Datasheet

Planar Waveguide Technology

General Material Specifications	
Material	Polymer
Max Operating Temperature	120°C
Temperature Range	- 50°C to 100°C *(cycling)*
Reflow	280°C, 0.5 min
Humidity / Damp Heat	85°C/85% r.H. 2000h

Substrates	
Base material	Glass (standard); other substrate on request (FR4, RCC, Copper, Polymide)
Thickness	0.1 ... 5 mm
Size (Singlemode)	max. 75 mm square *(usable optical area)*
Size (Multimode)	max. 130 mm square *(usable optical area)*

Mechanical Specifications - Multimode	
Waveguide Type	step index
Waveguide Height	30 - 500 µm
Waveguide Width	30 - 1000 µm *(aspect ratio 1-2 : 1)*
Waveguide Pitch	≥ 50 µm *(for 50 µm waveguide height)*

Mechanical Specifications - Singlemode	
Waveguide Type	step index
Waveguide Height	2.5 - 5 µm
Waveguide Width	2 - 10 µm
Waveguide Pitch	≥ 30 µm *(w/o crosstalk);* ≥ 5 µm *(evan. coupling)*

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Optical Characteristics - Multimode	
Refractive Index Core	1.555
Refractive Index Cladding	1.52
Numerical Aperture (NA):	0.33
Spectral Range	450 - 1600 nm
Propagation Loss (@ 850 nm):	0.05 dB/cm
min. Bend Radius	10-15 mm *(depending on wavelength)*
Crossing Loss	0.05 dB *(depending on layout)*
Coupling Loss to fiber	- 0.5 dB *(butt-coupling, depending on fiber-type)*
-0.5 dB Alignment Tolerance	> 5 µm

Optical Characteristics - Singlemode	
Refractive Index Core	1.555
Refractive Index Cladding	1.52
Modefield Diameter (@ 1310 nm):	2.8 - 10 µm *(adjustable)*
Modefield Diameter (@ 1550 nm):	3.3 - 10 µm *(adjustable)*
Spectral Range	450 - 1600 nm
Propagation Loss (@ 850 nm):	0.1 dB/cm
Propagation (@ 1310 nm):	0.45 dB/cm
Propagation (@ 1550 nm):	1.1 dB/cm
min. Bend Radius	2 - 10 mm *(depending on wavelength)*
Crossing Loss	0.05 dB *(depending on layout)*
Coupling Loss to Fiber (@ 1550 nm):	-2.0 ± 0.1 dB *(butt-coupling)*
Coupling Loss to Fiber (@ 1310 nm):	-2.1 ± 0.1 dB *(butt-coupling)*
-0.5 dB Alignment Tolerance	± 1 µm

Vertical Coupling - Multimode	
Coupling technology	parabolic mirror elements with 90° beam deflection
Material	temperature-resistant, gold coated
Mirror area	250 µm x 250 µm
Pitch	250 µm
Spectral range	450 to 1600
Power loss (@ 850 nm)	- 0.7 dB

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