PIC Fan-out Transfer Optical Waveguide Chip

Product introduction

PIC fan-out transfer optical waveguide chip is based on the femtosecond laser direct writing technology mastered by Shenzhen Photonics Valley. It can match self-developed PIC, mainstream PIC, customize FA, MT ferrule, MCF and other chips, device end-face optical port arrangement, realize the processing and preparation of arbitrary three-dimensional shape structure, and provide possibilities for the fan-in and fan-out requirements of optical chips. Through femtosecond laser direct writing technology, miniaturized, low-loss three-dimensional optical waveguide chips with low transmission loss, circular cross-section and high symmetric mode field can be prepared on glass substrates, which is of great significance for the realization of high-density optical interconnect products.

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

Product Parameters:

Parameter Item	Min	Typical Value	Max	Remark
Wavelength(nm)	380nm	1550nm	2400nm	
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	
Waveguide chip size （mm）	Supports customization of channel number, pitch, and position			
Fan-out end face	supports matching FA, MT ferrule, MCF and other scenarios			

Ordering Information:

Ordering information	Glass Material	Remarks
Arbitrary 3D waveguide structures	Corning EAGLE XG Glass, Schott BOROFLOAT 33, All kinds of 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

Schematic diagram of seven-core waveguide chip: