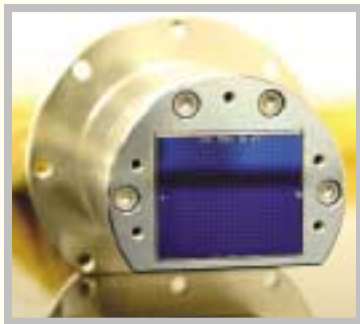


Technical Data

REFERENCE SUMMARY

Product Category:
Arrays

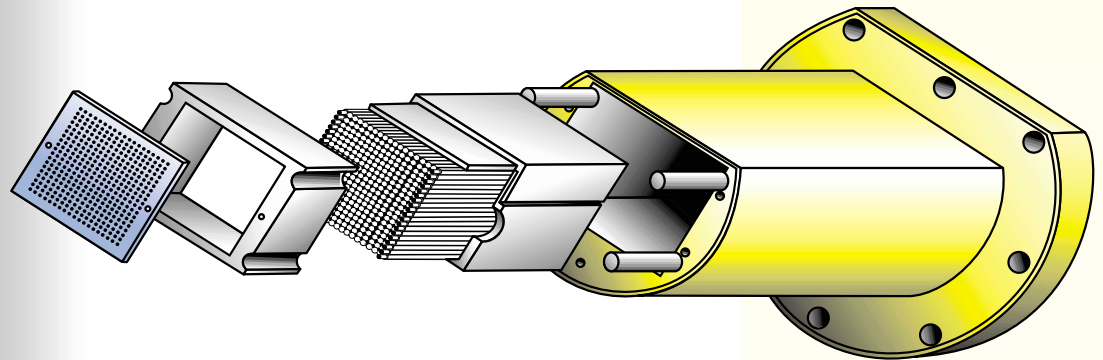
Trade Name:
Fiber Optic 2D Arrays



DESCRIPTION

In the 1990's Fiberguide developed 2-dimensional arrays of single mode fibers to meet extraordinarily demanding specifications of Lucent Technologies' Bell Laboratories. They needed the centerlines of 361 fibers in a 19 x 19 array to be positioned to an **absolute** accuracy of ± 2.0 microns over the entire array. This required a positioning accuracy beyond that possible with conventional machining methods.

The solution developed and patented by the technical staff at Fiberguide is to use an alignment plate with holes in it to guide the fibers into position. The plate is made from a wafer of silicon and the position of each hole is established by the same photolithographic and etching methods that are used to make electronic integrated circuits. The following is an exploded view of the entire assembly:



Fiberguide can adapt this technology to make both linear (1-dimensional) and 2-dimensional arrays to specific customer needs.

FEATURES & BENEFITS

Features	Benefits
<ul style="list-style-type: none"> • Meets or exceeds Telcordia GR-1221-CORE-Reliability Qualification Requirements for Passive Devices. 	<ul style="list-style-type: none"> • Detailed test documentation provided with each array on: <ul style="list-style-type: none"> • Fiber position. • Insertion loss. • Flatness. • Return loss. • Fiber "Z" axis position. • RMS for fiber roughness. • Fiber-to fiber angularity. • Fiber-to-substrate angularity.
<ul style="list-style-type: none"> • Designed and manufactured to customer application and/or specification. Designs utilize either single mode or multimode fibers. Distal ends can be provided cleaved, polished, or terminated with a wide variety of standard connectors or customized endfittings. 	<ul style="list-style-type: none"> • A product specific to your individual application and tailored to your specific technical and economic requisites.
<ul style="list-style-type: none"> • Exact positioning of fibers. 	<ul style="list-style-type: none"> • Precision high performance.
<ul style="list-style-type: none"> • Center-to-center pitch from 150μ to 5mm. 	<ul style="list-style-type: none"> • Guaranteed accuracy.
<ul style="list-style-type: none"> • Strain relief packaging. 	<ul style="list-style-type: none"> • Limits breakage during handling/installation.



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Fiberguide Industries, Inc., 1 Bay Street, Stirling, NJ 07980
 Phone: 908-647-6601 Fax: 908-647-8464 info@fiberguide.com www.fiberguide.com

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Technical Data

REFERENCE SUMMARY

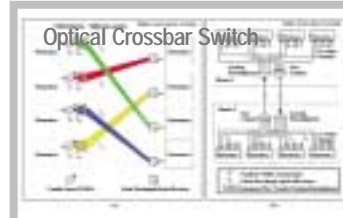
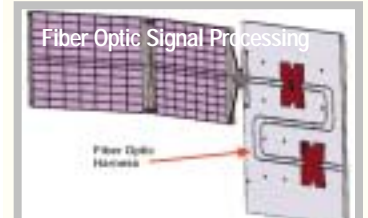
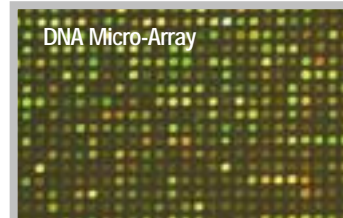
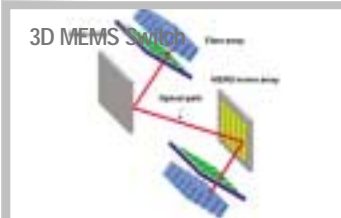
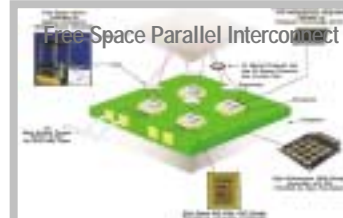
Product Category:
Arrays

Trade Name:
Fiber Optic 2D Arrays

APPLICATIONS

- 3D MEMS switch
- Optical crossbar switch
- Control of a wideband array transmitter
- Fiber optic switch
- Space and wavelength multiplexed data channels
- Signal processing
- Free space parallel interconnects
- Astronomical analysis
- Military mapping
- DNA micro-array technology
- Multiplexed screening and analysis for biosensors
- Optical tomography

TYPICAL APPLICATIONS



TYPICAL SPECIFICATIONS FOR PRODUCTION ARRAYS

- Fiber position (core-to-core non-cumulative): $\leq 0.5\mu\text{m}$
- Insertion loss with LC (connector dependent): $\leq 0.09\text{dB}$
- Flatness (PV) for 25mm x 25mm area: $\leq 1.0\mu\text{m}$
- Return loss @ 1310nm and 1550nm: $\leq 33.0\text{dB}$
- Fiber protrusion/recession: $\leq 0.1\mu\text{m}$
- RMS fiber roughness: $\leq 10\text{nm}$
- Fiber angularity (fiber-to-fiber non-cumulative): $\leq 2.5\text{mrad}$
- Fiber angularity relative to substrate normal: $\leq 5\text{mrad}$
- Fiber yield: $\geq 99\%$

Note: Typical specifications do not necessarily reflect those specifications for custom, one-of-a-kind arrays.



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REFERENCE SUMMARY

Product Category:
Arrays

Trade Name:
Fiber Optic 2D Arrays

TWO DIMENSIONAL ARRAY QUESTIONNAIRE

Contact Information

Name: _____
 Company Name: _____
 Address: _____
 City: _____
 State/Province: _____
 Zip Code: _____

- | | | |
|---|---|---|
| 1. Fiber type:
_____ Single Mode
_____ Multimode
_____ Macro Bend
_____ Other (please specify)
_____ | 7. Surface Quality _____ μm
8. Insertion Loss _____ dB
9. Return Loss _____ dB
10. Angularity _____ mrad
11. Fiber Yield _____ %
12. Connectors:
_____ LC
_____ SC
_____ FC
_____ Other (please specify)
_____ | 14. Pigtail length _____ meters
15. Housing:
Material _____
Size _____
16. AR coating:
_____ Yes (Wavelength: _____ nm)
_____ No
17. Environment _____ °C
18. Labeling Required:
_____ Yes
_____ No
19. Serialization Scheme _____
Location _____ |
| Fiber Part Number:
_____ | 2. Number of fibers _____ x _____
3. Fiber pitch _____ μm
4. Fiber configuration:
_____ | 20. Certifications: _____ |
| 5. Parallel _____ μm
6. Flatness _____ μm | 13. Sheathing _____
(standard-PVC w/Kevlar strands
900 μm O.D.) | |

Fiberguide Industries Customization Program

Fiberguide Industries is a full service custom fiber and value-added assembly provider. If you have unique requirements, please contact us to discuss tailoring a product or design to optimize optical performance for your specific application.

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