Customized optical waveguide chips

Product Introduction:

The three-dimensional waveguide chip is prepared by femtosecond laser direct writing technology, which can realize the processing and preparation of any three-dimensional shape structure, making it possible for on-chip three-dimensional photonic integration. Through femtosecond laser direct writing technology, miniaturized, low-loss three-dimensional waveguide chips with low transmission loss, circular cross-section, and highly symmetrical mode field can be prepared on a glass substrate, which is of great significance for the realization of high-density optical interconnect products. Shenzhen Optics Valley can provide customized three-dimensional waveguide chips according to actual application scenarios and needs.

Main features

- **Based on advanced 3D laser direct writing technology**
- **High optical transmittance from VIS to NIR**

Main features:

- Based on advanced 3D laser direct writing technology
- High optical transmittance from VIS to NIR
- Customizable mode field diameter
- Low dielectric loss, suitable for 20GHz+
- Compatible with TGV through-hole technology, silicon photonics process platform
- High dimensional stability, thermal stability and chemical stability
- Low transmission loss and coupling loss
- Circular cross-section, controllable size, compatible with high-order modes

Application:

- High-density optical communication, optical interconnection
- 3D optoelectronic integration, micro-nano optical devices
- Optical sensing, optical computing
- Quantum computing, quantum information processing

Parameters:

Parameter Item	Min	Typical Value	Max	Remark
Wavelength(nm)	380nm	1550nm	2400nm	1310/1550 wavelength matches different application scenarios
Edge coupling loss (dB/fac)	/	0.25dB/face	/	
Transmission loss (dB/cm)	/	0.08dB/cm	0.1dB/cm	Straight waveguide/large bending radius (>20mm) waveguide
Bending loss(dB/cm)	/	0.2dB/cm	0.3dB/cm	/
Depth (μm)	50μm	/	400μm	/
Polarization Dependent Loss PDL(dB)	0.05dB	/	0.1dB	/
Section Diameter(μm)	5μm	/	25μm	/
Remarks	Supports customization of channel number, pitch, and position; supports matching FA, MT ferrule, MCF and other scenarios			

Order Information:

Ordering Information	Glass Material	Remarks
Arbitrary 3D waveguide structures	Corning EAGLE XG Glass, Schott BOROFLOAT 33, various alkali-free high-boron glass, phosphate glass, photosensitive glass, crystal materials, etc.	Waveguide devices with small bending radius need to be calibrated in advance for bending loss; Customizable processing of multi-row and multi-column spatial waveguide mapping