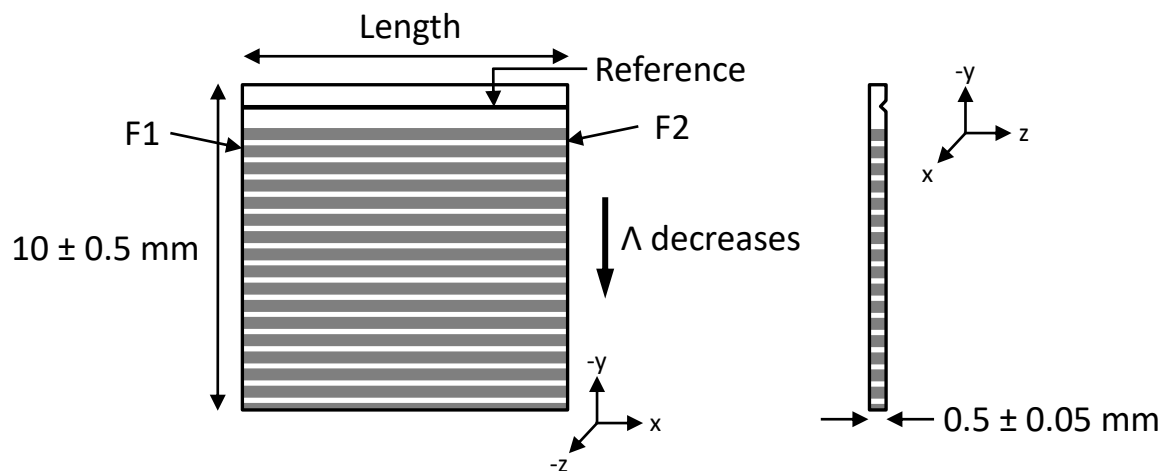


Device Specification

MDFG4-0.5-xx

version 3.0/2021



[Image for reference only. Not to scale.]

Description MgO doped PPLN DFG crystal for 1550nm and 885-1210nm

Thickness(z) $0.5\text{mm} \pm 0.05\text{mm}$

Width(y) $10\text{mm} \pm 0.5\text{mm}$

Length(x) $40\text{mm} \pm 0.5\text{mm}$, $20\text{mm} \pm 0.5\text{mm}$, $10\text{mm} \pm 0.5\text{mm}$, $3\text{mm} \pm 0.1\text{mm}$, $2\text{mm} \pm 0.1\text{mm}$, $1\text{mm} \pm 0.1\text{mm}$

Periods(Λ) 24.06, 24.63, 25.23, 25.86, 26.53, 27.22, 27.96, 28.74, 29.56, 30.43, 31.35, 32.33, 33.37, 34.48, 35.67, 36.95 μm

NOTES:

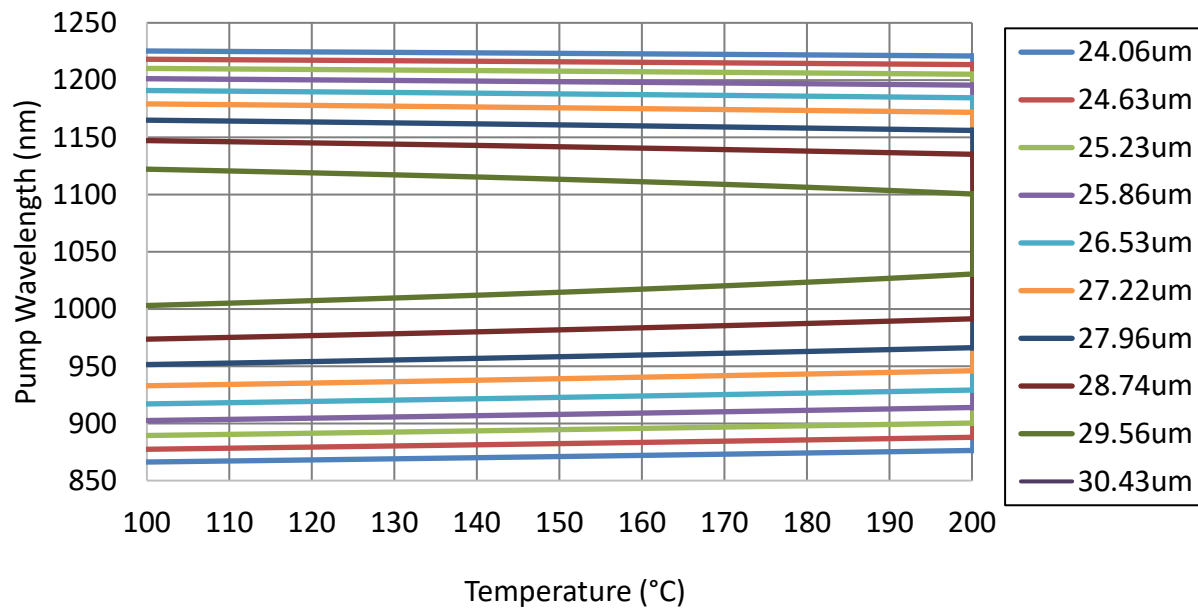
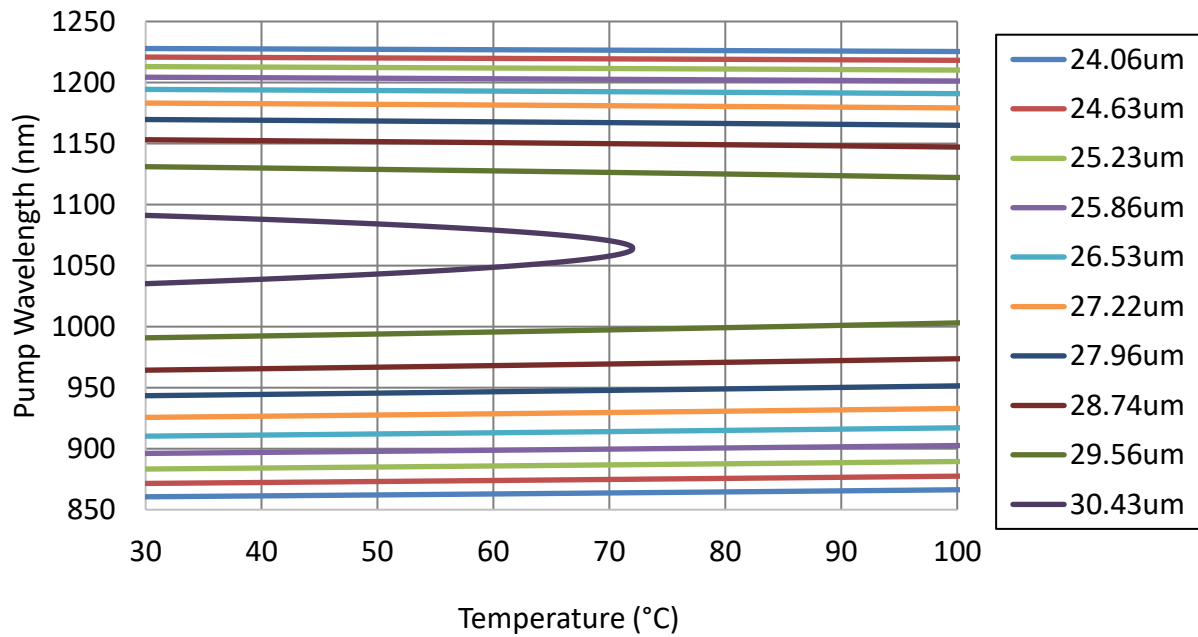
- 1 The DFG device material is Magnesium doped Lithium Niobate with sixteen periodically poled gratings. Each grating is 0.5mm wide with individual periods as listed above. A saw-cut reference mark is provided on the +z face of the crystal to determine the largest grating period (see above diagram). Each poled grating is separated by 0.05mm wide regions of unpoled material.
- 2 For 1/2/3mm long crystal, period can be used from 25.23 μm . For DFG application of 1550nm and 885-1210nm, periods from 31.35 μm to 36.95 μm are not used.
- 3 The average mark-to-space ratio of each grating is better than 70:30.
- 4 Each device is etched to make the poled gratings visible. Due to the wet-etch nature of this process the top and bottom surface finish of each device may appear cloudy or uneven.
- 5 Perpendicularity of input/output facets F1 and F2 to gratings is within $\pm 0.15^\circ$. Parallelism between end facets F1 and F2 is within ± 5 minutes.
- 6 Optical finish of facets F1 and F2 is within 20/10 scratch dig with $\lambda/8@1064\text{nm}$. No more than two 100 μm size chips per end facet.
- 7 Triple-band AR coating at pump/signal/idler wavelengths on both facets.

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DFG Tuning Curve for 1550nm Pump



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