49, 11.73, 11.97, 12.21, 12.45		Atom cooling/ion trapping/spectroscopy
	MC		1290-1350	645-675	12.35, 12.59, 12.83, 13.07, 13.31, 13.55		Atom cooling/ion trapping/spectroscopy
	MD	Freq. Comb	1350-1430	675-715	13.80, 14.20, 14.60, 15.00, 15.40, 15.80		670-730(R<0.5%) /1350-1450(R<0.5%)
SHNIR	SA	Telecom/Er 3+ fiber family	1550	775	19.36	775(R<0.5%) /1550(R<0.3%)	Quantum Communication/Spectroscopy/Metrology
	MA	Telecom/Er 3+ fiber family	1500-1620	750~810	18.20,18.50, 18.80, 19.10, 19.40, 19.70, 20.00, 20.30, 20.60, 20.90	750-810(R<0.5%) /1500-1620(R<0.5%)	Atom cooling/3D micro-fabrication/Microscopy/T Hz Generation
	MB	Tm+/Ho+ fiber family	1925-2300	962.5~1150	28.40, 29.00, 29.60, 30.20, 30.80, 31.40, 32.00, 32.60, 33.20, 33.60	960-1150(R<0.5%) /1925-2300(R<0.5%)	Metrology
	MC	Mid-IR laser	2400-3400	1200-1700	33.30,33.60, 33.90, 34.20, 34.50, 34.80, 35.10, 35.40, 35.70, 36.00	1200-1700(R<1%) /2400-3400(R<5%)	
	FA	Telecom/Er 3+ fiber family	1500-1620	750~810	18.20~21	750-810(R<0.5%) /1500-1620(R<0.5%)	Atom cooling/3D micro-fabrication/Microscopy/T Hz Generation

Periodically Poled Lithium Niobate (PPLN) Chip : SHRED-MA

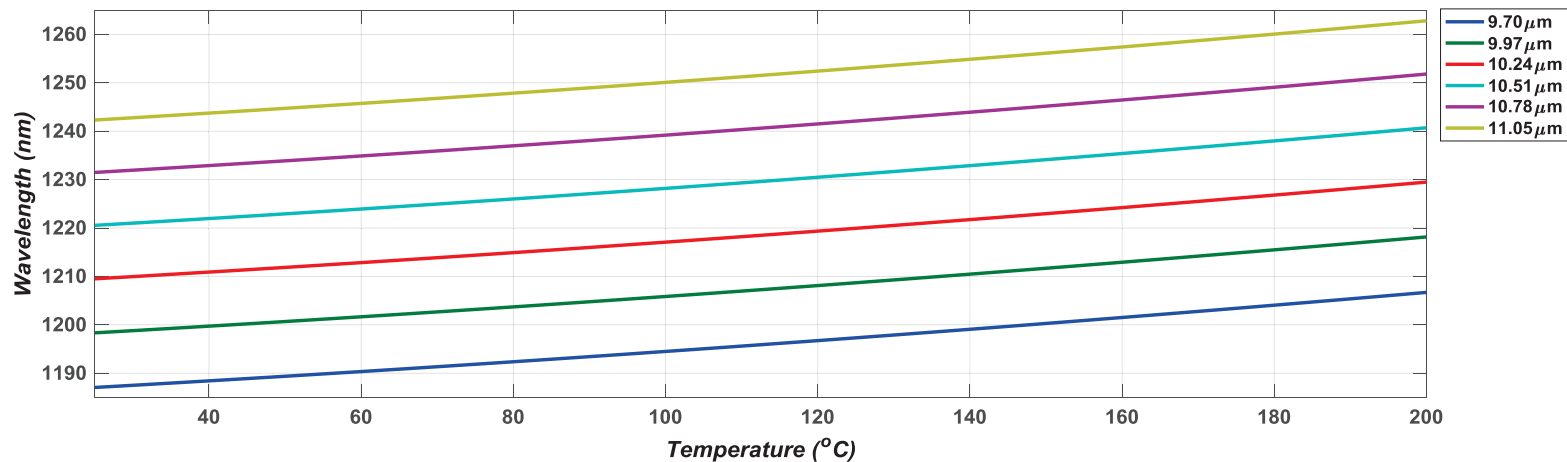
- Chip Lay-Out



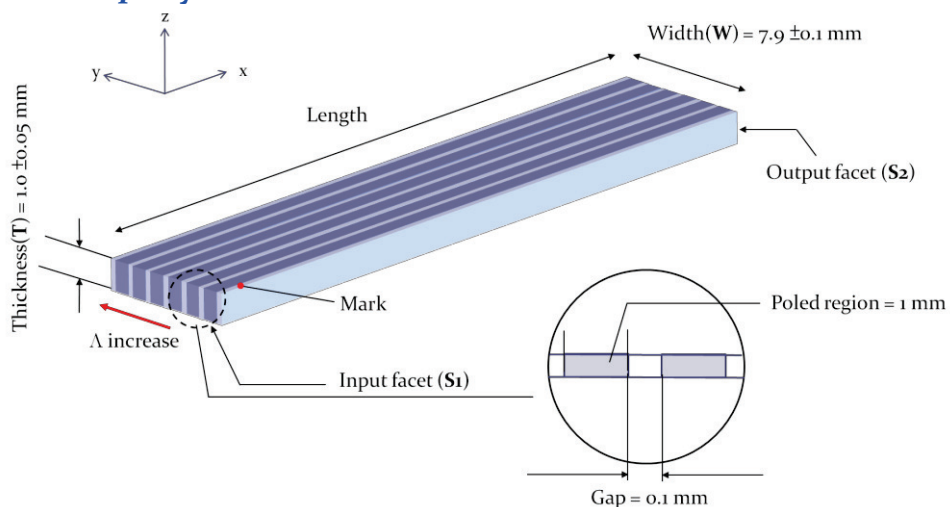
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ, μm)	9.70, 9.97, 10.24, 10.51, 10.78, 11.05	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633$ nm)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S ₁ /S ₂ facets)	S ₁ /S ₂ @590~680(R<0.5%) / 1180~1360(R<0.5%)nm	Spectral Analyzer
Aperture Size	7.9×0.5 mm ² (W x T)	Cutting Machine
Available Length	10/25 / 50 ± 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



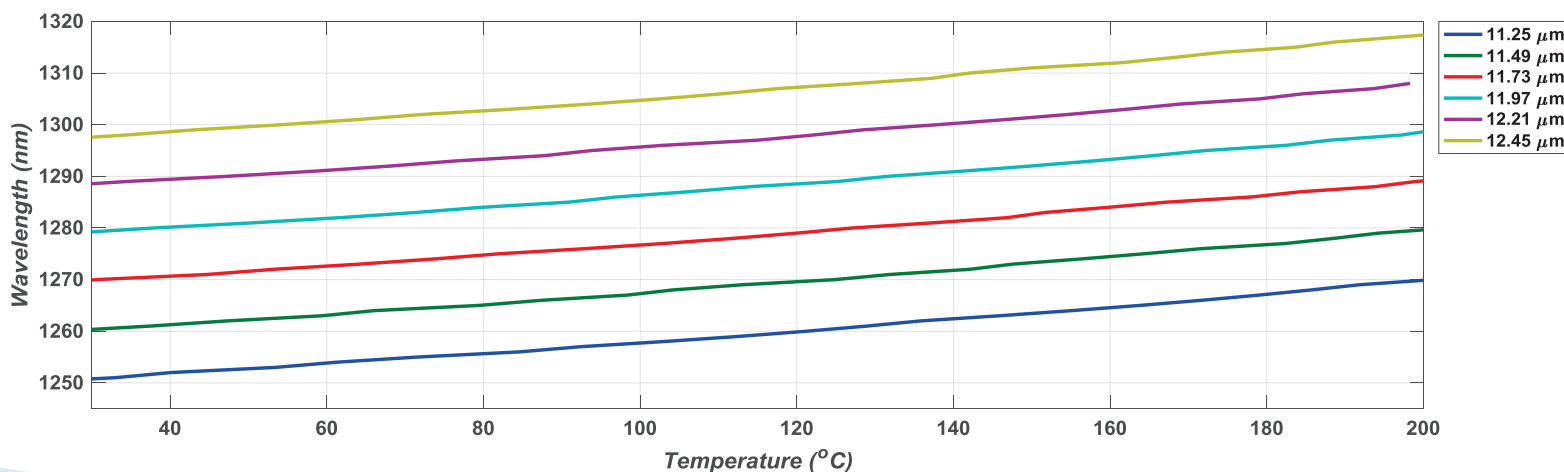
- Chip Lay-Out



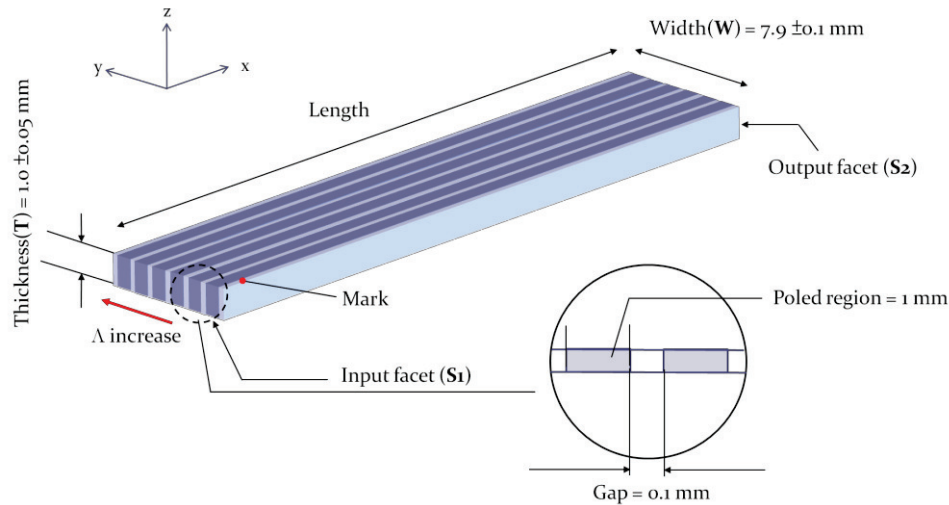
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period ($\Lambda, \mu\text{m}$)	11.25, 11.49, 11.73, 11.97, 12.21, 12.45	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @590~680(R<0.5%) / 1180~1360(R<0.5%)nm	Spectral Analyzer
Aperture Size	7.9 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	10/25 / 50 ± 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



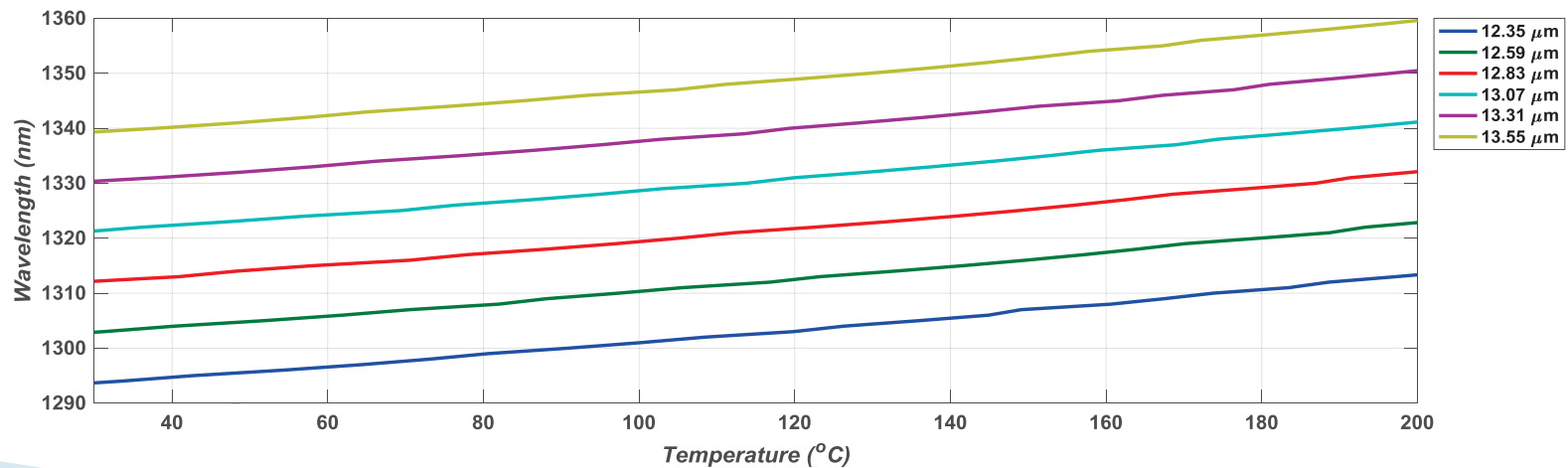
- Chip Lay-Out



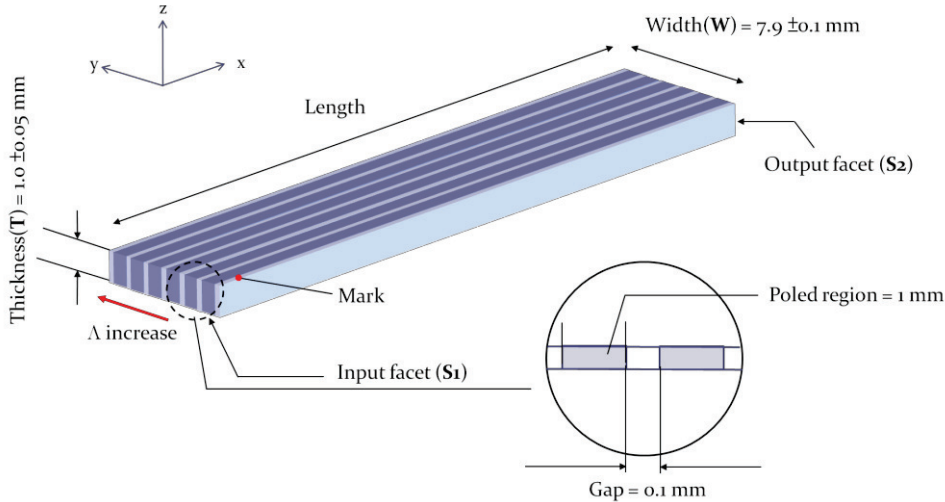
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	12.35, 12.59, 12.83, 13.07, 13.31, 13.55	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @590~680(R<0.5%) /1180~1360(R<0.5%) nm	Spectral Analyzer
Aperture Size	7.9 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	10/25 /50 ± 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



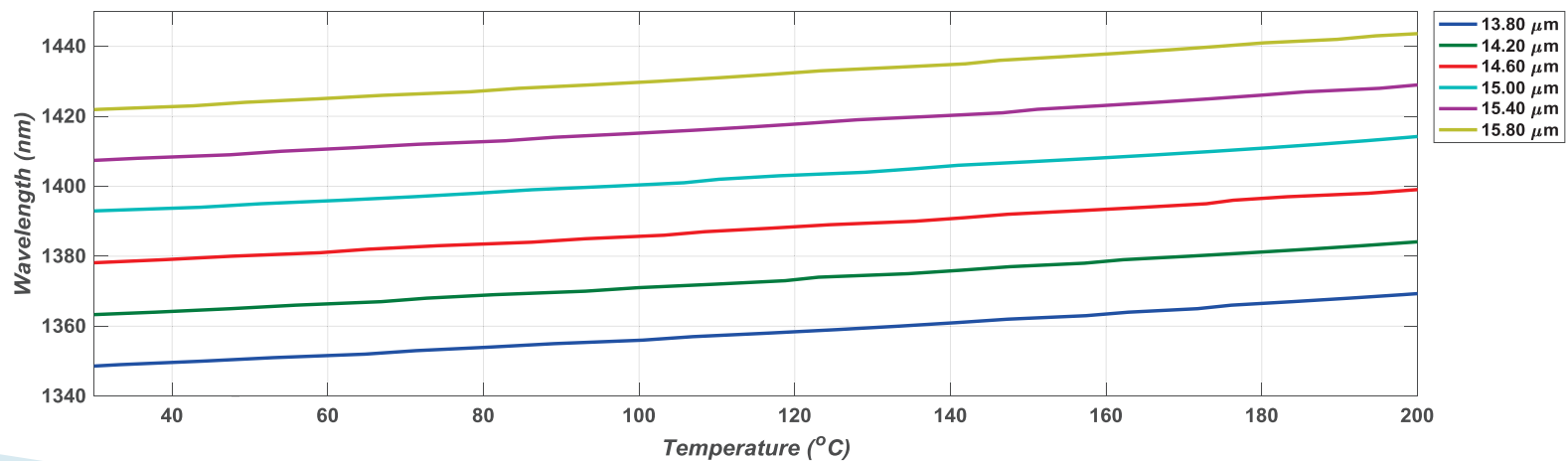
- Chip Lay-Out



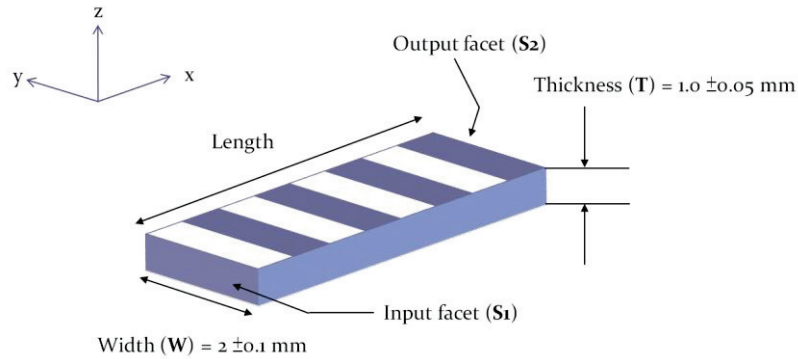
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	13.80, 14.20, 14.60, 15.00, 15.40, 15.80	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @670~730(R<0.5%) / 1350~1450(R<0.5%) nm	Spectral Analyzer
Aperture Size	7.9 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	10/25 / 50 ± 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



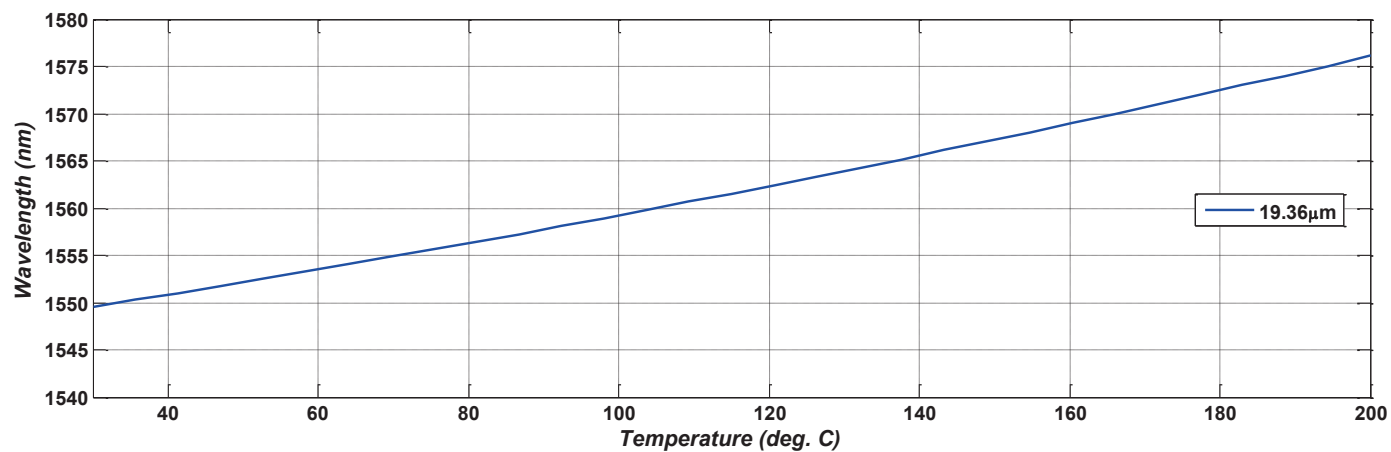
- Chip Lay-Out



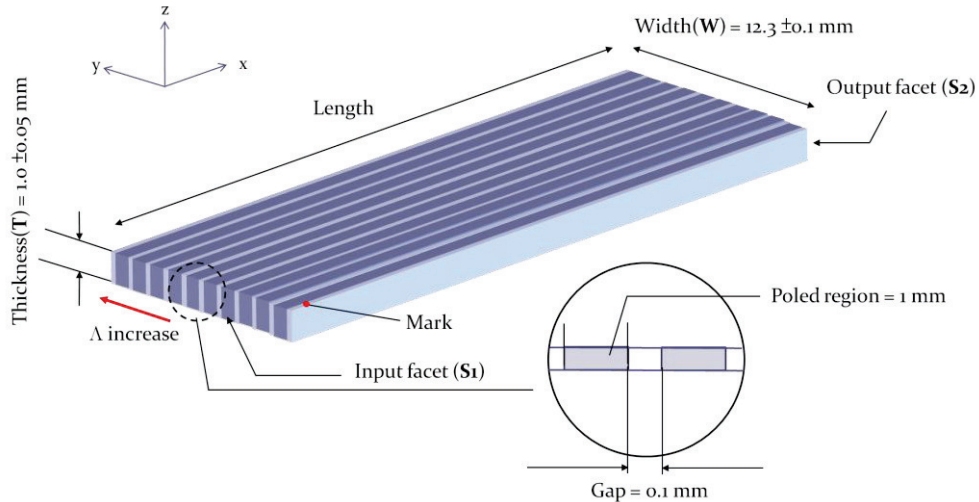
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	19.36	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S ₁ /S ₂ facets)	775 (R < 0.5%) /1550 (R < 0.3%) nm	Spectral Analyzer
Aperture Size	2.0 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 ± 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



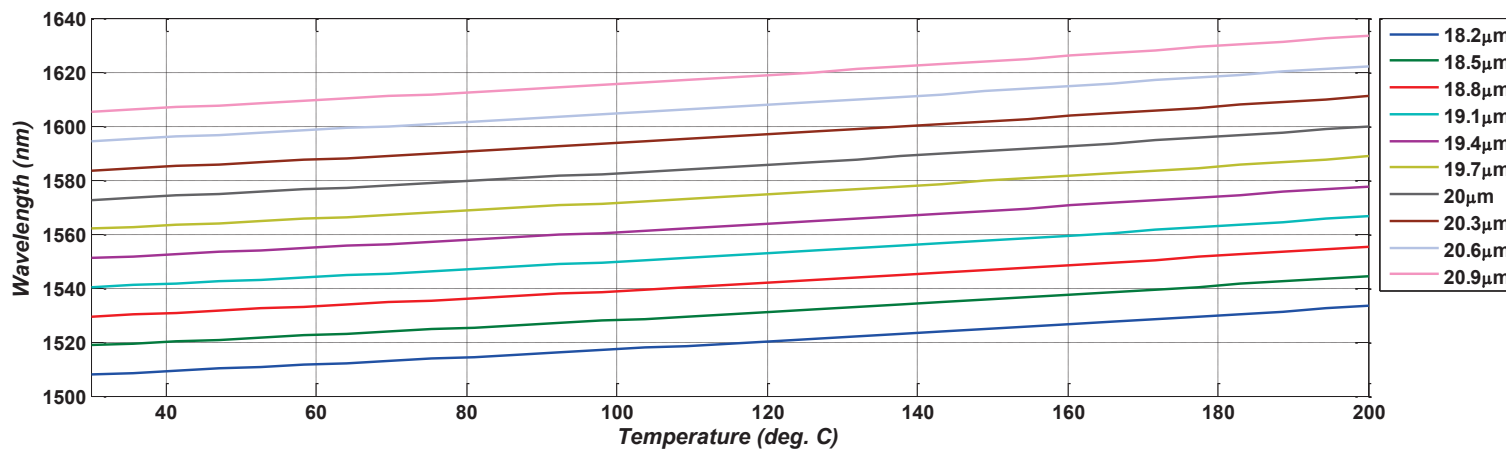
- Chip Lay-Out



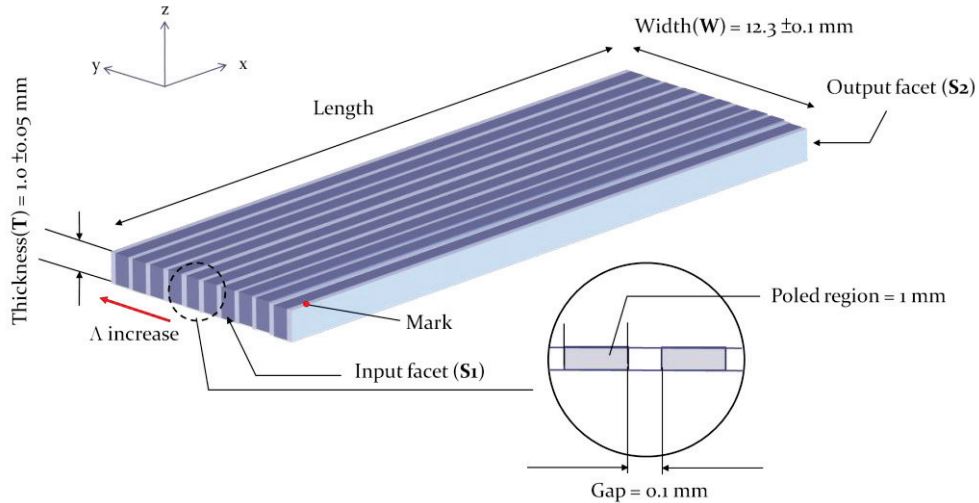
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	18.20, 18.50, 18.80, 19.10, 19.40, 19.70, 20.00, 20.30, 20.60, 20.90	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @750-810 (R<0.5%) /1500-1620 (R<0.5%) nm	Spectral Analyzer
Aperture Size	12.3 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 \pm 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



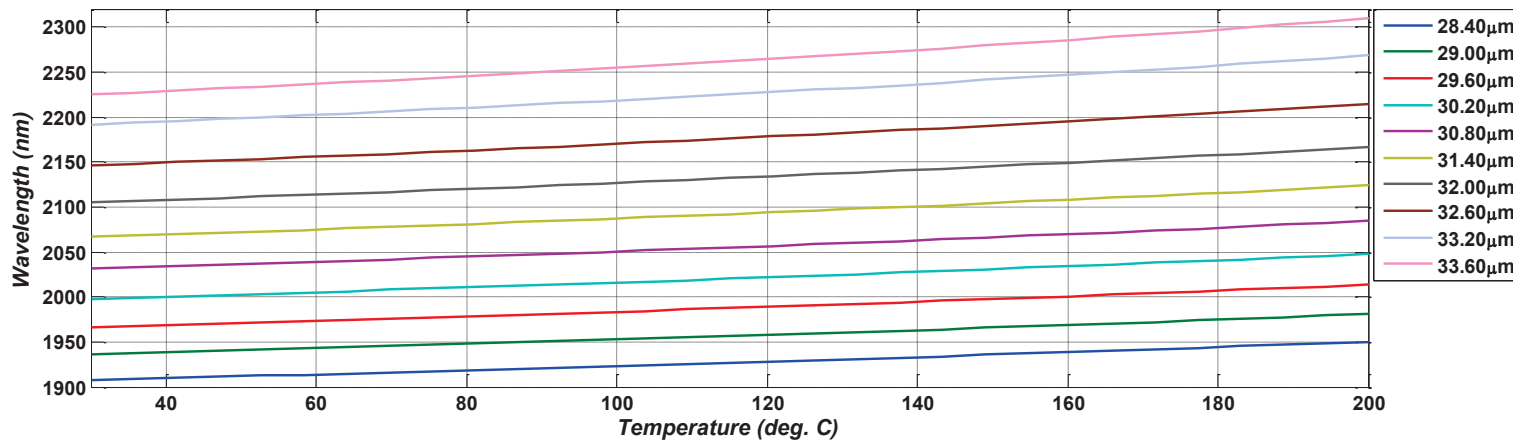
- Chip Lay-Out



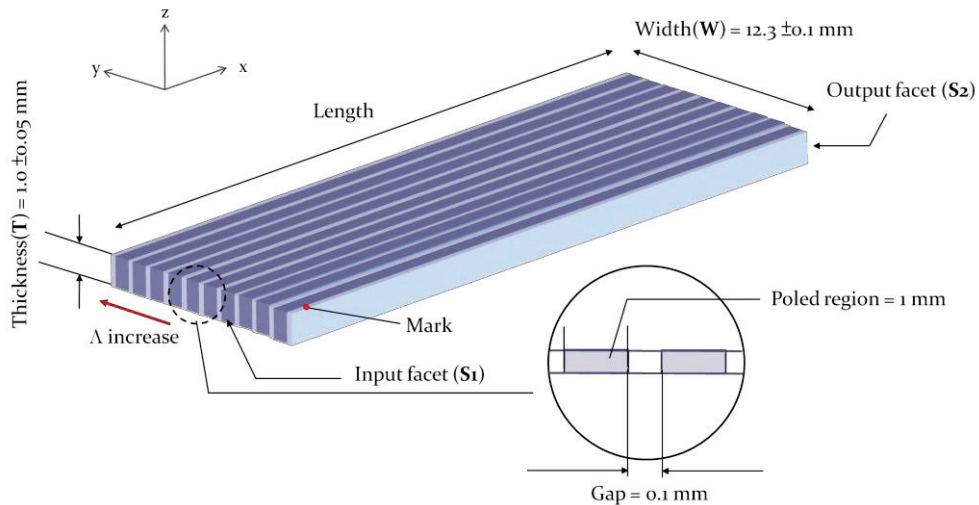
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	28.40, 29.00, 29.60, 30.20, 30.80, 31.40, 32.00, 32.60, 33.20, 33.60	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S ₁ /S ₂ facets)	S ₁ /S ₂ @960-1150 (R<0.5%) /1925-2300 (R<0.5%) nm	Spectral Analyzer
Aperture Size	12.3 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 ± 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



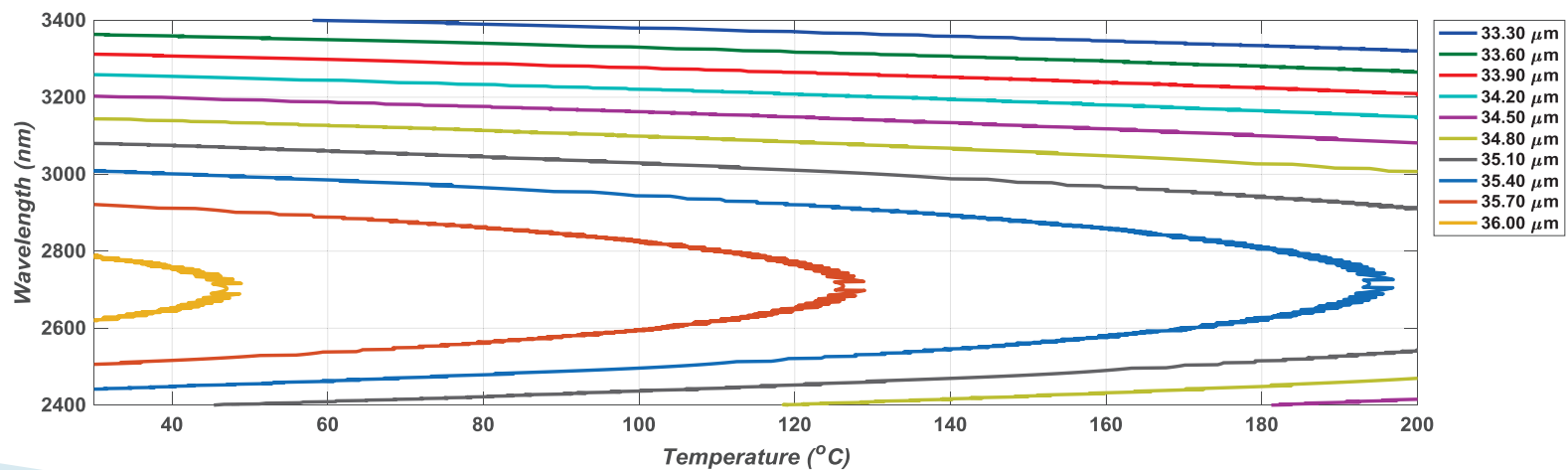
- Chip Lay-Out



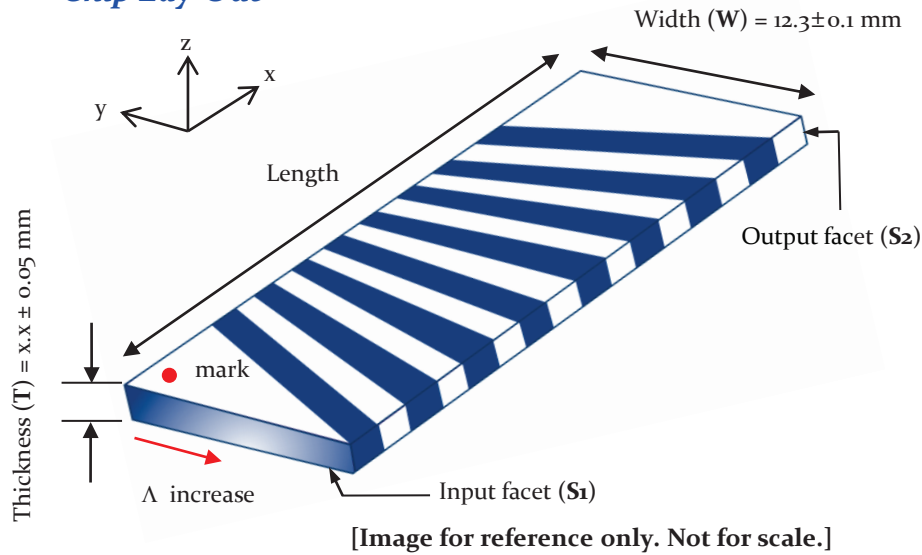
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	33.30, 33.60, 33.90, 34.20, 34.50, 34.80, 35.10, 35.40, 35.70, 36.00	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S_1/S_2 facets)	S_1/S_2 @1200~1700($R < 1\%$) /2400~3400($R < 5\%$)nm	Spectral Analyzer
Aperture Size	12.3 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 \pm 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



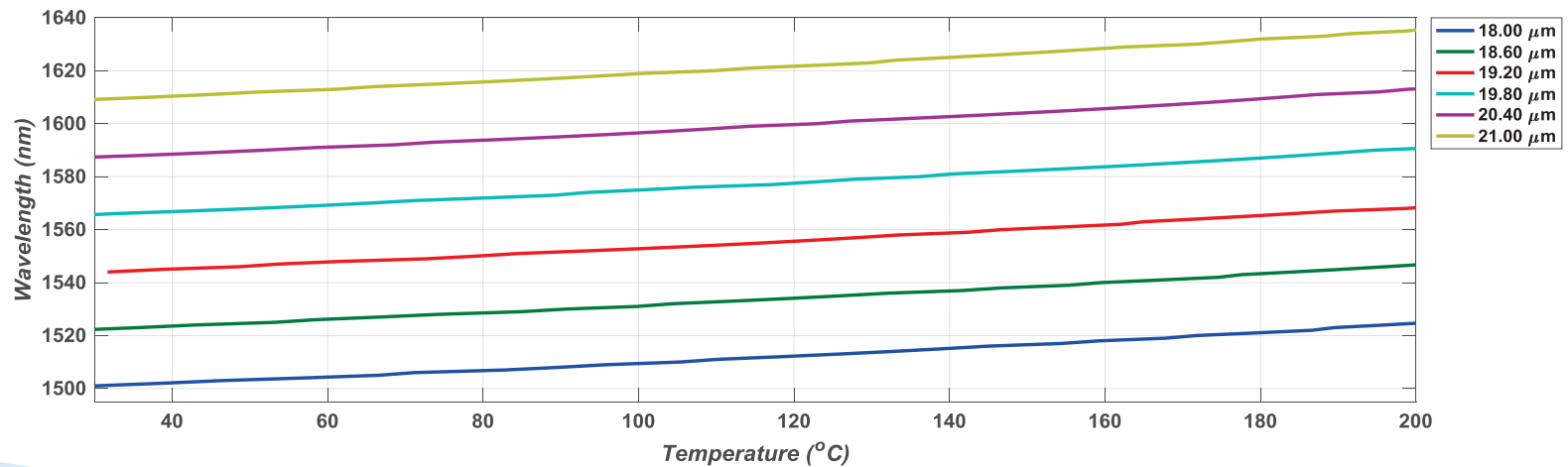
- Chip Lay-Out



Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	18.00-21.00	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical coating (S1/S2 facets)	S1/S2 @ 750-810 (R < 0.5%) / 1500-1620 (R < 0.5%) nm	Spectral Analyzer
Aperture Size	12.3 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 \pm 0.2 mm	
Clear Aperture *	$\geq 80\%$ (T), ≥ 10.9 mm (W) *1	NA

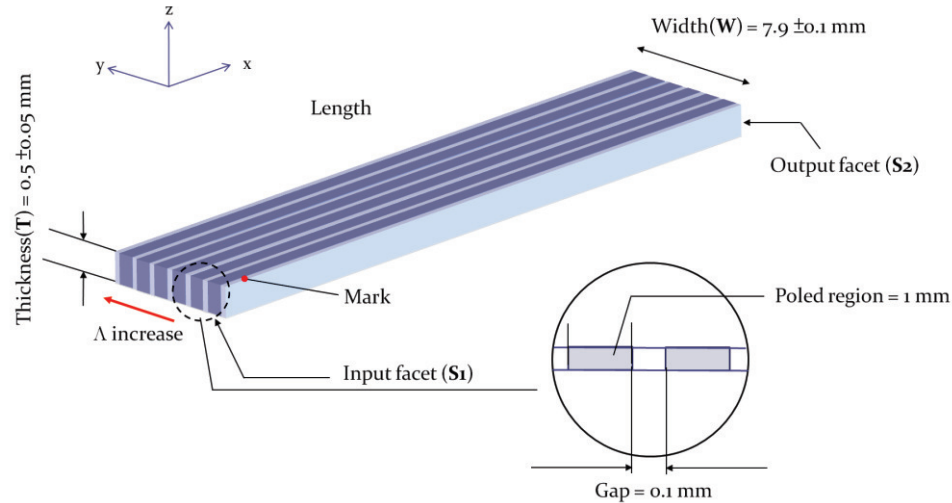
*1 Poled fan-out grating width = 10.9mm

- Phase Matching Tuning Curve



type	sub type	Source	Input (nm)	Output (nm)	QPM period (um)	AR coating (nm)	Applications
SFVIS	MA	Ti:Sapphire + Telecom	775~845 /1550	516~544	6.90, 7.10, 7.30, 7.50, 7.70, 8.10	470-550/720-850 /1480-1590 (R<0.5%)	Holography/Microscopy/Life science/Display/Medical
	MB	Telecom +Yb3+	1520-1620/1064	625-642	11.25, 11.49,11.73, 11.97, 12.21,12.45	625-642/1020-1080 /1520-1620 (R<0.5%)	Visible communication /Atom cooling and trapping/Display
	MC	Tm/Ho fiber laser+Yb3+	1900-2300/1064	682-737	14.90, 15.30,15.70, 16.10, 16.50,16.90, 17.30, 17.70,18.10, 18.50	625-642/1020-1080 /1520-1620 (R<0.5%)	
	FA	Ti:Sapphire + Telecom	775~845 /1550	516~544	6.90~8.10	470-550/720-850 /1480-1590 (R<0.5%)	Holography/Microscopy/Life science/Display/Medical

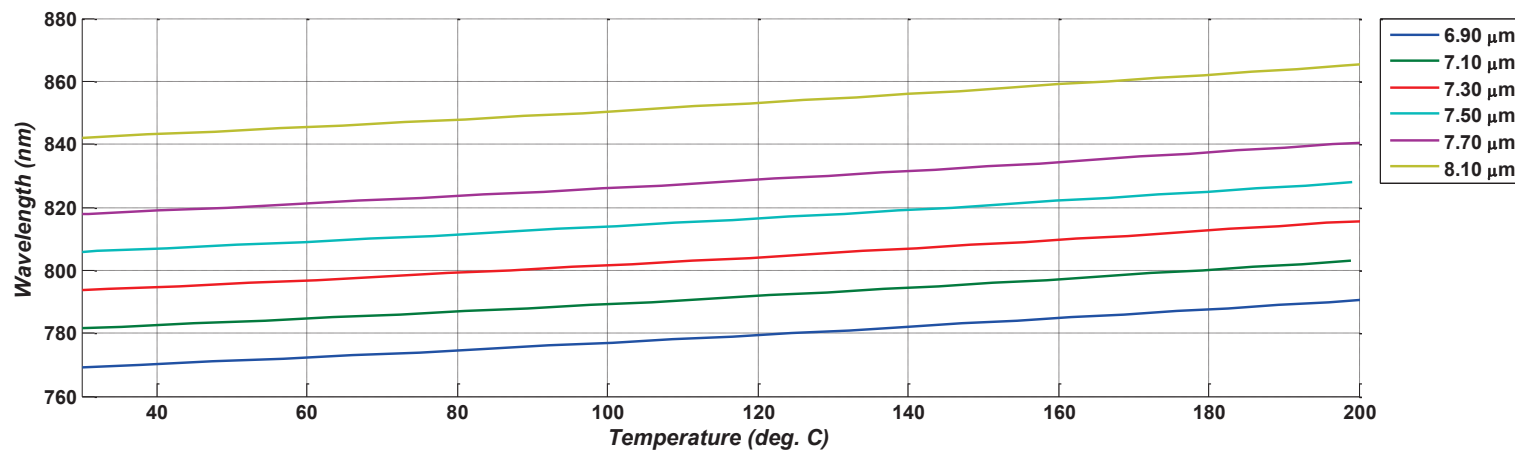
- Chip Lay-Out



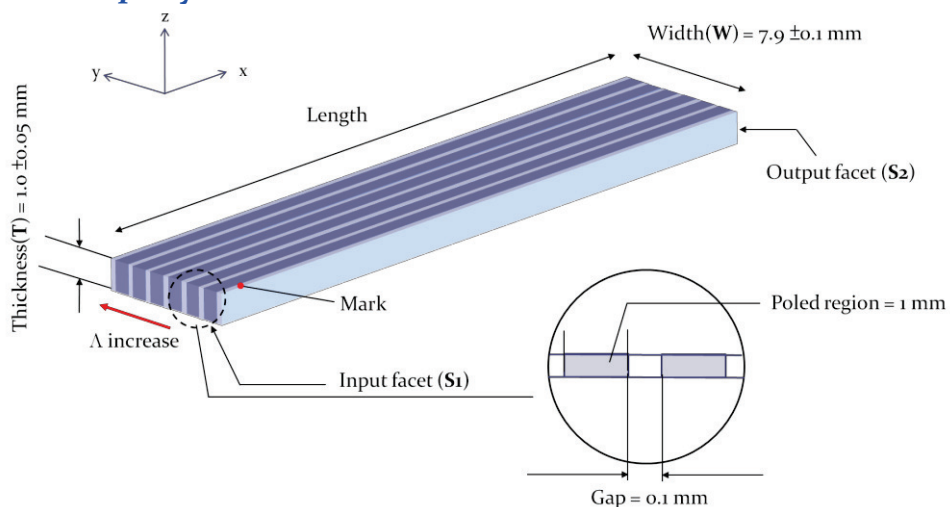
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	6.90, 7.10, 7.30, 7.50, 7.70, 8.10	Microscope
Main Function	Sum-Frequency Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2@470~550/720~850 /1480~1590 (R<0.5%) nm	Spectral Analyzer
Aperture Size	7.9 x 0.5 mm ² (W x T)	Cutting Machine
Available Length	10/25 /50 ± 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



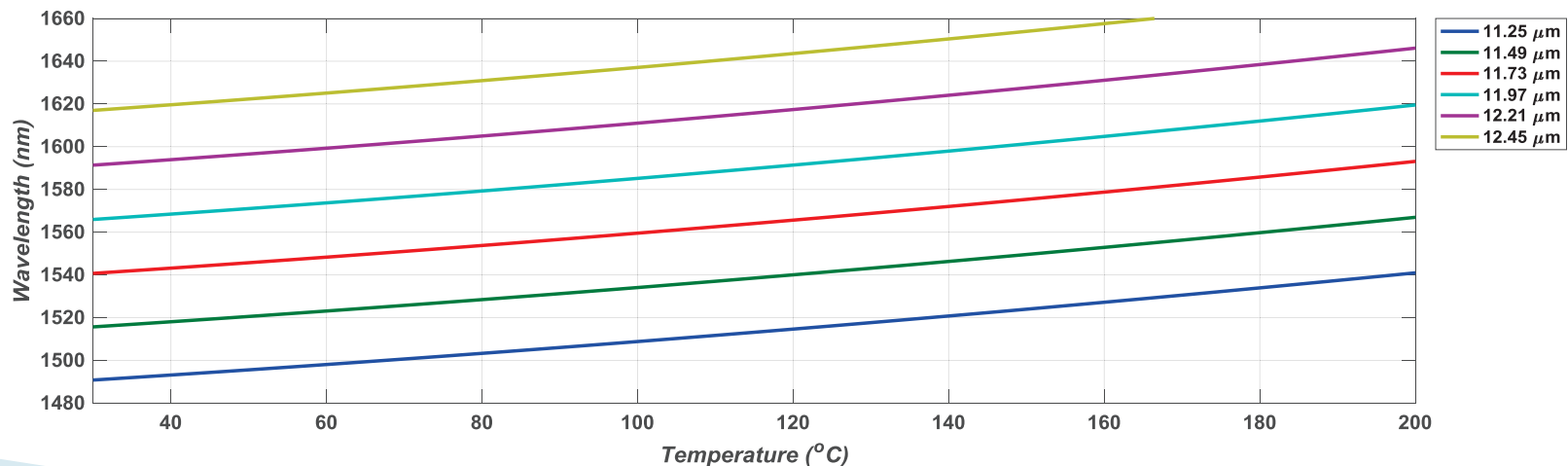
- Chip Lay-Out



[Image for reference only. Not for scale.]

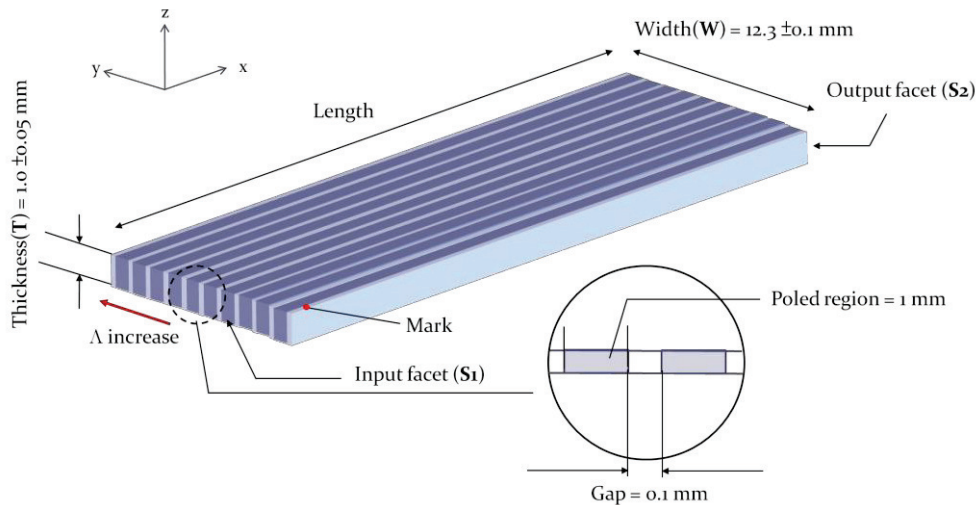
Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	11.25, 11.49, 11.73, 11.97, 12.21, 12.45	Microscope
Main Function	Sum-Frequency Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2@625~642/1020~1080 / 1520~1620 (R<0.5%) nm	Spectral Analyzer
Aperture Size	7.9 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	10/25 / 50 ± 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



Periodically Poled Lithium Niobate (PPLN) Chip : *SFVIS-MC*

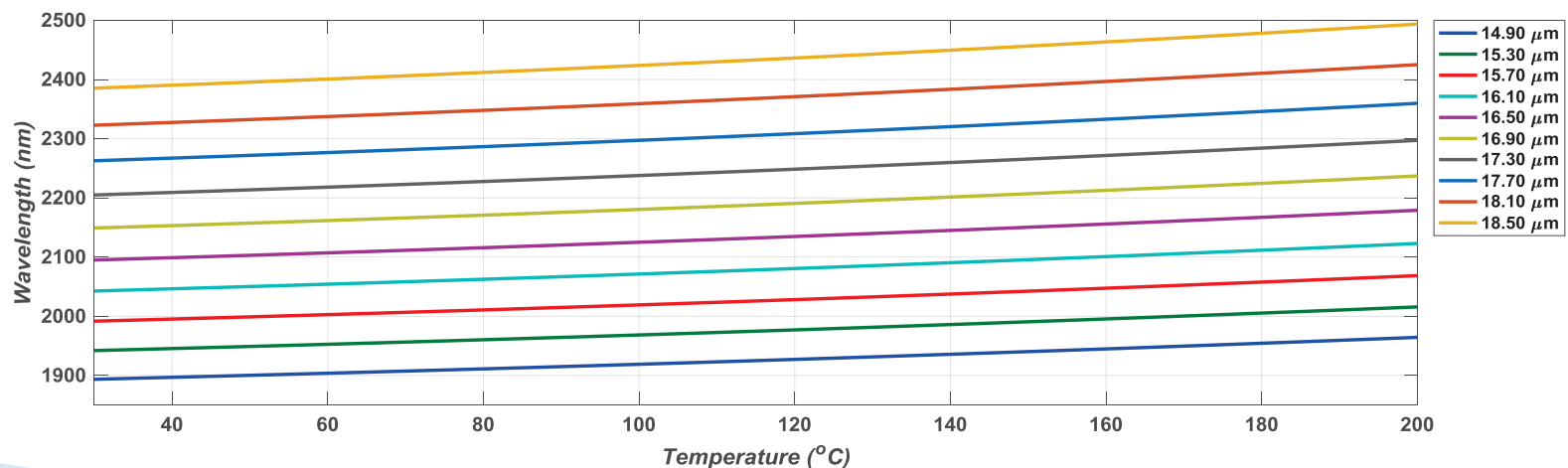
- Chip Lay-Out



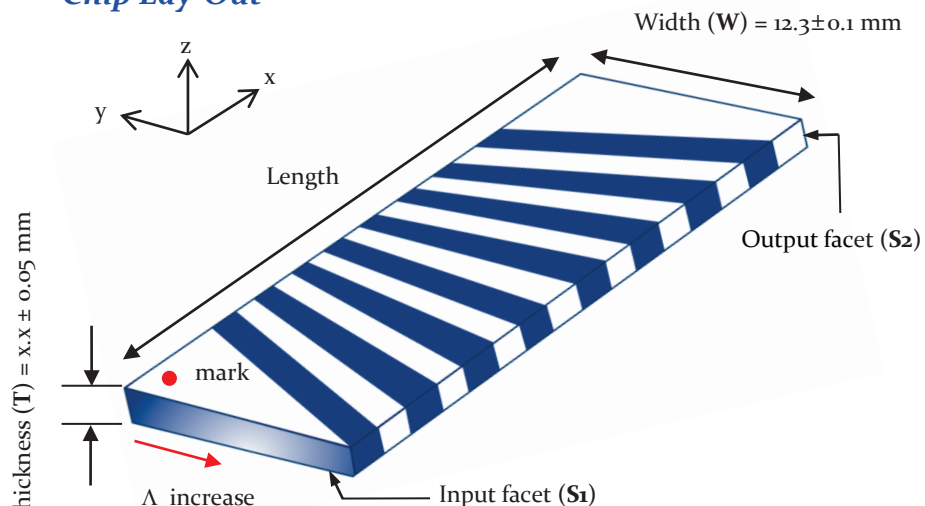
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ, μm)	14.90, 15.30, 15.70, 16.10, 16.50, 16.90, 17.30, 17.70, 18.10, 18.50	Microscope
Main Function	Sum Frequency Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633$ nm)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S ₁ /S ₂ facets)	S ₁ /S ₂ @625~642/1020~1080 /1520~1620 (R<0.5%)nm	Spectral Analyzer
Aperture Size	12.3 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 ± 0.2 mm	
Channel Clear Aperture	≥80% (T), ≥90% (W)	NA

- Phase Matching Tuning Curve



- Chip Lay-Out

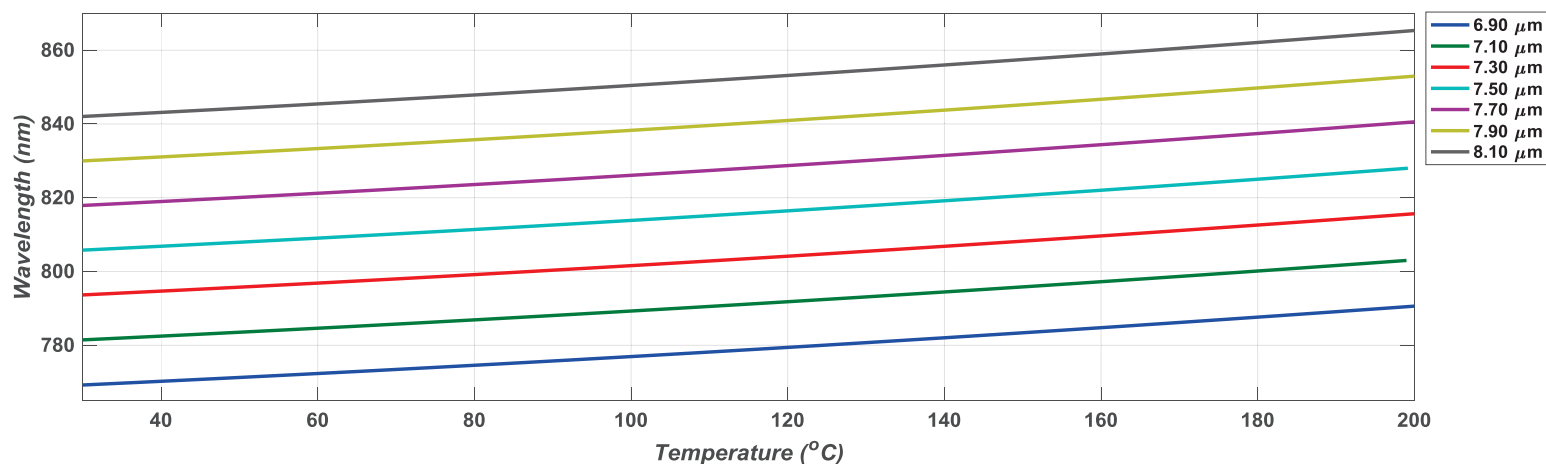


[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	6.90-8.10	Microscope
Main Function	Sum-Frequency Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical coating (S1/S2 facets)	S1/S2 @ 470~550 / 720~850 / 1480~1590 (R<0.5%) nm	Spectral Analyzer
Aperture Size	12.3 x 0.5 mm ² (W x T)	Cutting Machine
Available Length	10 / 25 / 50 ± 0.2 mm	
Clear Aperture *	$\geq 80\%$ (T), ≥ 10.9 mm (W) * ¹	NA

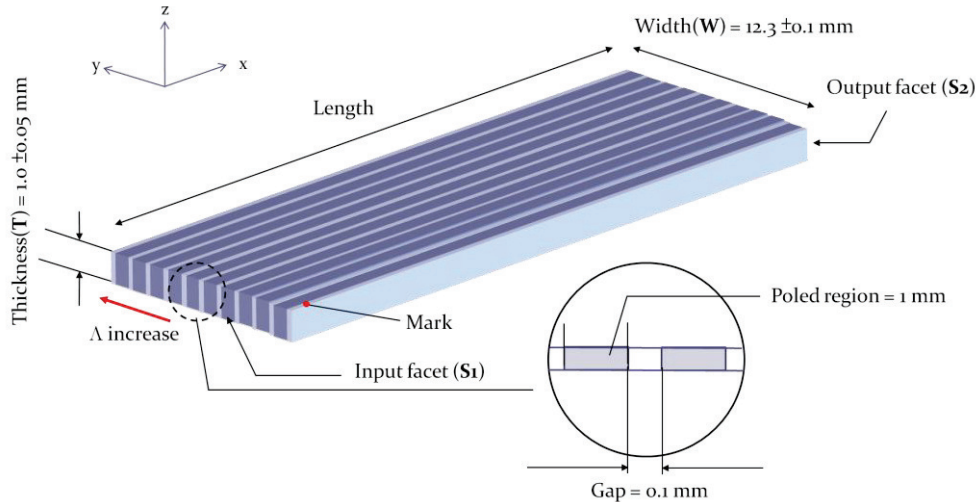
*¹ Poled fan-out grating width = 10.9mm

- Phase Matching Tuning Curve



type	sub type	Source	Input (nm)	Output (nm)	QPM period (um)	AR coating (nm)	Applications
DFMIR	MA	Ti:Sapphire + Yb3+	735-786/1064	2377-3008	18.20,18.50, 18.80, 19.10, 19.40,19.70, 20.00, 20.30,20.60, 20.90	730-870(R<0.5%)/ 1064(R<0.5%) / 2300-4800(R<5%)	Gas sensing/Free space communication/Microscopy /IR imaging
	MB				20.60, 20.90,21.20, 21.50, 21.80,22.10, 22.40, 22.70,23.00, 23.30		
	MC	Ti:Sapphire +Er3+	850- 1000/1550	1882-2818	23.50, 24.20,24.90, 25.60, 26.30,27.00, 27.70, 28.40,29.10, 29.80	850-1000(R<1%) /1500-1620(R<1%) /1800-2820 (R<5%)	
	FA	Ti:Sapphire + Yb3+	775-870/1064	2853-4771	20.50~23.50	730-870(R<0.5%)/ 1064(R<0.5%) / 2300-4800(R<5%)	Gas sensing/Free space communication/Microscopy /IR imaging
OPMIR	SA	Yb3+ pump	1064	1395~1415 /4300~4500	27.50	1030~1080 (R<1%) /1380~1800 (R<1%) /1800~4500(R<5%)	Gas sensing/Free space communication/Microscopy /IR imaging/high power mIR generation/LIDAR
	SB			1450~1485 /3750~4000	29.00		
	SC			1600~1850 /2500~3100	31.30		
	SD			1950~2128 /2128~2400	32.25		
OPMIR	MA			1400~2128/2128 ~4433	27.58,27.91, 28.28, 28.67, 29.08,29.52, 29.98, 30.49,31.02, 31.59		Gas sensing/Free space communication/Microscopy /IR imaging
OPMIR	FA				27.50~31.60		

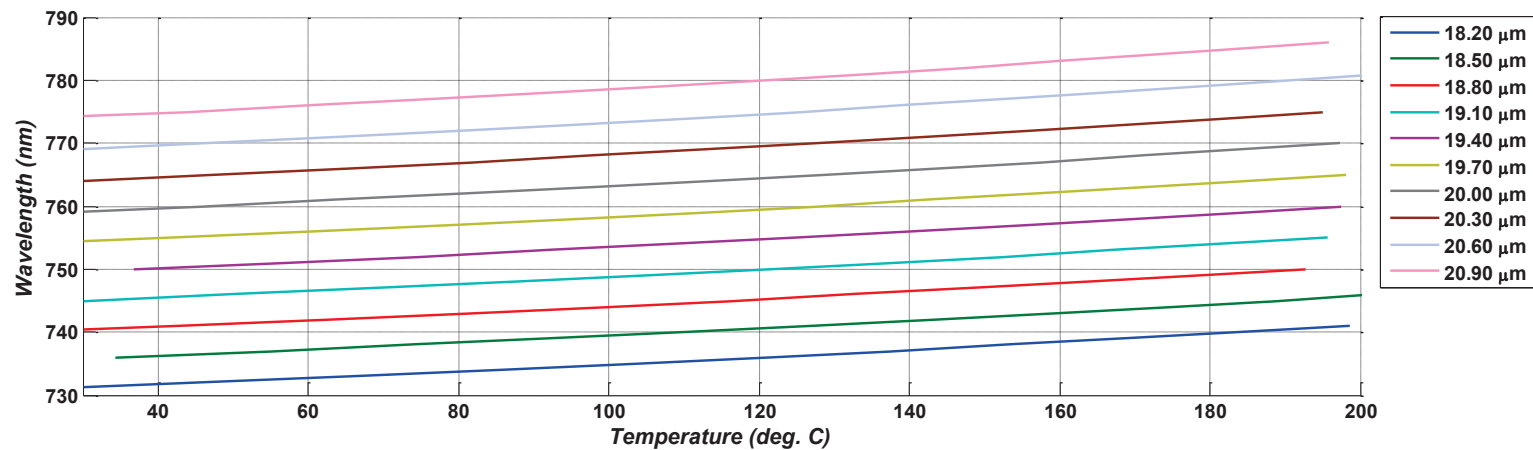
- Chip Lay-Out



[Image for reference only. Not for scale.]

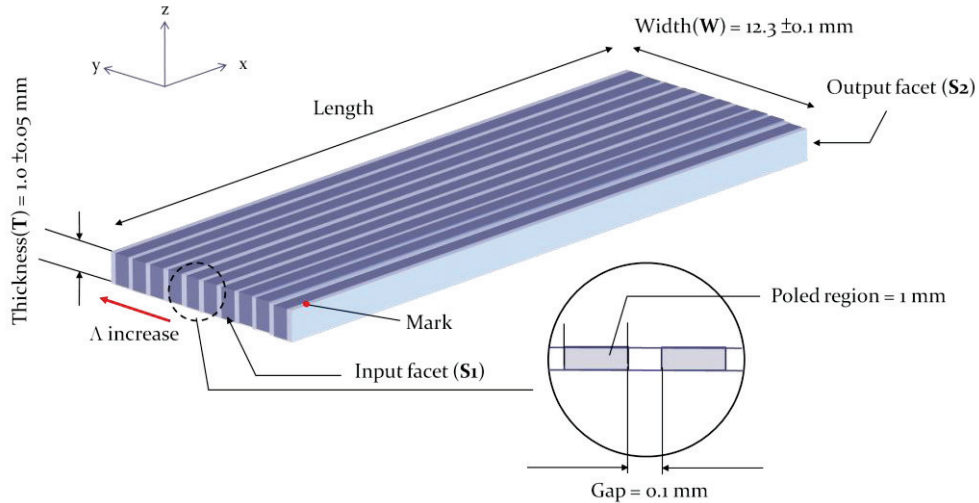
Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	18.20, 18.50, 18.80, 19.10, 19.40, 19.70, 20.00, 20.30, 20.60, 20.90	Microscope
Main Function	Difference Frequency Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S ₁ /S ₂ facets)	S ₁ /S ₂ @730-870 (R<0.5%) / 1064 (R<0.5%) / 2300-4800 (R<5%) nm	Spectral Analyzer
Aperture Size	12.3 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 \pm 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



Periodically Poled Lithium Niobate (PPLN) Chip : *DFMIR-MB*

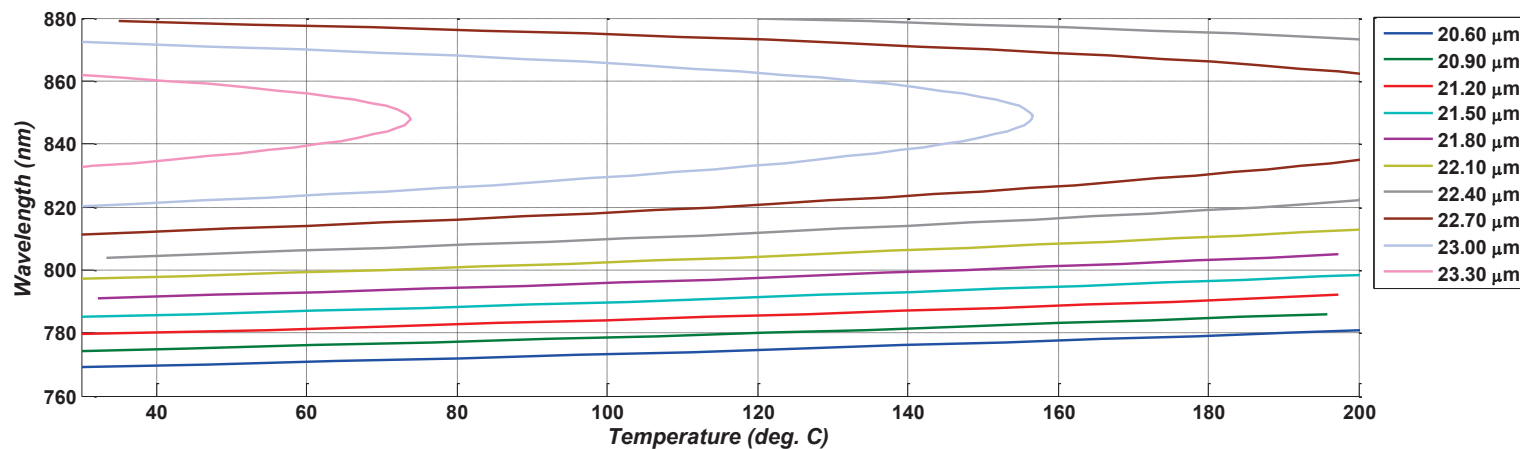
- Chip Lay-Out



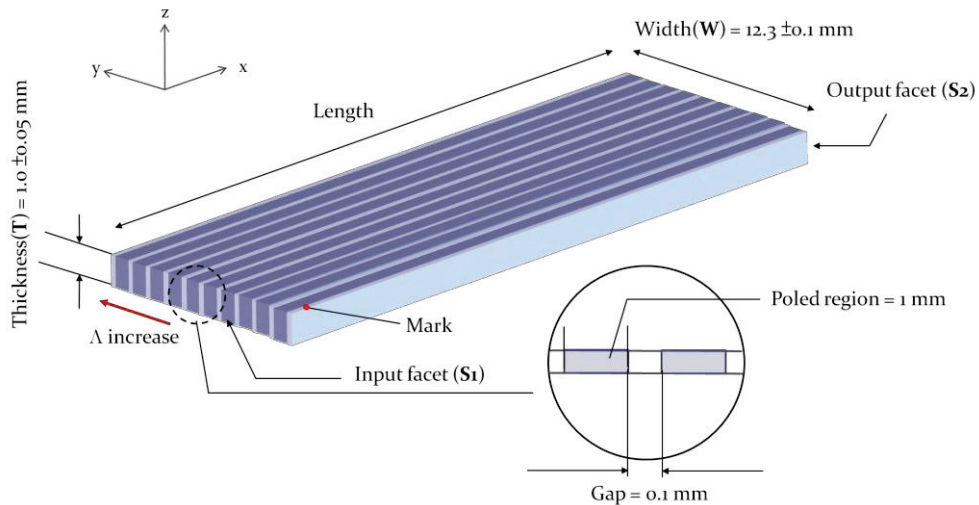
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	20.60, 20.90, 21.20, 21.50, 21.80, 22.10, 22.40, 22.70, 23.00, 23.30	Microscope
Main Function	Difference Frequency Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @730-870 (R<0.5%) / 1064 (R<0.5%) / 2300-4800 (R<5%) nm	Spectral Analyzer
Aperture Size	12.3 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 ± 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



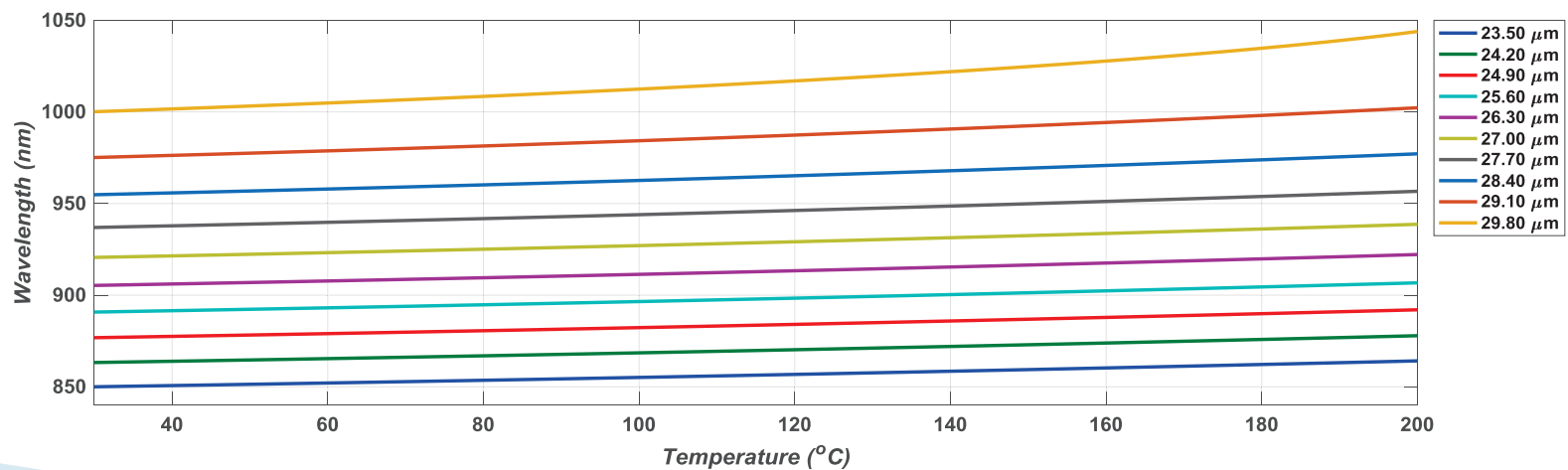
- Chip Lay-Out



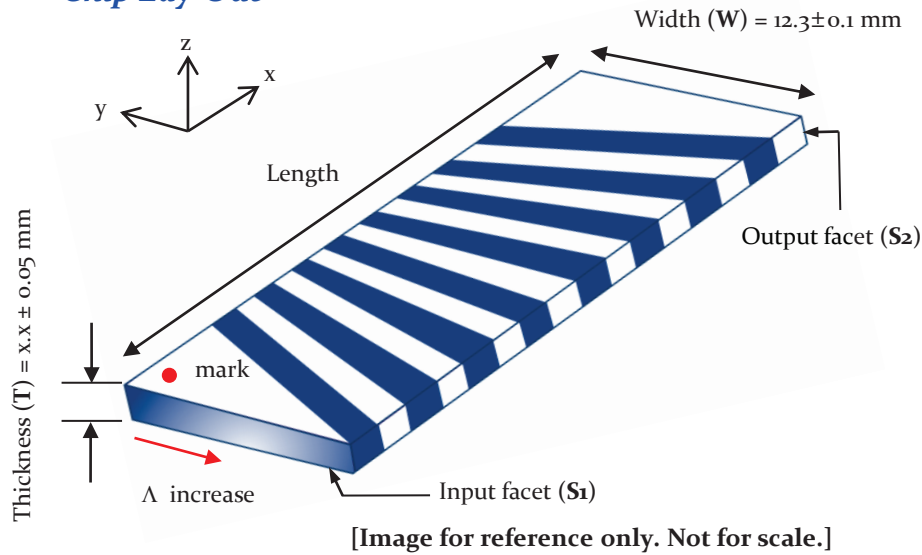
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ, μm)	23.50, 24.20, 24.90, 25.60, 26.30, 27.00, 27.70, 28.40, 29.10, 29.80	Microscope
Main Function	Difference Frequency Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633$ nm)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S ₁ /S ₂ facets)	S ₁ /S ₂ @850~1000 (R<1%) /1500~1620 (R<1%) /1800~2820 (R<5%) nm	Spectral Analyzer
Aperture Size	12.3 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 ± 0.2 mm	
Channel Clear Aperture	≥80% (T), ≥90% (W)	NA

- Phase Matching Tuning Curve



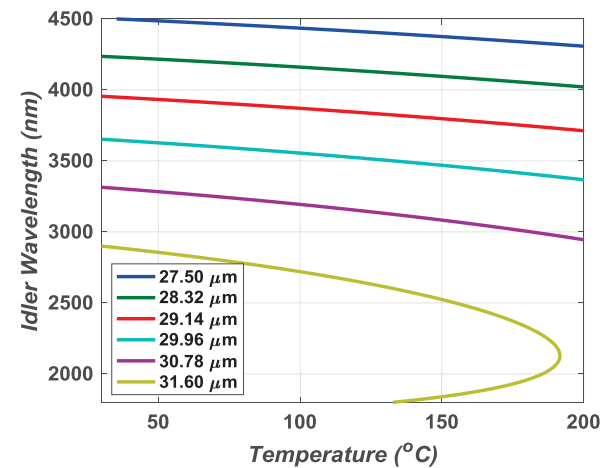
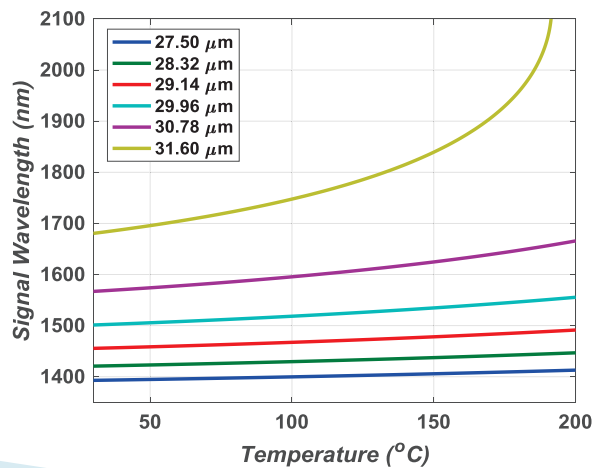
- Chip Lay-Out



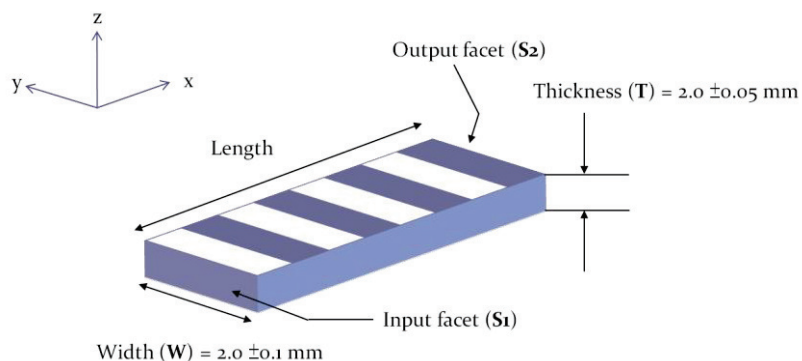
Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ, μm)	27.50~31.60	Microscope
Main Function	Optical Parametric Oscillator	NA
Parallelism/Perpendicularity	≤5'/21'	Autocollimator
Flatness	≤λ/6 (λ=633nm)	Interferometer
Scratch/Dig	≤20/10	Microscope
Optical coating (S ₁ /S ₂ facets)	Si/S ₂ @1030~1080 (R<1.0%) /1380~1800 (R<1.0%) /1800~4500(R<5%) nm	Spectral Analyzer
Aperture Size	12.3 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 ± 0.2 mm	
Clear Aperture *	≥80% (T), ≥ 10.9 mm (W) * ¹	NA

*¹ Poled fan-out grating width =10.9mm

- Phase Matching Tuning Curve



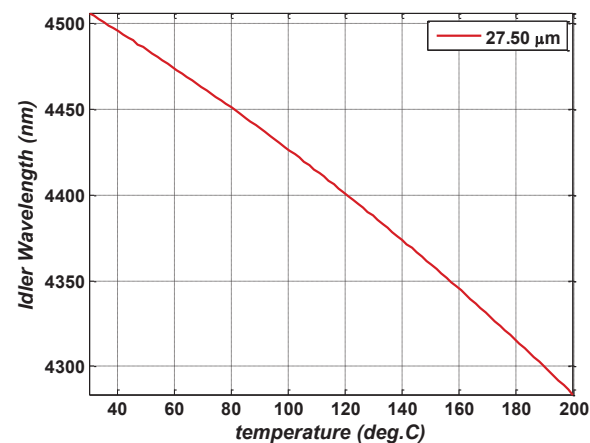
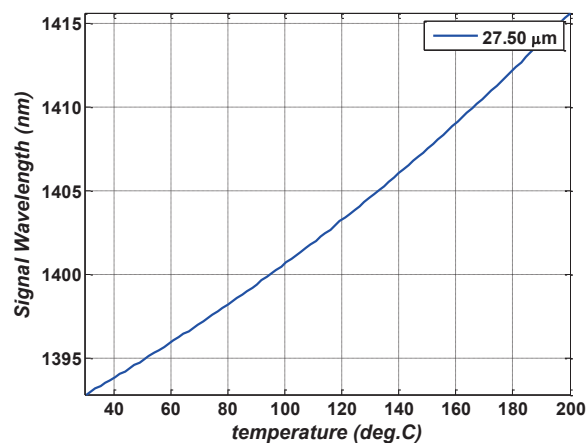
- Chip Lay-Out



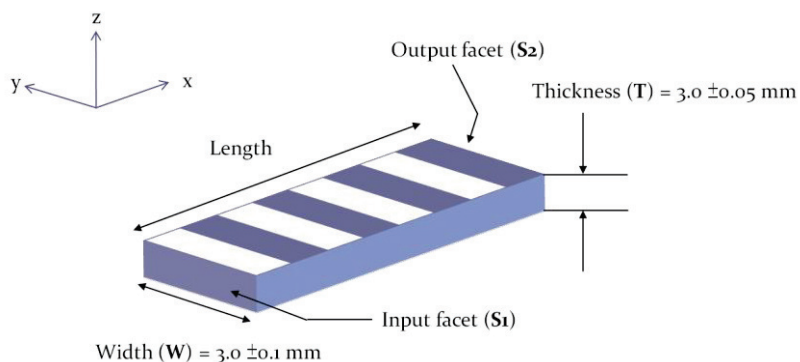
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	27.50	Microscope
Main Function	Optical Parametric Oscillator	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S ₁ /S ₂ facets)	S ₁ /S ₂ @1030-1080 (R<1.0%) /1380~1800 (R<1.0%) /1800~4500(R<5%) nm	Spectral Analyzer
Aperture Size	2.0 x 2.0 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 ± 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



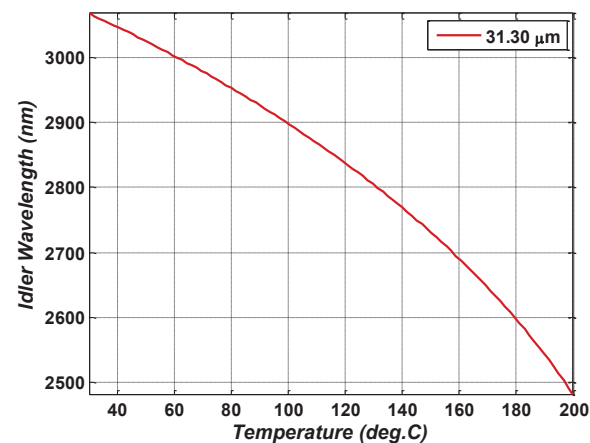
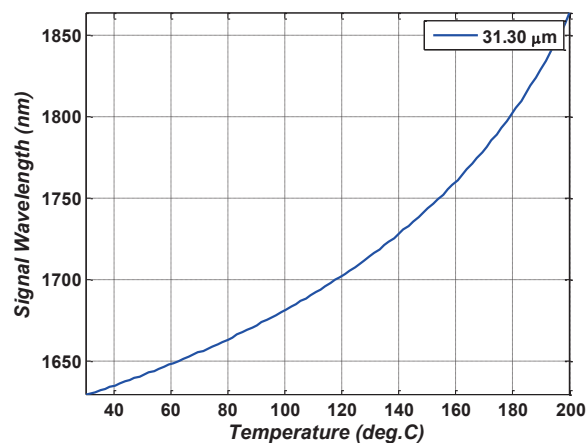
- Chip Lay-Out



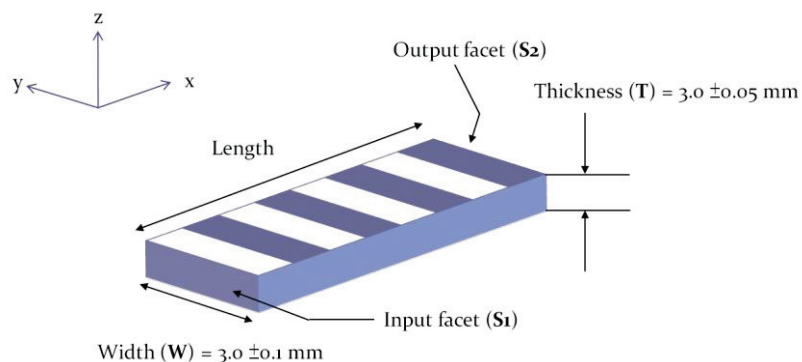
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ, μm)	29.00	Microscope
Main Function	Optical Parametric Oscillator	NA
Parallelism/Perpendicularity	≤5'/21'	Autocollimator
Flatness	≤λ/6 (λ=633nm)	Interferometer
Scratch/Dig	≤20/10	Microscope
Optical Coating (S ₁ /S ₂ facets)	S ₁ /S ₂ @1030-1080 (R<1.0%) /1380~1800 (R<1.0%) /1800~4500(R<5%) nm	Spectral Analyzer
Aperture Size	3.0 x 3.0 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 ± 0.2 mm	
Channel Clear Aperture	≥80% (T), ≥90% (W)	NA

- Phase Matching Tuning Curve



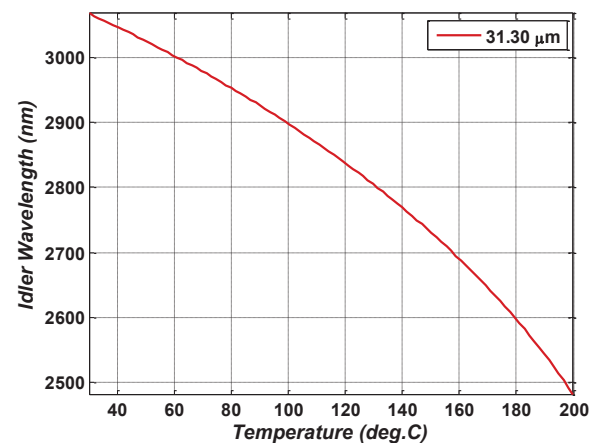
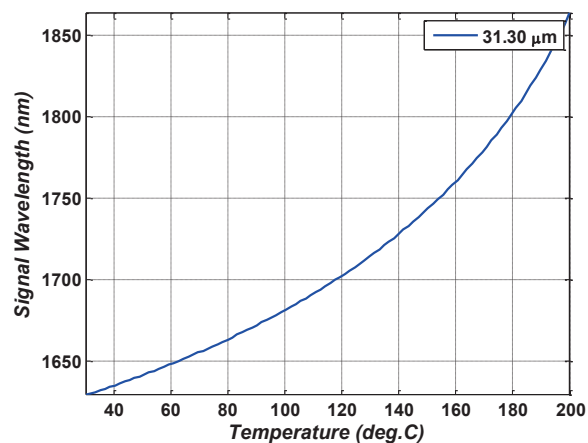
- Chip Lay-Out



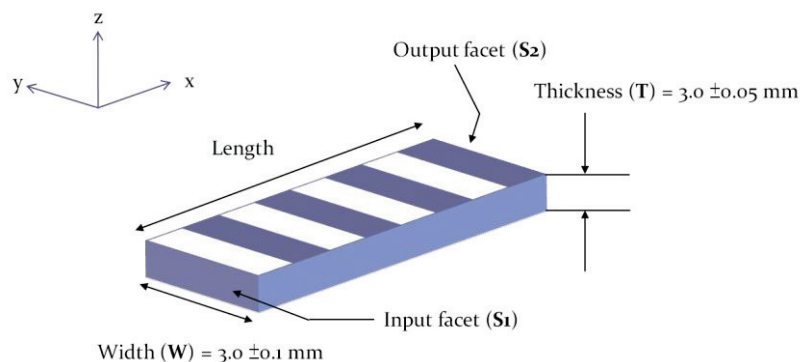
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	31.30	Microscope
Main Function	Optical Parametric Oscillator	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	1030~1080 (R<1.0%) /1380~1800 (R<1.0%) /1800~4500 (R<5%) nm	Spectral Analyzer
Aperture Size	3.0 x 3.0 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 \pm 0.2 mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



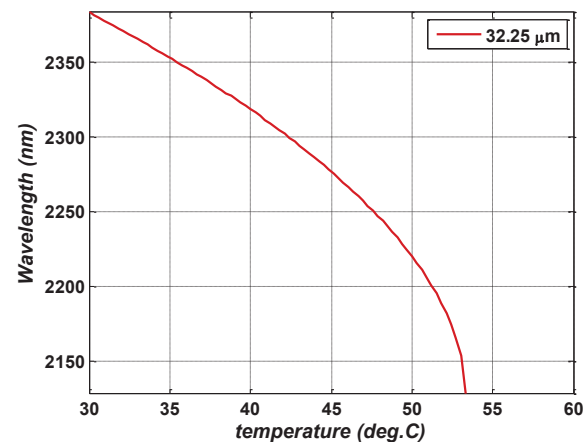
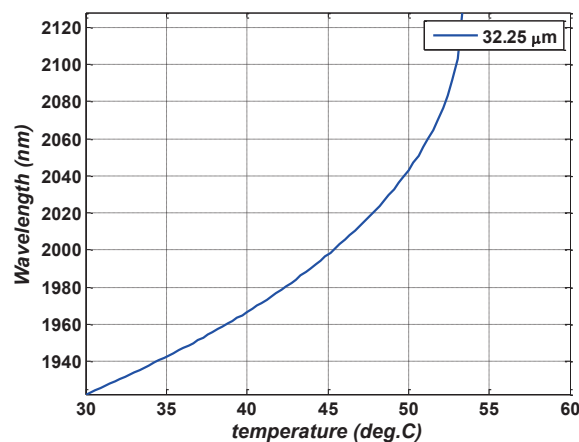
- Chip Lay-Out



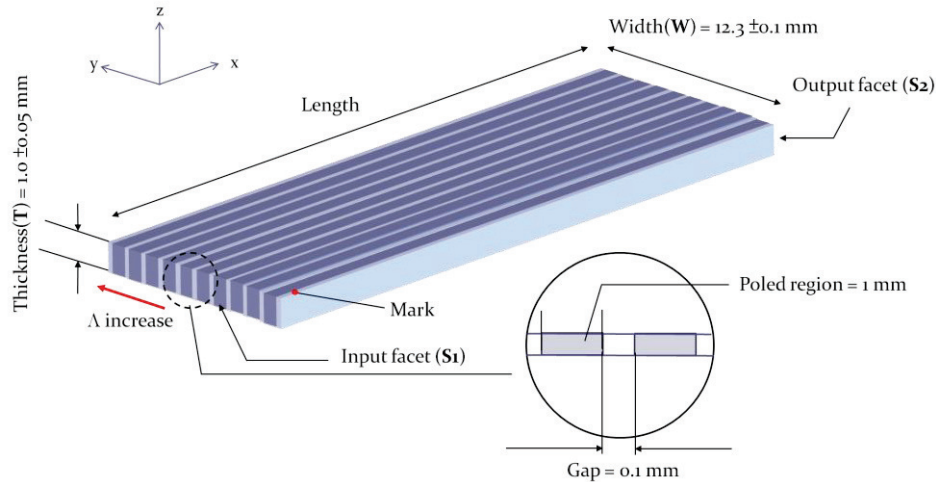
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	32.25	Microscope
Main Function	Optical Parametric Oscillator	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @1030-1080 (R<1.0%) /1380~1800 (R<1.0%) /1800~4500(R<5%) nm	Spectral Analyzer
Aperture Size	3.0 x 3.0 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 \pm 0.2 mm	
Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



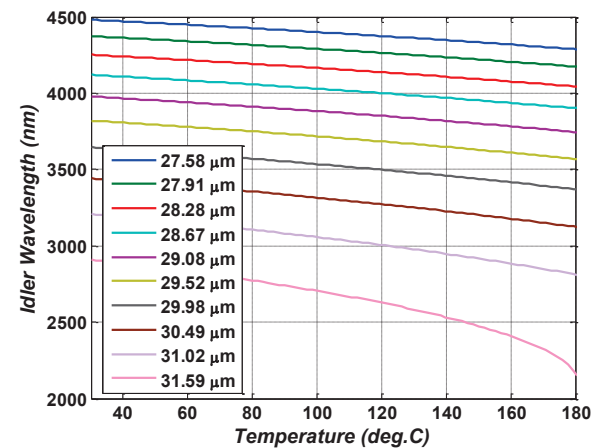
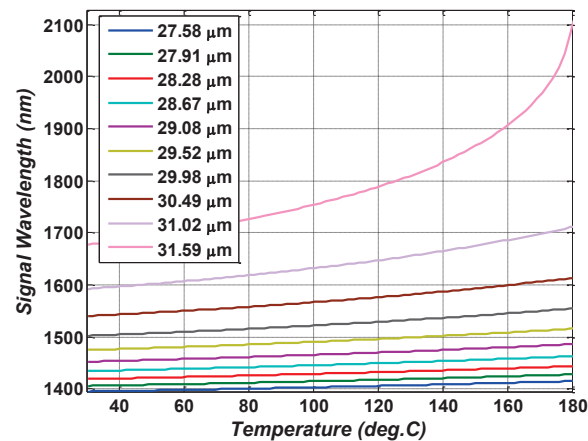
- Chip Lay-Out



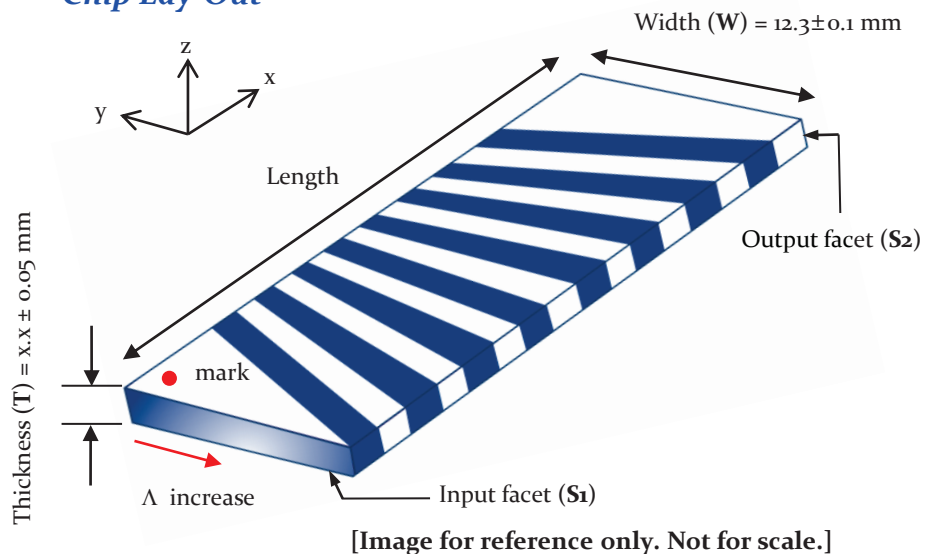
[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	27.58, 27.91, 28.28, 28.67, 29.08, 29.52, 29.98, 30.49, 31.02, 31.59	Microscope
Main Function	Optical Parametric Oscillator	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @1030-1080 (R<1.0%) /1380-1800 (R<1.0%) /1800-4500 (R<5%) nm	Spectral Analyzer
Aperture Size	12.3 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 \pm 0.2 mm	
Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Phase Matching Tuning Curve



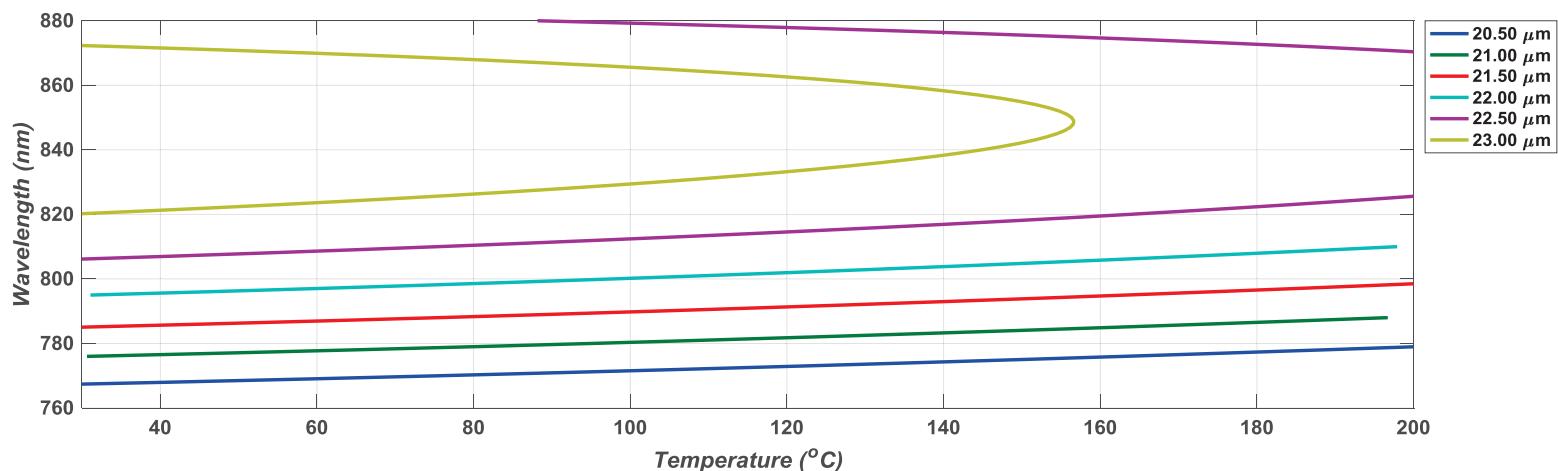
- Chip Lay-Out



Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	20.50~23.50	Microscope
Main Function	Difference Frequency Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical coating (S1/S2 facets)	S1/S2 @ 730~870 (R<0.5%) /1064 (R<0.5%) /2300~4800 (R<5%) nm	Spectral Analyzer
Aperture Size	12.3 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	10/25/50 \pm 0.2 mm	
Clear Aperture *	$\geq 80\%$ (T), ≥ 10.9 mm (W) *1	NA

*1 Poled fan-out grating width =10.9mm

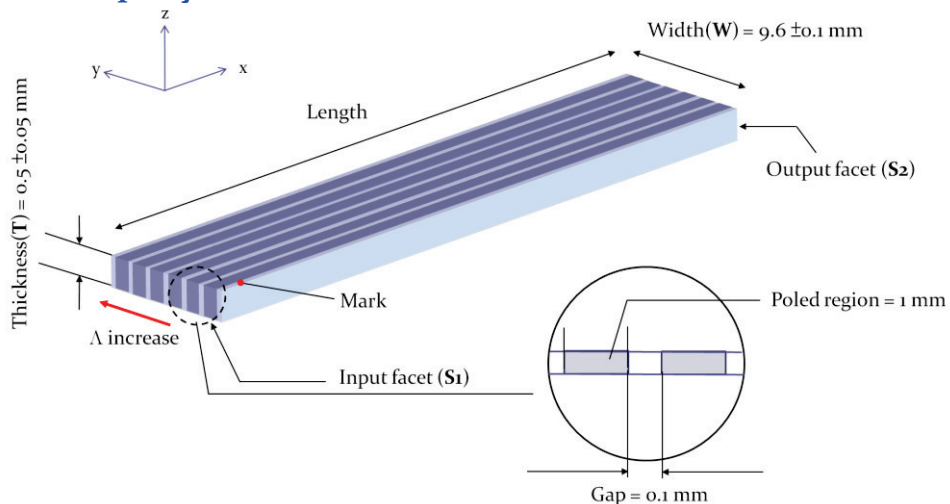
- Phase Matching Tuning Curve



type	sub type	Source	Input (nm)	Output (nm)	QPM period (um)	AR coating (nm)	Applications	walk-off (ps/mm)
FSHVIS	MB	Yb3+ fiber family	1020-1040	510-520	6.13, 6.16, 6.19, 6.23, 6.26, 6.29	485-590(R<0.5%) /970-1180(R<0.5%)	Holography /Microscopy/Life science/Display /Medical	0.6~0.9
	MC		1040-1070	520-535	6.45, 6.51, 6.57, 6.63, 6.69, 6.75			
	MD		1060-1085	529-542	6.83, 6.86, 6.90, 6.93, 6.96, 7.00			
	ME	Extend Yb3+ /Raman amplifier	1120-1150	560-575	8.15, 8.25, 8.35, 8.45, 8.55, 8.65			
	MF		1150-1180	575-590	8.90, 9.01, 9.12, 9.23, 9.34, 9.45			
FSHNIR	MA	Telecom/Er3+ fiber family	1500~1620	750~810	18.20,18.50, 18.80, 19.10, 19.40, 19.70, 20.00, 20.30, 20.60, 20.90	750-810(R<0.5%) /1500-1620(R<0.5%)	Atom cooling /3D micro-fabrication/Microscopy /THz Generation	~0.3
	MB	Tm+/Ho+ fiber family	1925~2300	962.5~1150	28.40, 29.00, 29.60, 30.20, 30.80, 31.40, 32.00, 32.60, 33.20, 33.60	960-1150(R<0.5%) /1925-2300(R<0.5%)	Metrology	~0.1
FSFVIS	MA	Ti:Sapphire + Telecom	775~845 /1550	516~544	6.90, 7.10, 7.30, 7.50, 7.70, 8.10	470~550(R<0.5%) /720~850 (R<0.5%) /1480~1590 (R<0.5%)	Holography /Microscopy/Life science/Display /Medical	-
	MB	Telecom+Yb3+	1520-1620/1064	625-642	11.25, 11.49, 11.73, 11.97, 12.21, 12.45	625~642(R<0.5%) /1020~1080(R<0.5%) /1520~1620 (R<0.5%)	Visible communication/Atom cooling and trapping/Display	-
FOPMIR	MA	Yb3+ /YAG	1064	1400-2128/2128-4433	27.58,27.91, 28.28, 28.67, 29.08, 29.52, 29.98, 30.49, 31.02, 31.59	1030~1080(R<1%) /1380~1800(R<1%) /1800~4500(R<5%)	OPCPA/fs OPO/Microscopy	-

*FSHGNIR-FA, FB; FOPMIR-FA,FB

- Chip Lay-Out

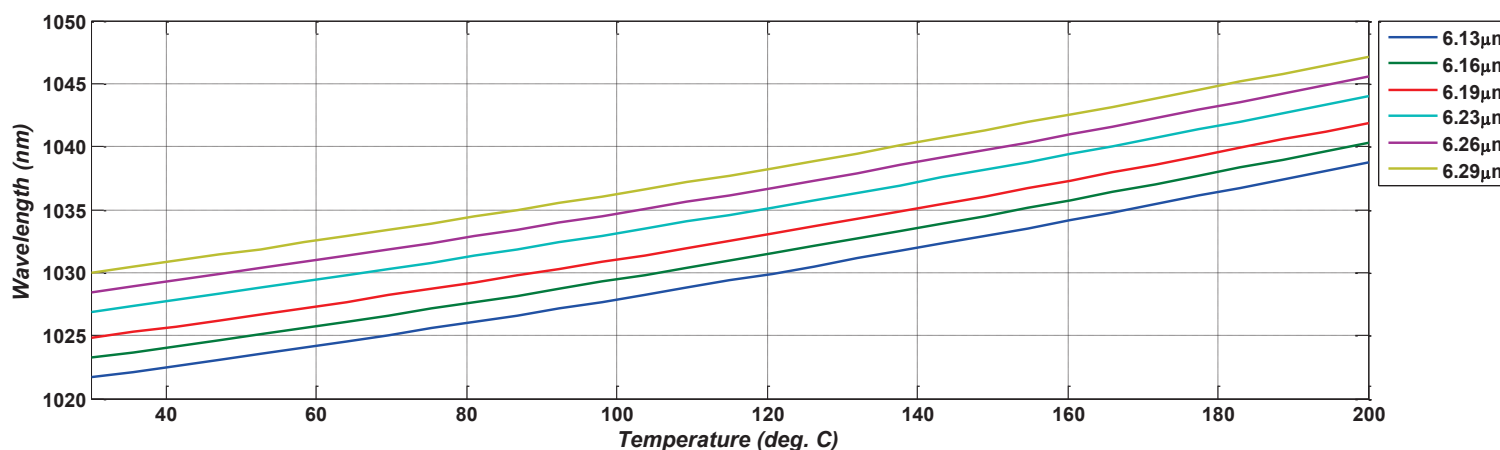


[Image for reference only. Not for scale.]

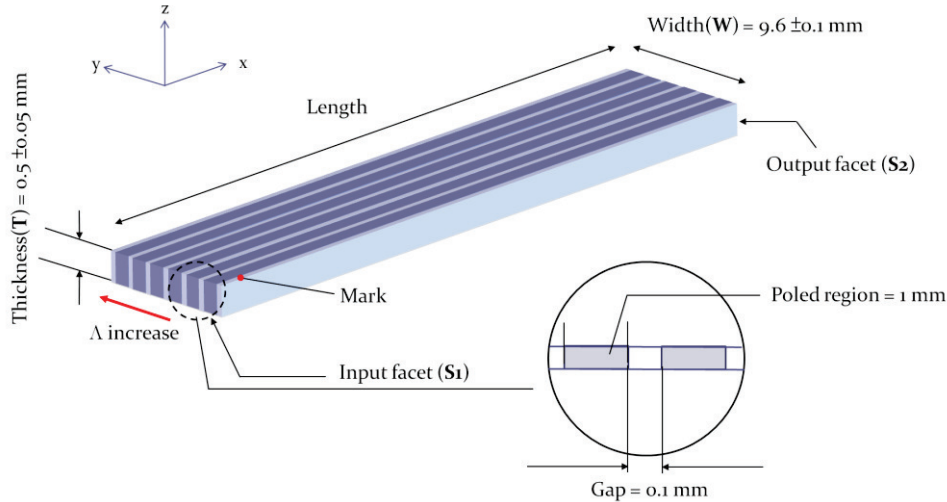
Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μ m)	6.13, 6.16, 6.19, 6.23, 6.26, 6.29	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633$ nm)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S ₁ /S ₂ facets)	S ₁ /S ₂ @485~590 (R<0.5%) /970~1180 (R<0.5%) nm	Spectral Analyzer
Aperture Size	9.6 x 0.5 mm ² (W x T)	Cutting Machine
Available Length	0.3/0.5/1.0 mm ^{*1}	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

*1 Refer to the length of poled grating. Physical length is 1.0 ± 0.1 mm.

- Phase Matching Tuning Curve



- Chip Lay-Out

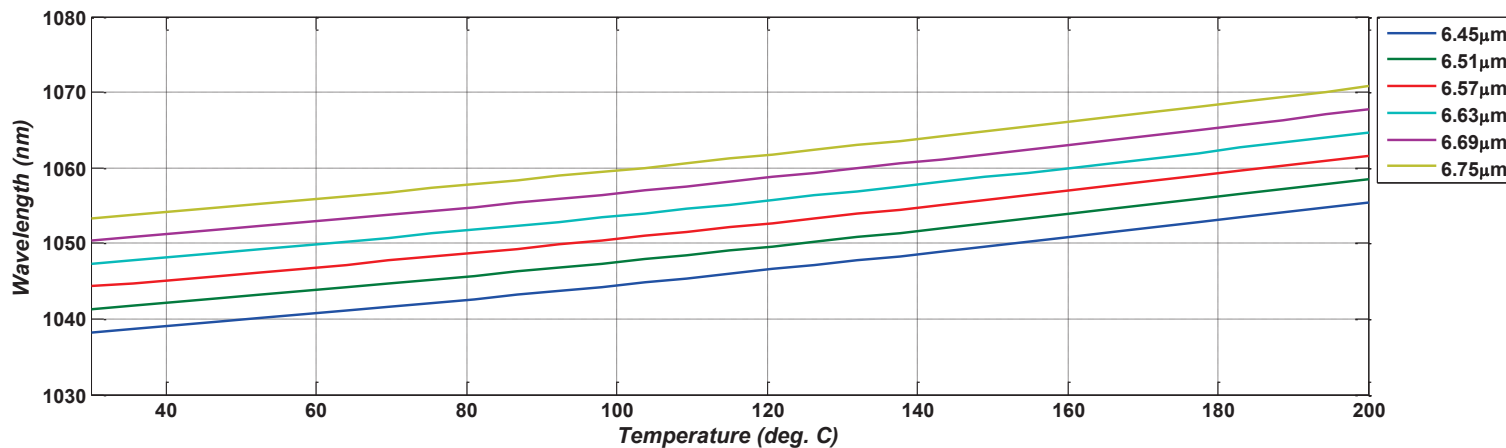


[Image for reference only. Not for scale.]

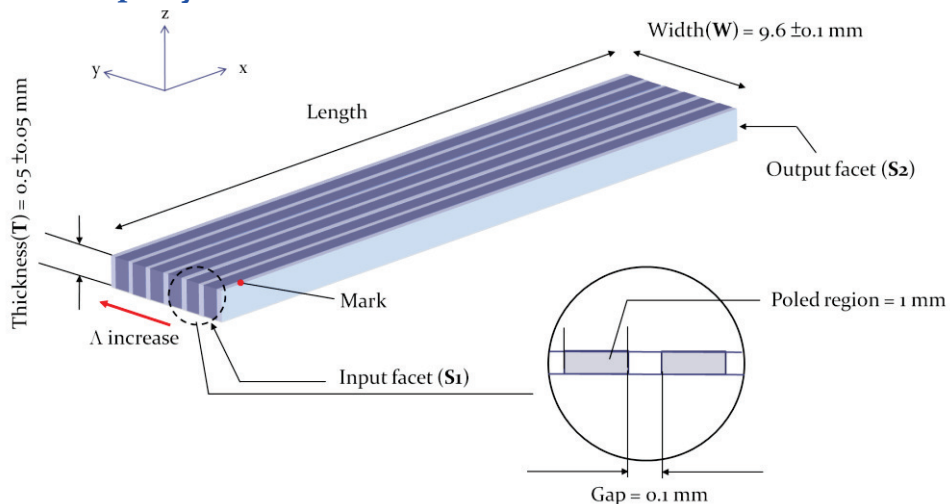
Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	6.45, 6.51, 6.57, 6.63, 6.69, 6.75	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @485~590(R<0.5%) /970~1180(R<0.5%) nm	Spectral Analyzer
Aperture Size	9.6 x 0.5 mm ² (W x T)	Cutting Machine
Available Length	0.3/0.5/1.0 mm ^{*1}	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

*1 Refer to the length of poled grating. Physical length is 1.0 ± 0.1 mm.

- Phase Matching Tuning Curve



- Chip Lay-Out

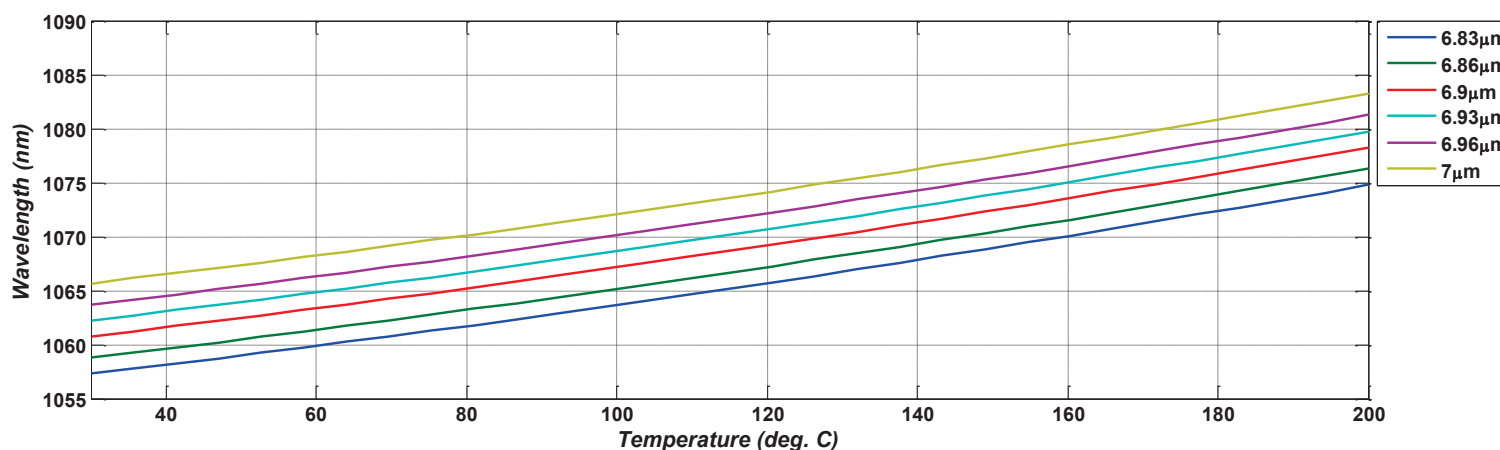


[Image for reference only. Not for scale.]

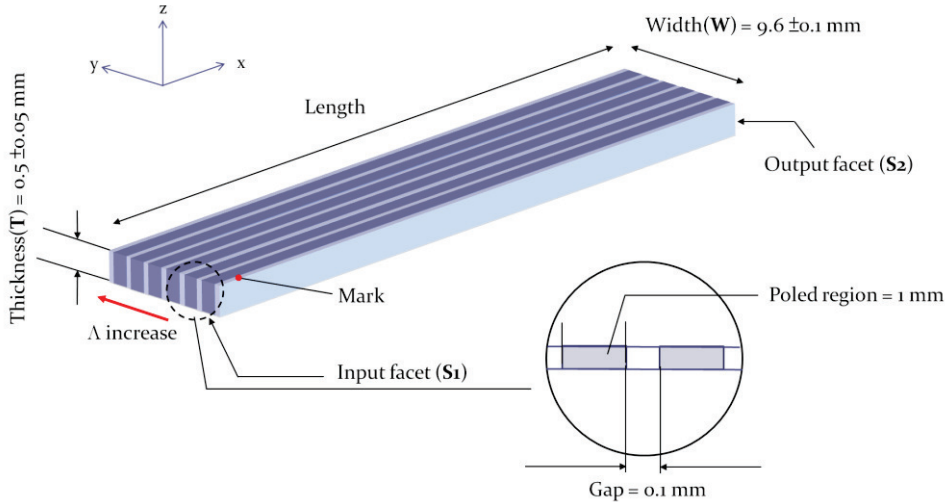
Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	6.83, 6.86, 6.90, 6.93, 6.96, 7.00	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @485~590(R<0.5%) /970~1180(R<0.5%) nm	Spectral Analyzer
Aperture Size	9.6 x 0.5 mm ² (W x T)	Cutting Machine
Available Length	0.3/0.5/1.0 mm ^{*1}	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

*1 Refer to the length of poled grating. Physical length is 1.0 ± 0.1 mm.

- Phase Matching Tuning Curve



- Chip Lay-Out

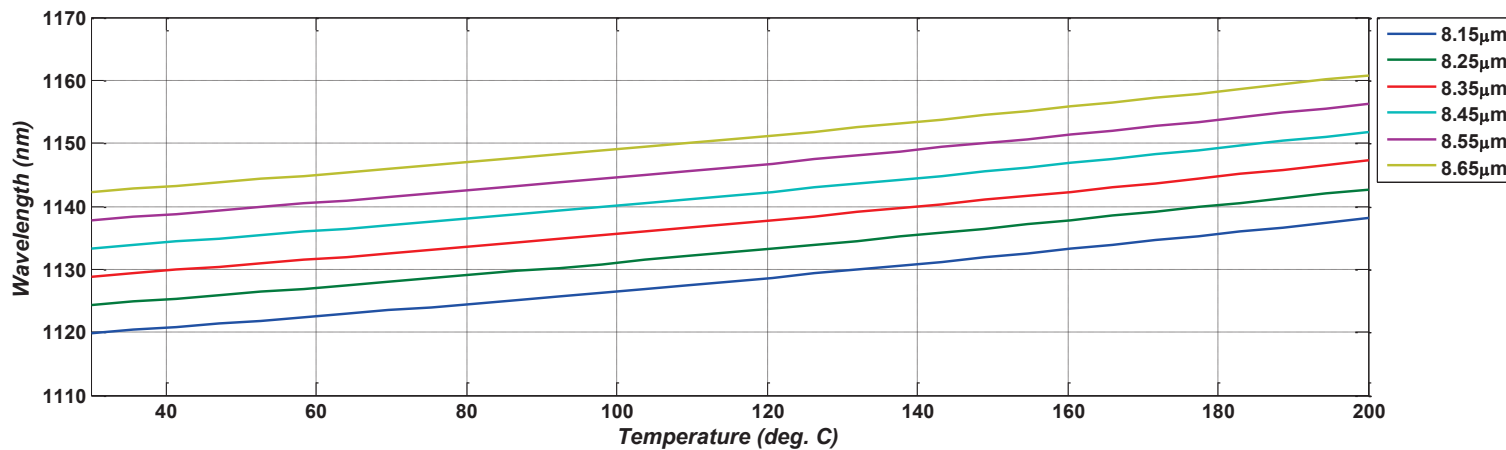


[Image for reference only. Not for scale.]

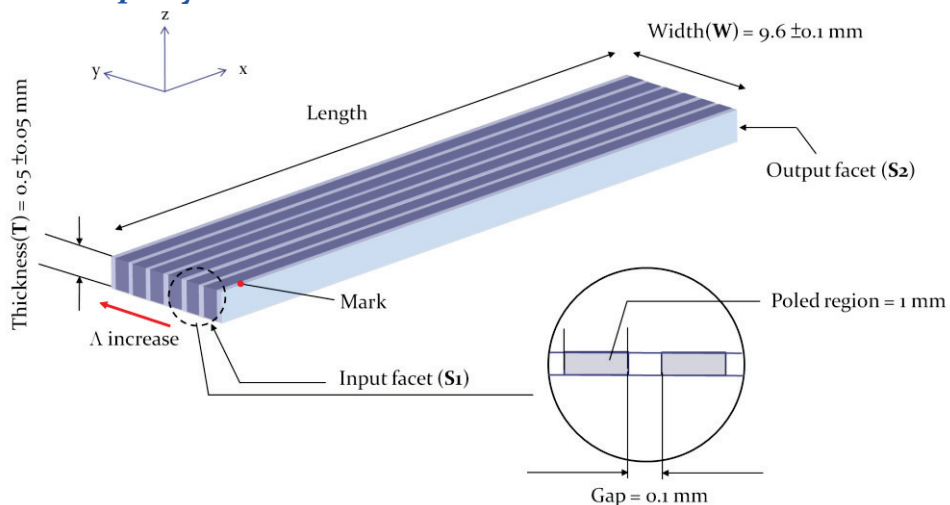
Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μ m)	8.15, 8.25, 8.35, 8.45, 8.55, 8.65	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633$ nm)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S ₁ /S ₂ facets)	S ₁ /S ₂ @485~590 (R<0.5%) /970~1180 (R<0.5%) nm	Spectral Analyzer
Aperture Size	9.6 x 0.5 mm ² (W x T)	Cutting Machine
Available Length	0.3/0.5/1.0 mm ^{*1}	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

*1 Refer to the length of poled grating. Physical length is 1.0 ± 0.1 mm.

- Phase Matching Tuning Curve



- Chip Lay-Out

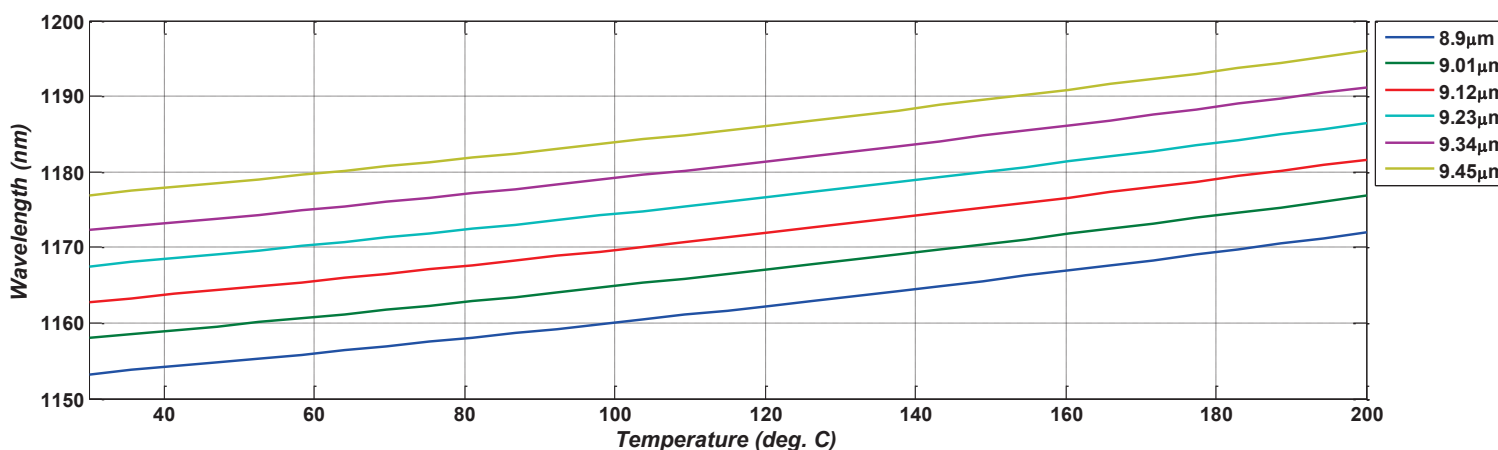


[Image for reference only. Not for scale.]

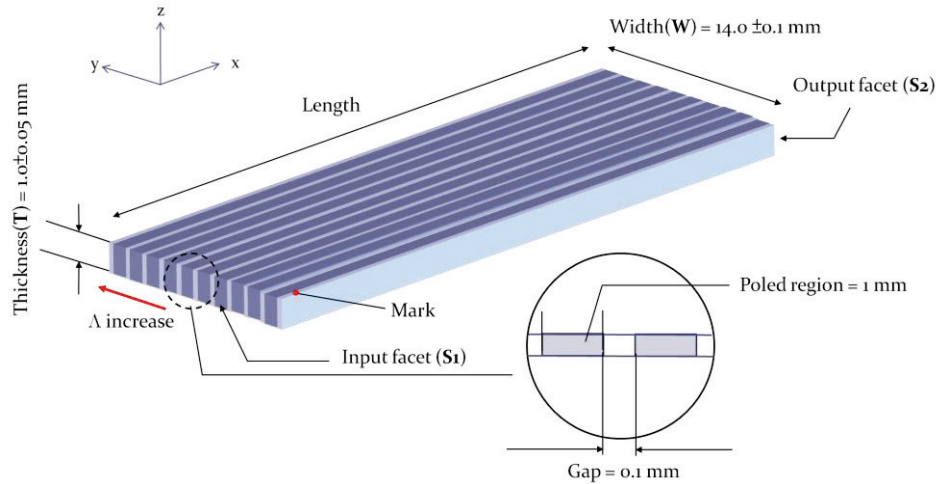
Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	8.90, 9.01, 9.12, 9.23, 9.34, 9.45	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S ₁ /S ₂ facets)	S ₁ /S ₂ @485~590 (R<0.5%) /970~1180 (R<0.5%) nm	Spectral Analyzer
Aperture Size	9.6 x 0.5 mm ² (W x T)	Cutting Machine
Available Length	0.3/0.5/1.0 mm ^{*1}	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

*1 Refer to the length of poled grating. Physical length is 1.0 ± 0.1 mm.

- Phase Matching Tuning Curve

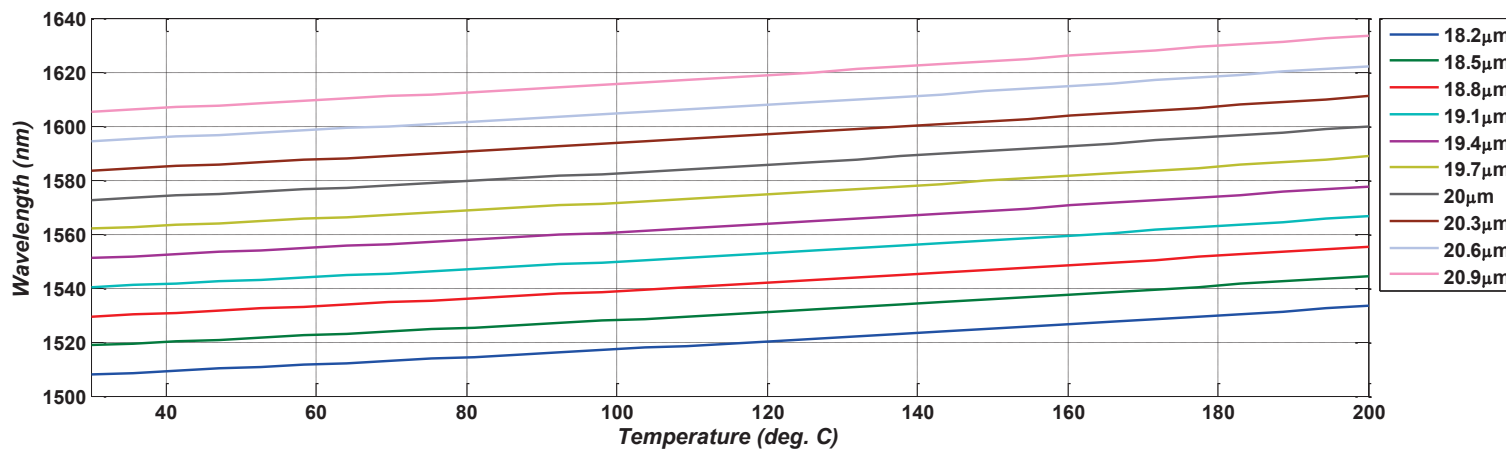


- Chip Lay-Out



[Image for reference only. Not for scale.]

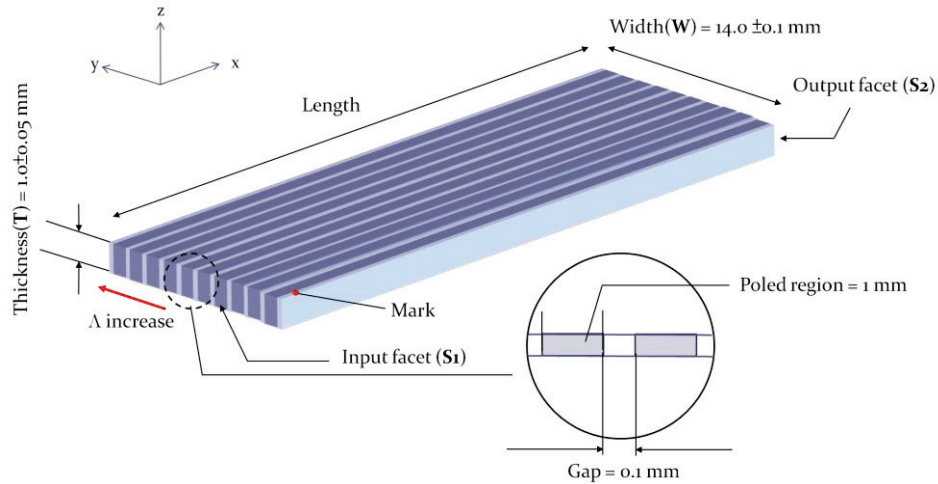
- Phase Matching Tuning Curve



*1 Refer to length of periodically poled. Physical length is 1.0 ± 0.1 mm.

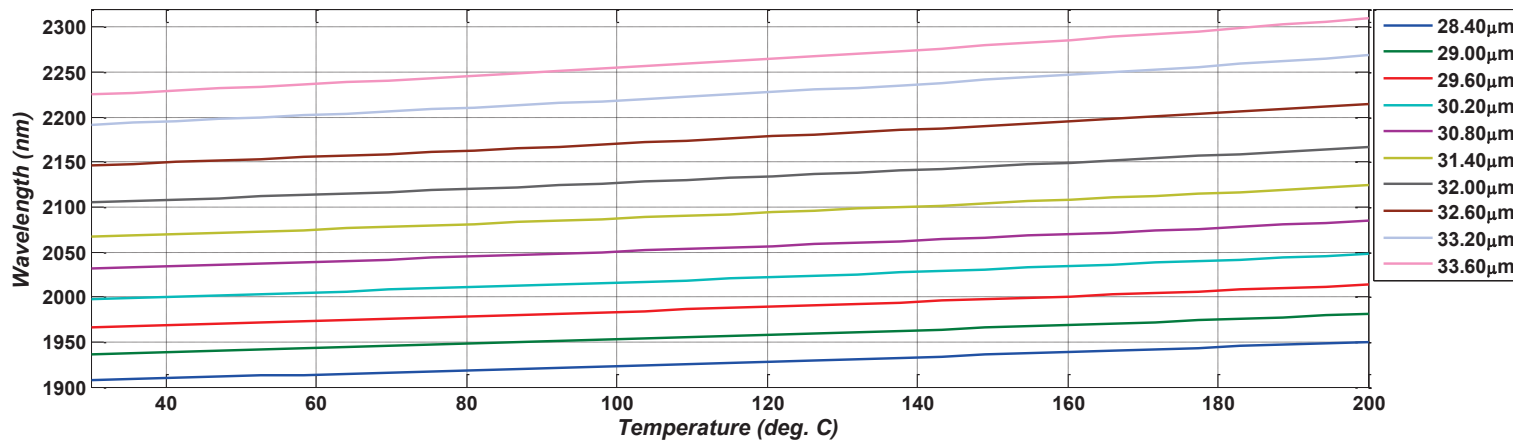
Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	18.2, 18.5, 18.8, 19.1, 19.4, 19.7, 20.0, 20.3, 20.6, 20.9	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	750-810 (R<0.5%) /1500-1620 (R<0.3%) nm	Spectral Analyzer
Aperture Size	14.0 x 1.0 mm ² (W x T)	Cutting Machine
Available Length*1	0.3/0.5/1.0 mm*1	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

- Chip Lay-Out



[Image for reference only. Not for scale.]

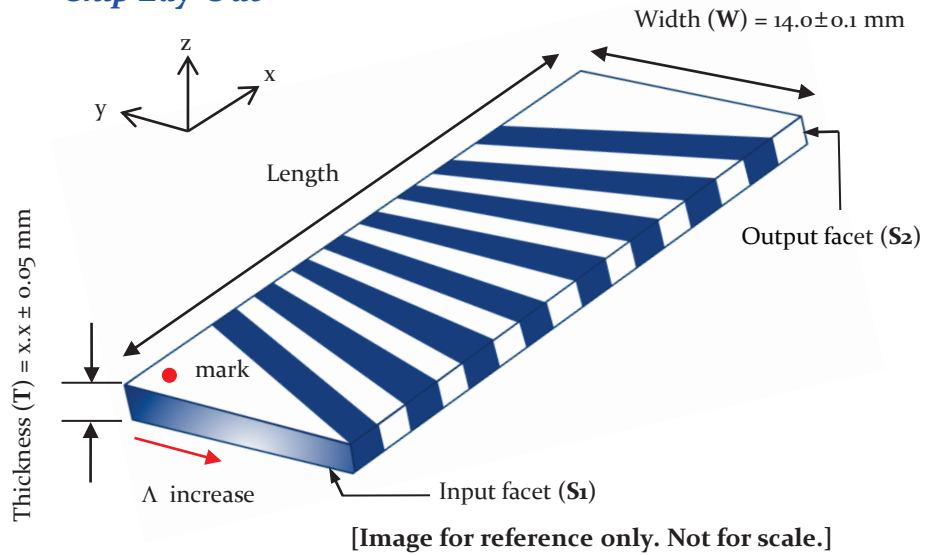
- Phase Matching Tuning Curve



*1 Refer to length of periodically poled. Physical length is 1.0 ± 0.1 mm.

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	28.40, 29.00, 29.60, 30.20, 30.80, 31.40, 32.00, 32.60, 33.20, 33.60	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	960-1150 (R<0.5%) /1925-2300 (R<0.5%) nm	Spectral Analyzer
Aperture Size	14.0 x 1.0 mm ² (W x T)	Cutting Machine
Available Length*1	0.3/0.5/1.0 mm*1	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

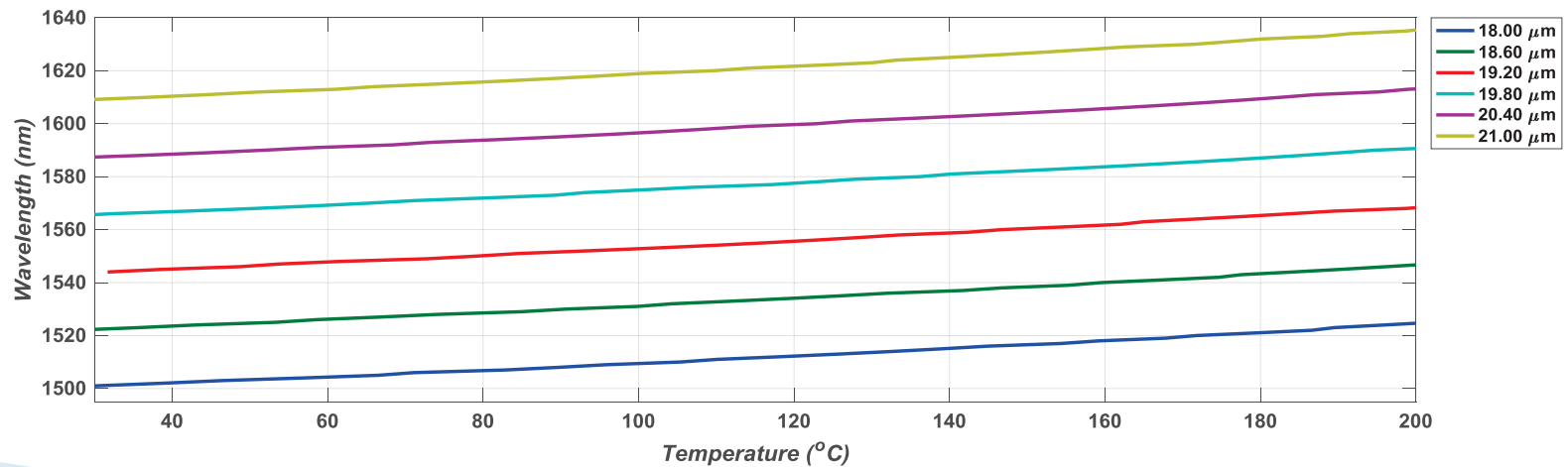
- Chip Lay-Out



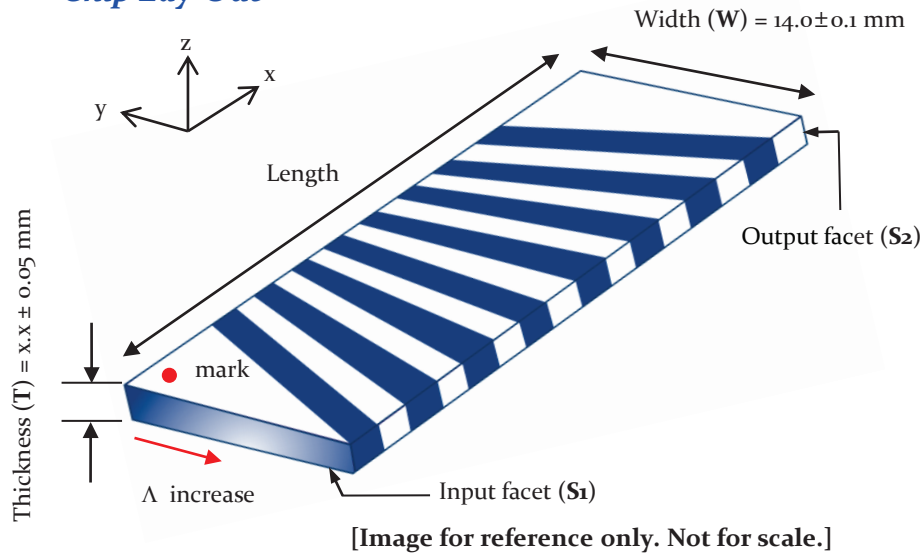
Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	18.00~21.00	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical coating (S1/S2 facets)	Si/S2 @750~810 (R<0.5%) /1500~1620 (R<0.5%) nm	Spectral Analyzer
Aperture Size	14.0 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	1.0 +/- 0.1 mm	
Clear Aperture *	$\geq 80\%$ (T), ≥ 10.9 mm (W) * ₁	NA

*₁ Poled fan-out grating width =10.9mm

- Phase Matching Tuning Curve



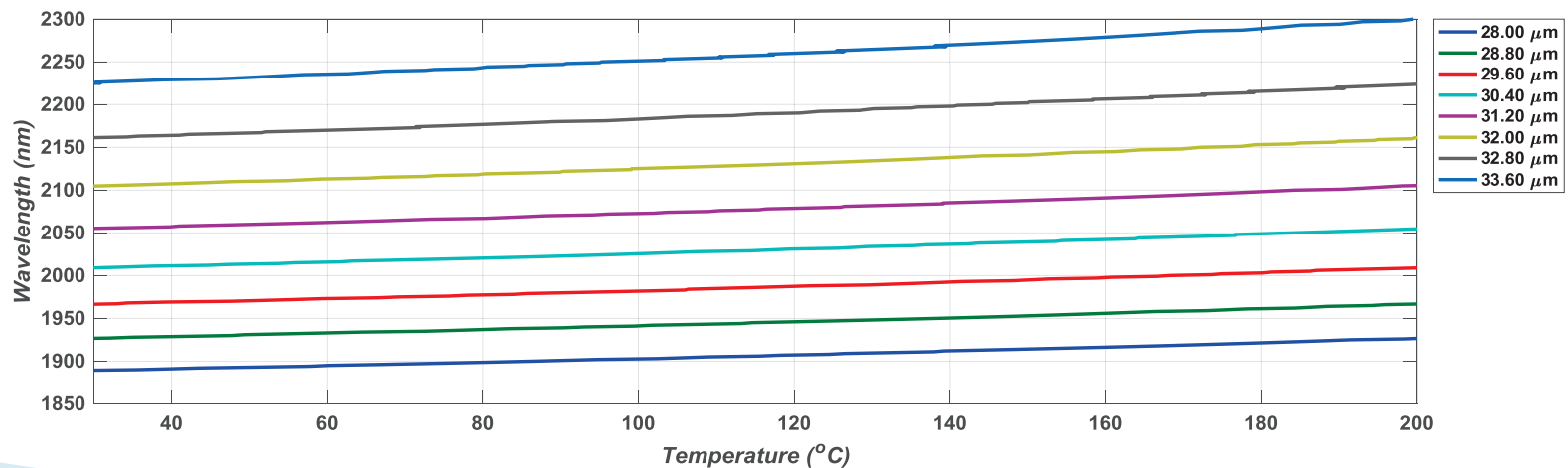
- Chip Lay-Out



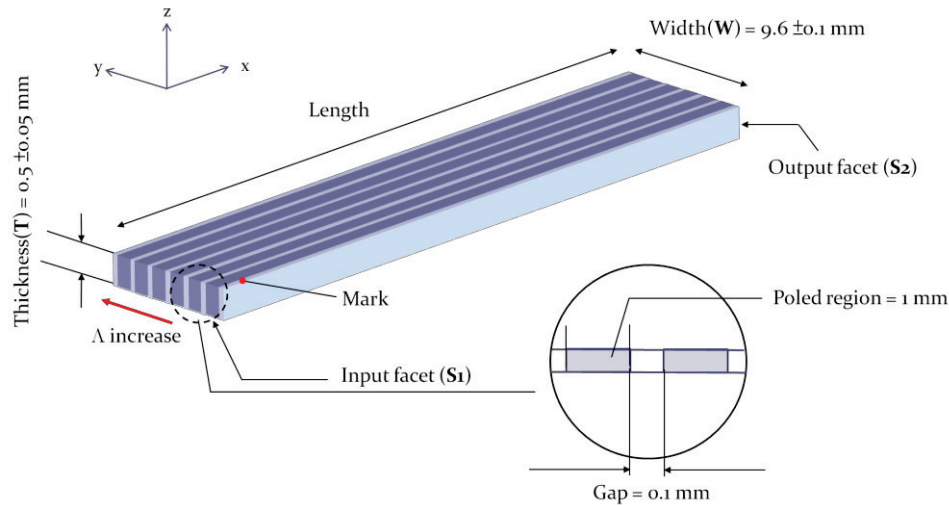
Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ, μm)	28.0~33.6	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	≤5' / 21'	Autocollimator
Flatness	≤λ/6	Interferometer
Scratch/Dig	≤20/10	Microscope
Optical coating (S ₁ /S ₂ facets)	S ₁ /S ₂ @960~1150(R<0.5%) / 1925~2300(R<0.5%) nm	Spectral Analyzer
Aperture Size	14.0 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	1.0 +/- 0.1 mm	
Clear Aperture *	≥80% (T), ≥ 10.9 mm (W) * ₁	NA

*₁ Poled fan-out grating width =10.9mm

- Phase Matching Tuning Curve



- Chip Lay-Out

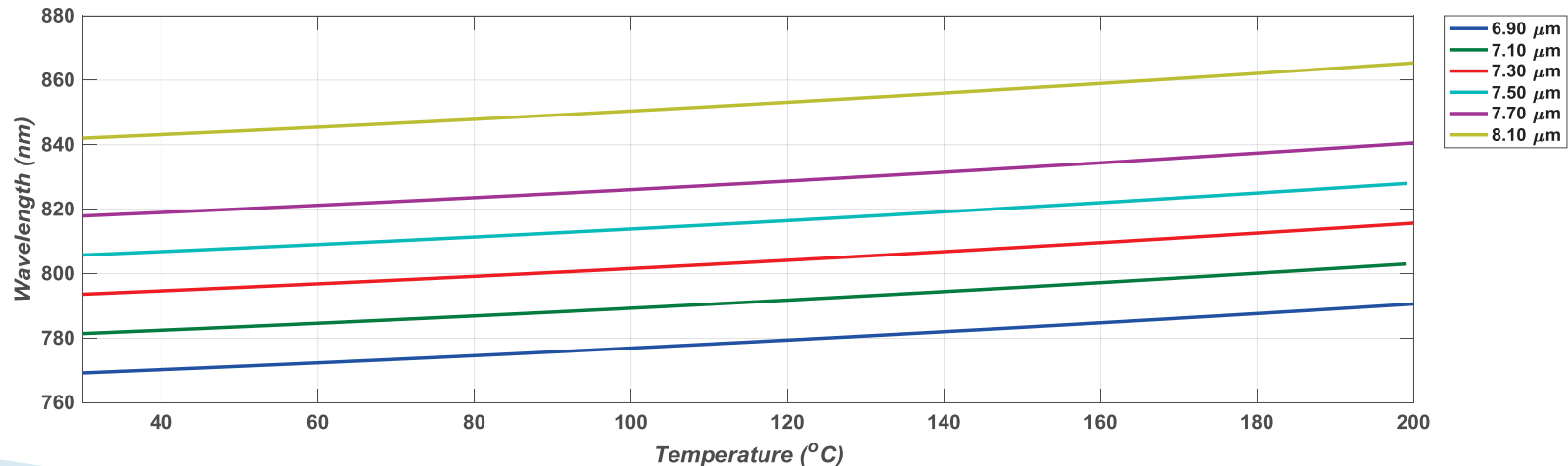


[Image for reference only. Not for scale.]

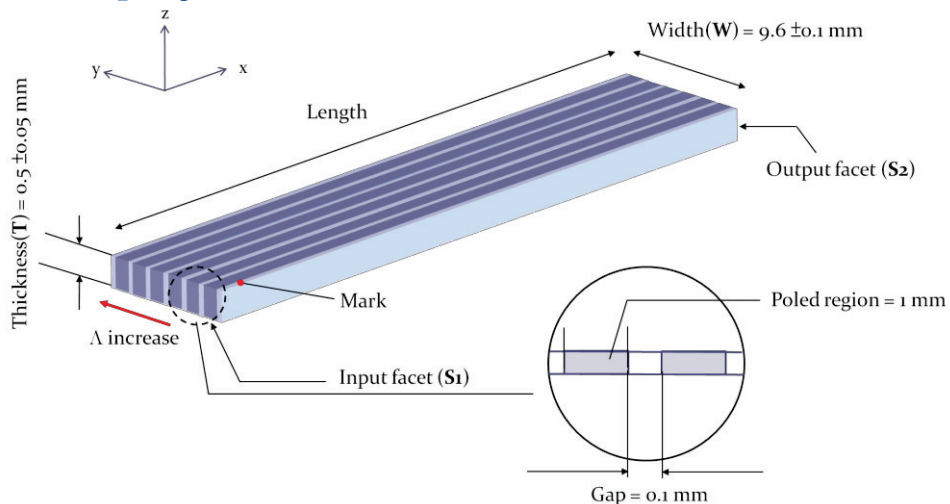
Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	6.90, 7.10, 7.30, 7.50, 7.70, 8.1	Microscope
Main Function	Sum-Frequency Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S ₁ /S ₂ facets)	S ₁ /S ₂ @470~550/720~850 /1480~1590 (R<0.5%) nm	Spectral Analyzer
Aperture Size	9.6 x 0.5 mm ² (W x T)	Cutting Machine
Available Length	0.3/0.5/1.0 mm ^{*1}	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

*1 Refer to the length of poled grating. Physical length is 1.0 ± 0.1 mm.

- Phase Matching Tuning Curve



- Chip Lay-Out

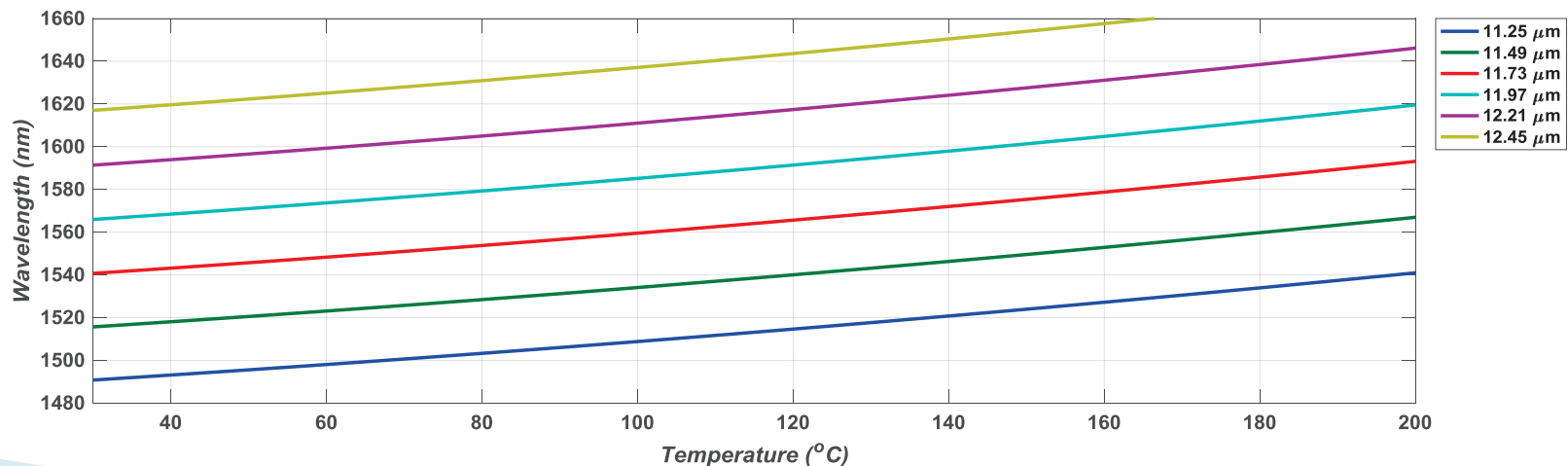


[Image for reference only. Not for scale.]

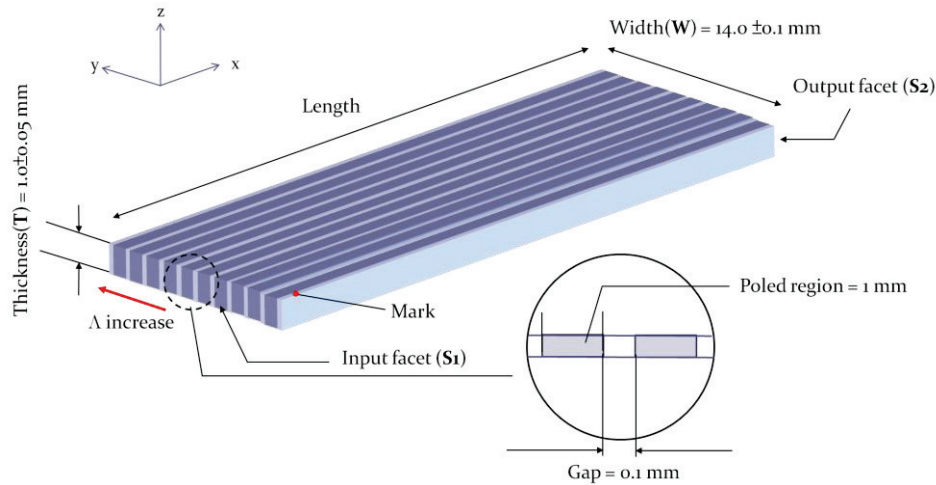
Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	11.25, 11.49, 11.73, 11.97, 12.21, 12.45	Microscope
Main Function	Sum-Frequency Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2@625~642/1020~1080 / 1520~1620 (R<0.5%) nm	Spectral Analyzer
Aperture Size	9.6 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	0.3/0.5/1.0 mm ^{*1}	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

*1 Refer to the length of poled grating. Physical length is 1.0 ± 0.1 mm.

- Phase Matching Tuning Curve



- Chip Lay-Out

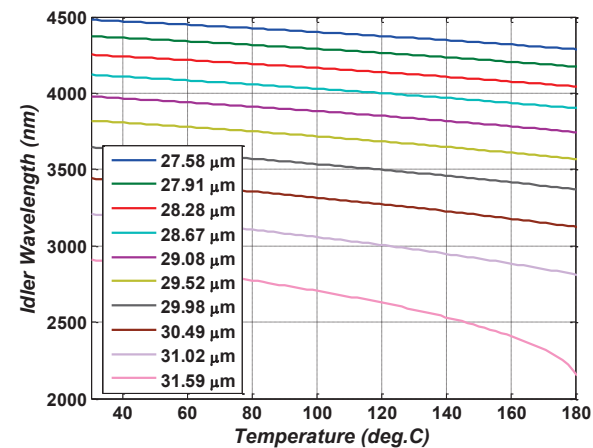
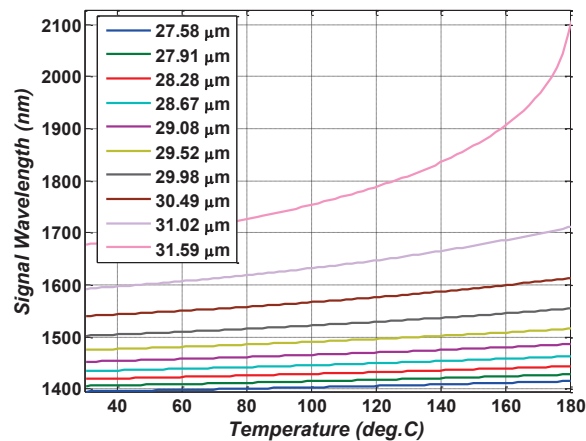


[Image for reference only. Not for scale.]

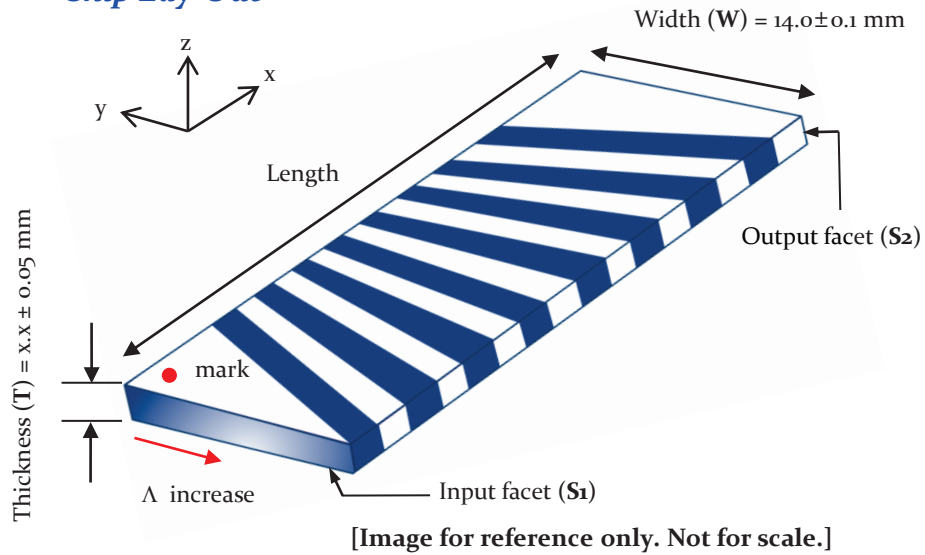
Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	27.58, 27.91, 28.28, 28.67, 29.08, 29.52, 29.98, 30.49, 31.02, 31.59	Microscope
Main Function	Optical Parametric Oscillator	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @1030-1080 (R<1.0%) /1380-1800 (R<1.0%) /1800-4500 (R<5%) nm	Spectral Analyzer
Aperture Size	14.0 x 1.0 mm ² (W x T)	Cutting Machine
Available Length *	0.3/0.5/1.0 \pm 0.1 mm ^{*1}	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

*1 Refer to the length of poled grating. Physical length is 1.0 \pm 0.1 mm.

- Phase Matching Tuning Curve



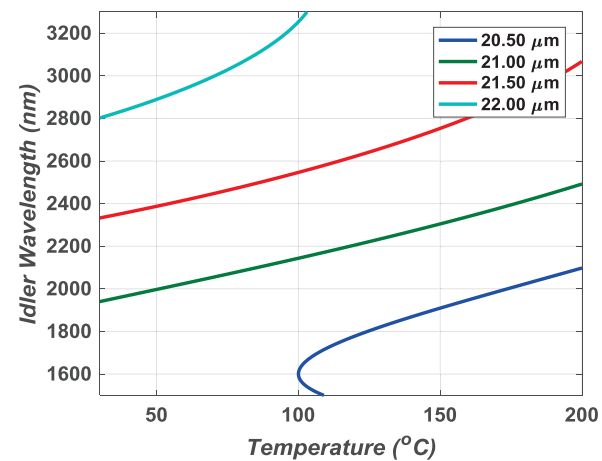
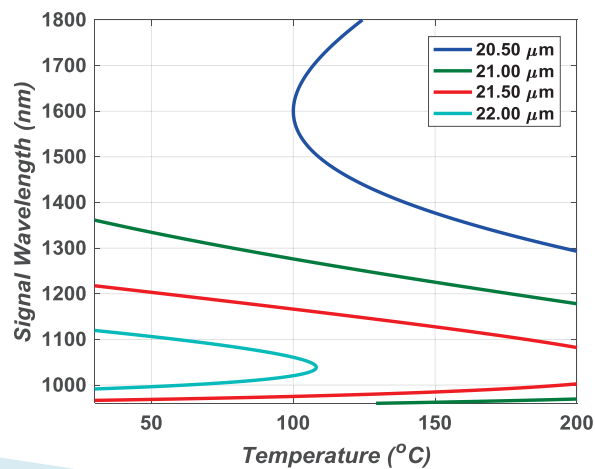
- Chip Lay-Out



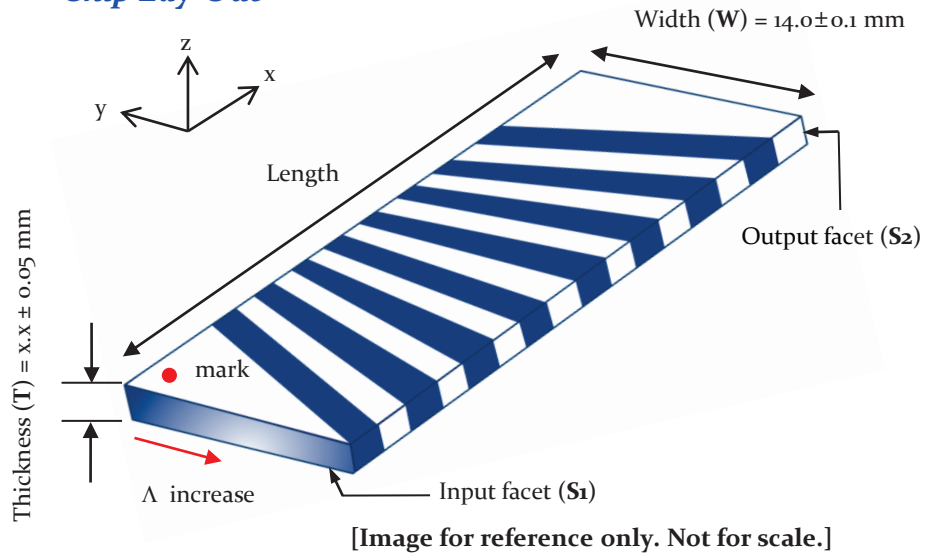
Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	20.50~23.50	Microscope
Main Function	Optical Parametric Oscillator	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical coating (S1/S2 facets)	S1/S2 @800(R<0.5%) /1150~1500(R<0.5%) /1700~2650(R<5%) nm	Spectral Analyzer
Aperture Size	14.0 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	1.0 +/- 0.1 mm	
Clear Aperture *	$\geq 80\%$ (T), ≥ 10.9 mm (W) *1	NA

*1 Poled fan-out grating width =10.9mm

- Phase Matching Tuning Curve



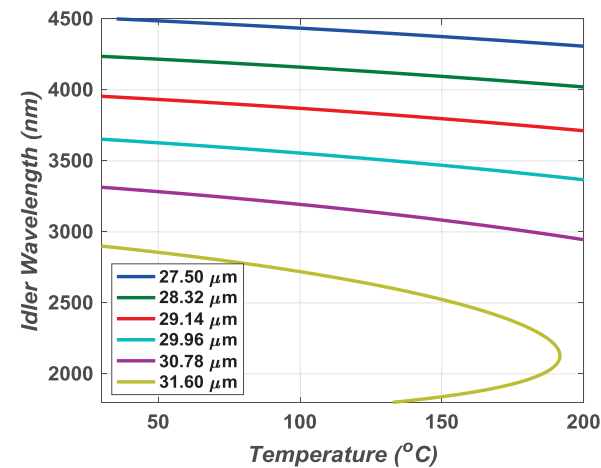
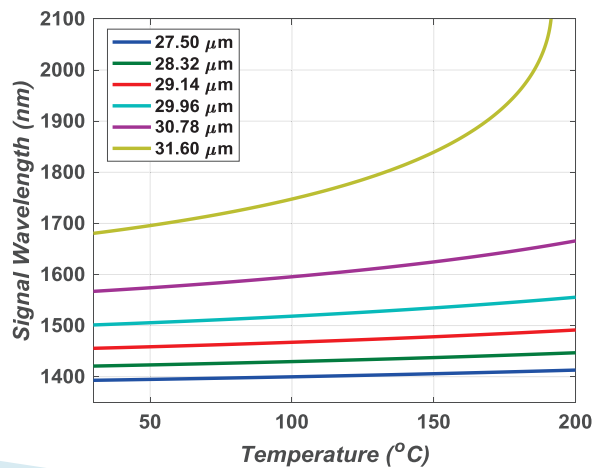
- Chip Lay-Out



Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period (Λ , μm)	27.50~31.60	Microscope
Main Function	Optical Parametric Oscillator	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical coating (S1/S2 facets)	S1/S2 @1030~1080 (R<1.0%) /1380~1800 (R<1.0%) /1800~4500 (R<5%) nm	Spectral Analyzer
Aperture Size	14.0 x 1.0 mm ² (W x T)	Cutting Machine
Available Length	1.0 +/- 0.1 mm	
Clear Aperture *	$\geq 80\%$ (T), ≥ 10.9 mm (W) *1	NA

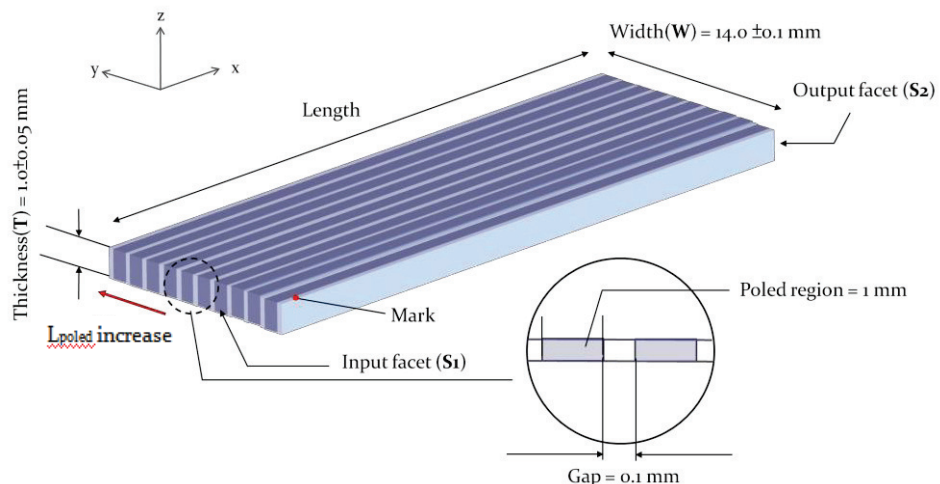
*1 Poled fan-out grating width =10.9mm

- Phase Matching Tuning Curve



type	sub type	Source	Input (nm)	Output (nm)	QPM period (um)	AR coating (nm)	Applications	walk-off (ps/mm)
FSHVIS	YT	Ytterbium fiber laser	1030	515	6.30~6.30	485~590(R<0.5%) /970~1180(R<0.5%)	Holography /Microscopy/Life science/Display/Medical	0.08-0.8ps
FSHNIR	ER	Er fiber laser	1560	780	19.65~19.65	750~810(R<0.5%) /1500~1620(R<0.5%)	Atom cooling /3D micro-fabrication/Microscopy/THz Generation	0.03-0.3ps
FSHNIR	TM	Tm fiber laser	1950	975	29.30~29.30	960~1150(R<0.5%) /1925~2300(R<0.5%)	Metrology	0.02-0.2ps

- Chip Lay-Out

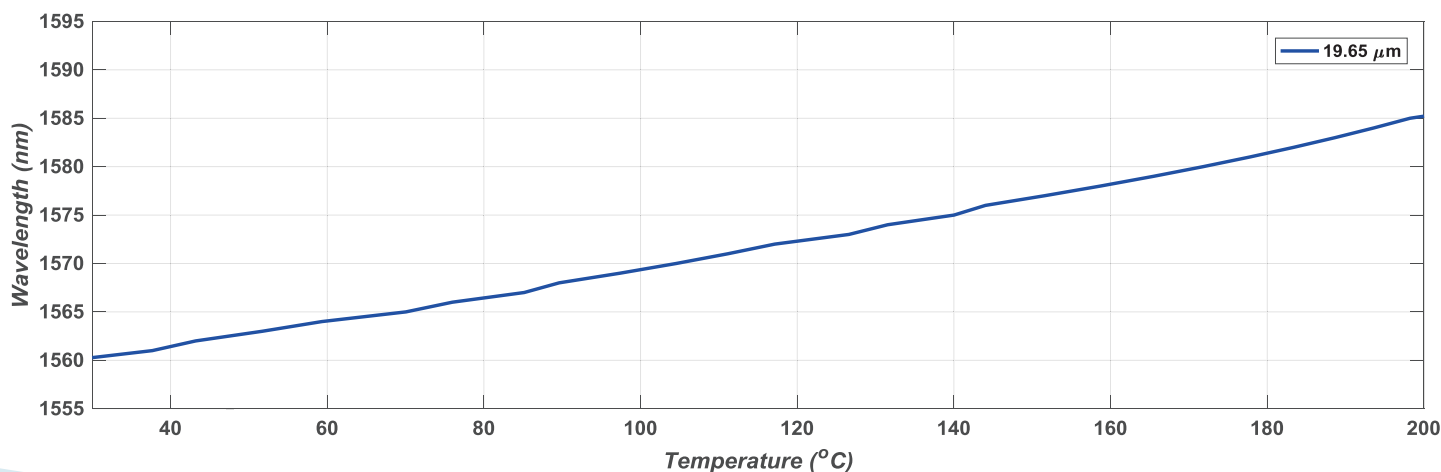


[Image for reference only. Not for scale.]

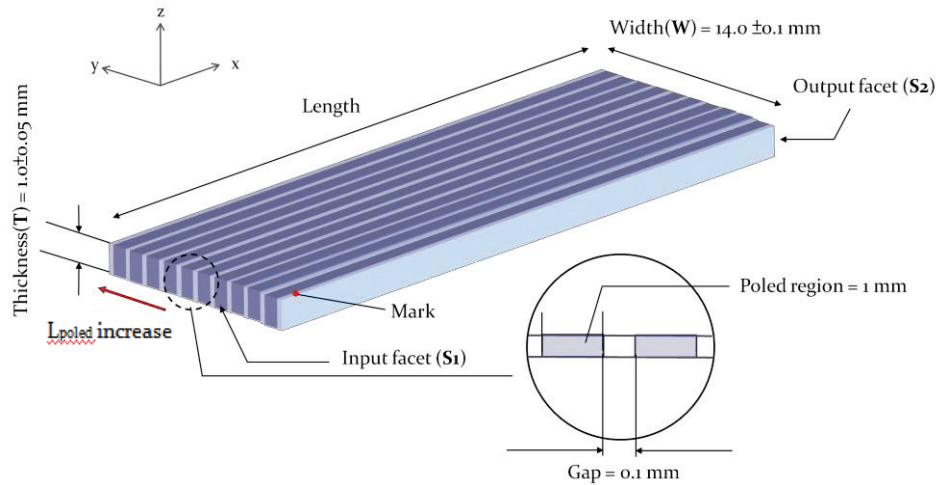
Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period ($\Lambda, \mu\text{m}$)	19.65~19.65	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @ 750~810 (R<0.5%) /1500~1620 (R<0.5%) nm	Spectral Analyzer
Aperture Size	14.0 x 1.0 mm ² (W x T)	Cutting Machine
Available Length [*]	Poled length (L_{poled}) from 0.1mm to 1mm and step 0.1mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

^{*} Refer to length of periodically poled. Physical length is 1.0 ± 0.1 mm.

- Phase Matching Tuning Curve



- Chip Lay-Out

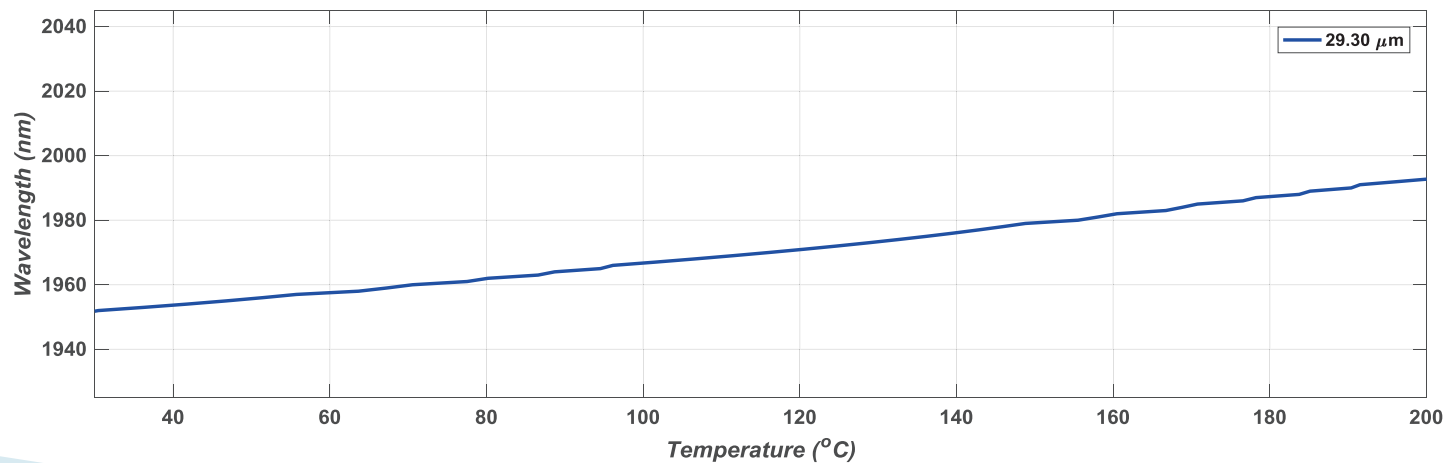


[Image for reference only. Not for scale.]

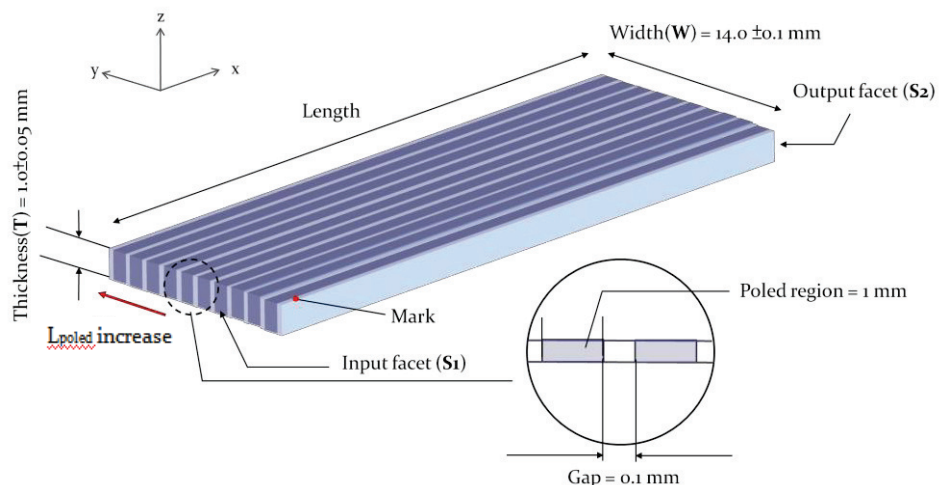
Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period ($\Lambda, \mu\text{m}$)	29.30~29.30	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @960~1150(R<0.5%) /1925~2300(R<0.5%)nm	Spectral Analyzer
Aperture Size	14.0 x 1.0 mm ² (W x T)	Cutting Machine
Available Length [*]	Poled length (L_{poled}) from 0.1mm to 1mm and step 0.1mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

^{*} Refer to length of periodically poled. Physical length is 1.0 ± 0.1 mm.

- Phase Matching Tuning Curve



- Chip Lay-Out

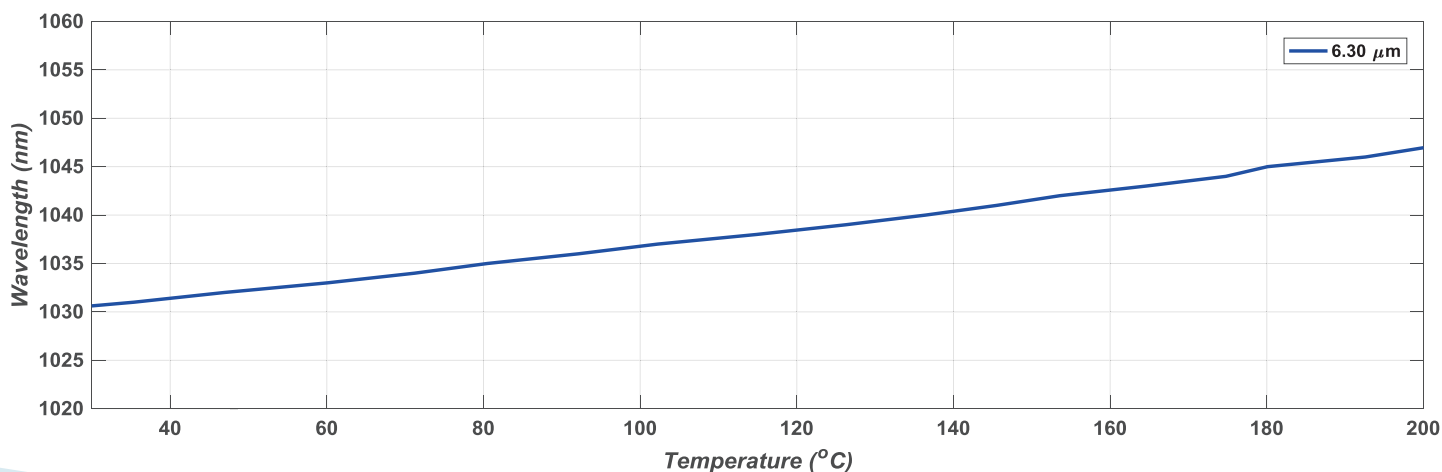


[Image for reference only. Not for scale.]

Items	Properties	Inspection
Material	5 mol.% MgO:LN	NA
Period ($\Lambda, \mu\text{m}$)	6.30~6.30	Microscope
Main Function	Second Harmonic Generation	NA
Parallelism/Perpendicularity	$\leq 5' / 21'$	Autocollimator
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)	Interferometer
Scratch/Dig	$\leq 20 / 10$	Microscope
Optical Coating (S1/S2 facets)	S1/S2 @485~590(R<0.5%) /970~1180(R<0.5%)nm	Spectral Analyzer
Aperture Size	14.0 x 0.5 mm ² (W x T)	Cutting Machine
Available Length [*]	Poled length (L_{poled}) from 0.1mm to 1mm and step 0.1mm	
Channel Clear Aperture	$\geq 80\%$ (T), $\geq 90\%$ (W)	NA

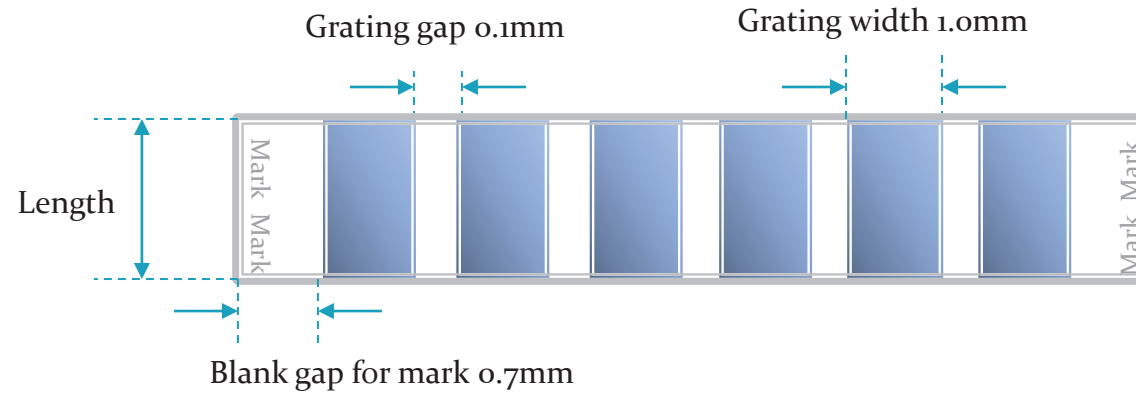
^{*} Refer to length of periodically poled. Physical length is 1.0 ± 0.1 mm.

- Phase Matching Tuning Curve

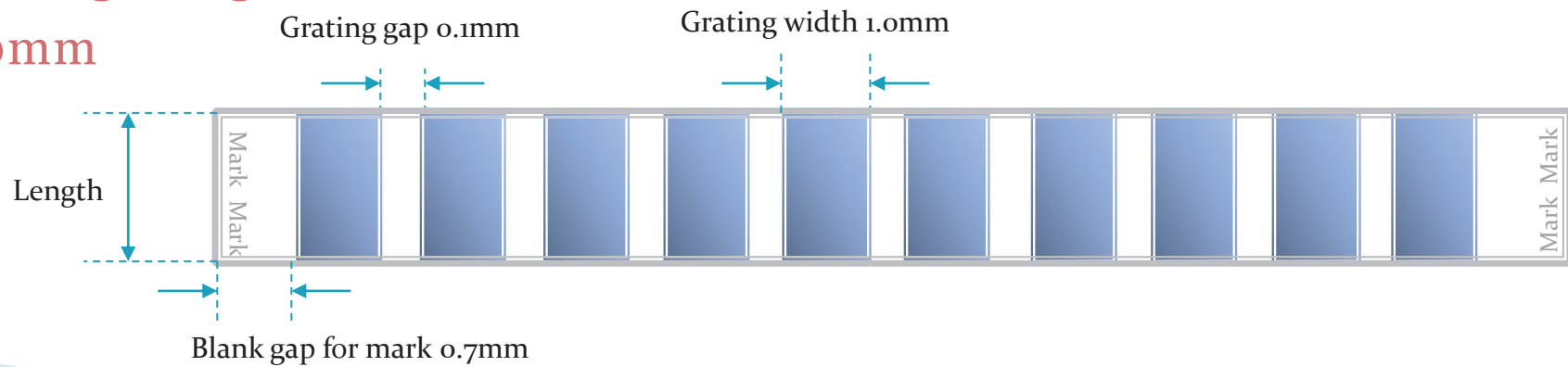


Top view of chip

Multiple 6 gratings
10/25/50mm

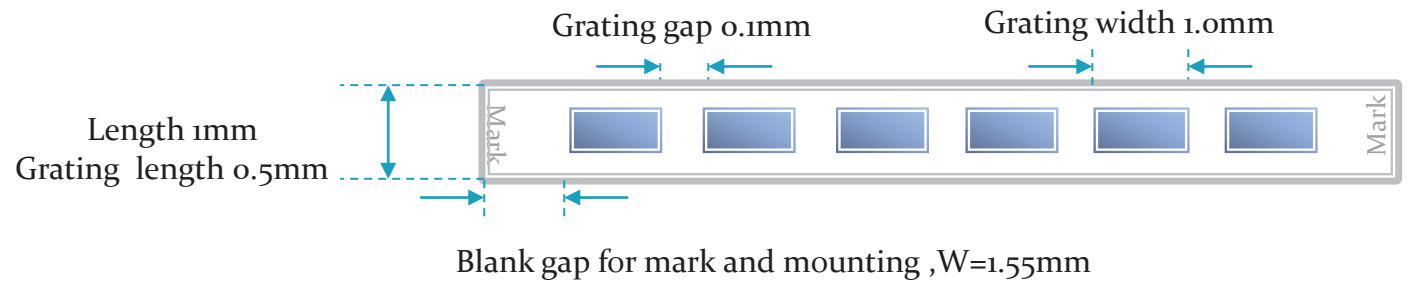


Multiple 10 gratings
10/25/50mm

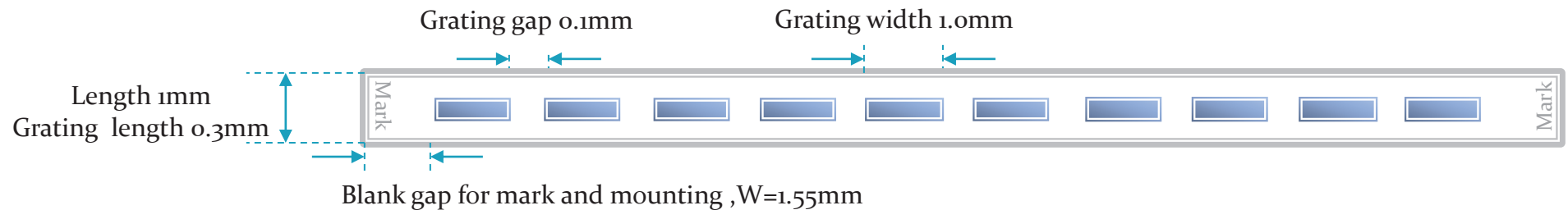


Top view of chip

Multiple 6 gratings
0.3/0.5/1.0mm
(Physical = 1mm)



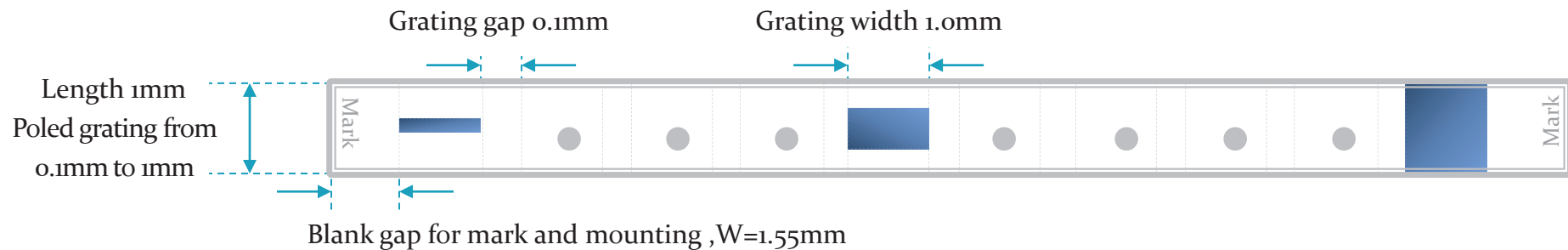
Multiple 10 gratings
0.3/0.5/1.0mm
(Physical = 1mm)



Top view of chip

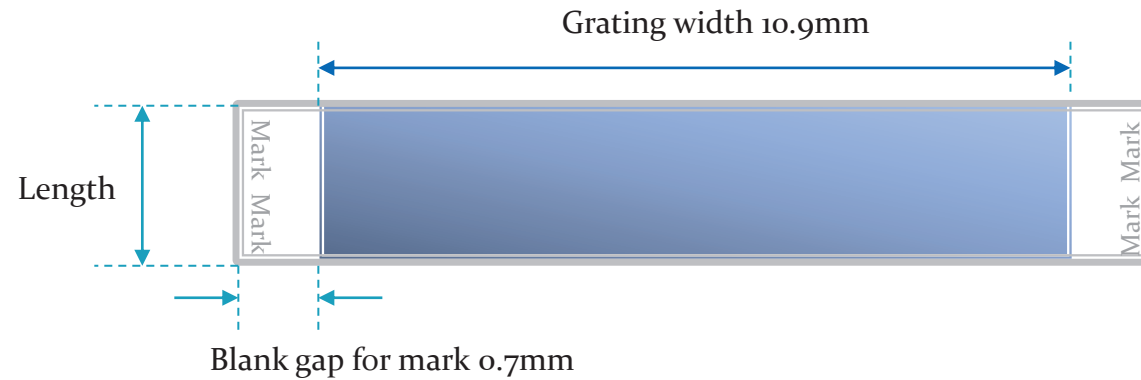
Multiple 10 gratings

Poled grating from 0.1mm to 1mm and step 0.1mm length (Physical = 1mm)

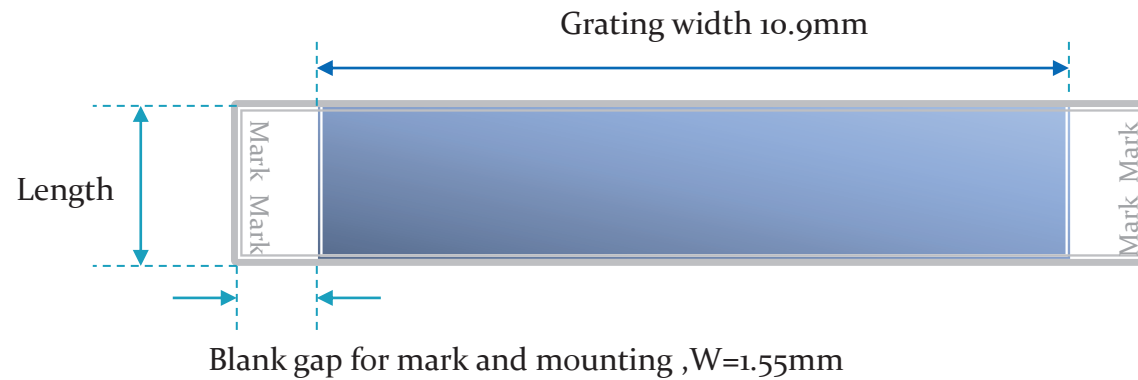


Top view of chip

Fanout grating
10/25/50mm



Fanout grating
1mm



The standard specification of grade

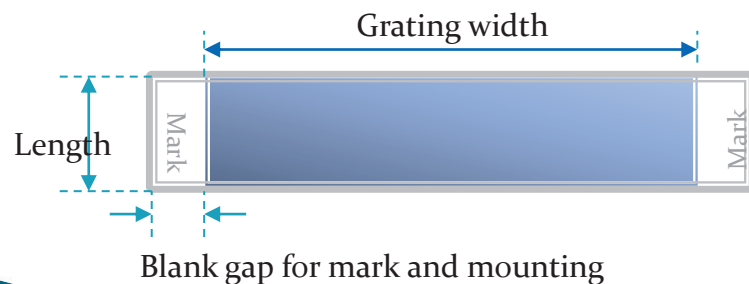
Items	Properties
Parallelism/Perpendicularity	$\leq 5' / 21'$
Flatness	$\leq \lambda / 6$ ($\lambda = 633\text{nm}$)
Scratch/Dig	$\leq 20 / 10$
Clear Aperture	According to different series, please refer to datasheet

* Grade defined based on MIL-O-13830 and MIL-C-48497A

Upgraded specification of grade

Items	Properties
Parallelism/Perpendicularity	$\leq 3' / 15'$
Flatness	$\leq \lambda / 10$ ($\lambda = 633\text{nm}$)
Scratch/Dig	$\leq 10 / 5$
Clear Aperture	According to different series, please refer to datasheet

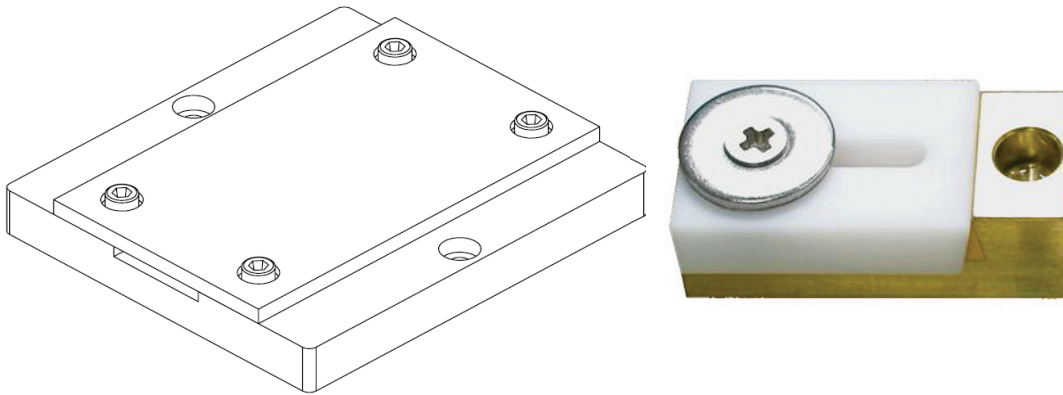
*Upgraded specification of grade is an additional option



Additional specifications for chipping

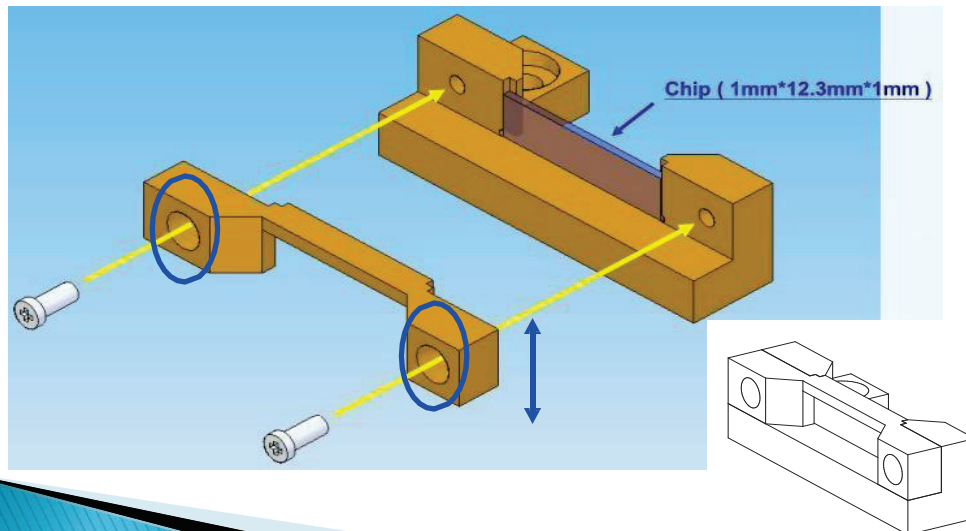
Chipping in S ₁ , S ₂	No chipping within clear aperture
Chipping outside clear aperture (Blank gap)	Single & Chirped type: - Chipping < 500um, when $W \geq 10\text{mm}$ - Chipping < 300um, when $W < 10\text{mm}$ Fan-out & Multiple type: - No chipping within grating area

Mounting Solutions



Regular Series (Optional) :

1. Single Grating:
10/25/50 x 2.0 x 0.5/1 mm
2. Multiple Grating:
10/25/50 x 7.9/12.3 x 0.5/1 mm



Femto Series (Standard) :

1. Multiple Grating:
0.3/0.5/1.0 x 9.6/14.0 x 0.5/1 mm



Your trusted value co-creation partner

