

Tech Brief

Fiber Coupling

MicroLens Arrays for High Coupling Efficiency

MicroLens arrays increase the coupling efficiency for fiber couplers. SÜSS MicroOptics is a world leading supplier of microlens arrays for fiber couplers, with highest ranking in lens array uniformity and the specific knowledge to optimize the lens profile precisely for the fiber coupling applications.

MicroLens Array Features

- 2D Microlens Arrays
- Highest quality and precision
- Bulk material: Fused Silica, Silicon, Borofloat
- Wavelength range: DUV (193nm) to IR (5um)
- Lens profiles: Plano-convex, bi-convex, spheres, aspheres
- Fiber types SMF, MMF

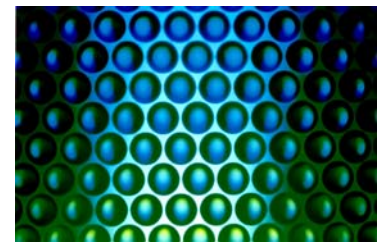


Additional Features:

- Stop arrays, pupils, pinholes, alignment marks, mounting posts
- Double sided lens arrays with precise front-to-back alignment
- AR-Coating, Metallization, Wafer-Level Packaging
- Wafer thinning

Large Selection of Standard Arrays Available Off-The-Shelf

- Pitches 127um, 250um, 1000um, 1250um on stock
- Array sizes available from 5x5mm² to 120x120mm²



Tailor-Made Customized Arrays

Customized fiber coupling arrays (pitch or lens diameter variations, focal length and lens profile exactly matching the application, etc.) or modification of our standard fiber coupling arrays (AR-coatings, apertures, pinholes etc.) are available with short delivery time.

Our Outstanding Metrology is Your Solution!

With our precise metrology techniques, SÜSS MicroOptics is able to meet very tight specifications for lens uniformity and optimize the lenses to very specific aspheric shapes in order to provide you outstanding lenses for a maximum coupling efficiency.

Our References

SÜSS MicroOptics is the preferred supplier for many leading companies worldwide using our fiber coupling arrays for very challenging applications. Our wafer-based manufacturing technology (8") results in precisely controlled lens profiles and high lens uniformity, enabling us to provide outstanding quality for very competitive prices. Simply send us your requirements, and we will find the appropriate solution.

Our MicroOptics Set the Standards: Shouldn't Your Fiber Couplers do the Same?

Interested in a complete package of fibers mounted to the lens arrays? See next page...

Fiber Mounting

Optional: Fiber Mounting

SÜSS MicroOptics is now able to offer mounted MxN arrays of Multi-Mode (MMF) and Single-Mode Fibers (SMF) in combination with collimating or focussing microlens arrays.

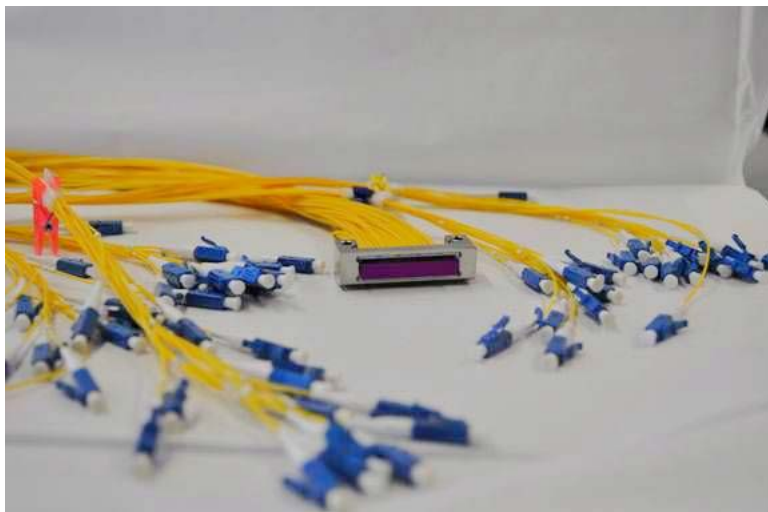
Typical Technical Specifications for Collimators

- Return Loss dB > - 40dB
- Operation temperature 0° / 70°
- Storage temp -25° / 70°
- Fiber type SMF, MMF

Mechanism

The MEMS Collimator is composed of a passive fiber optic array (alignment structure), pig-tails and a microlens array. MEMS technology is used to fabricate the alignment structure where fibers are aligned with sub-micron position accuracy.

Example



Mounted Arrays with 128 Single-Mode Fibers (SMF-28) with Microlens Array collimation.

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