

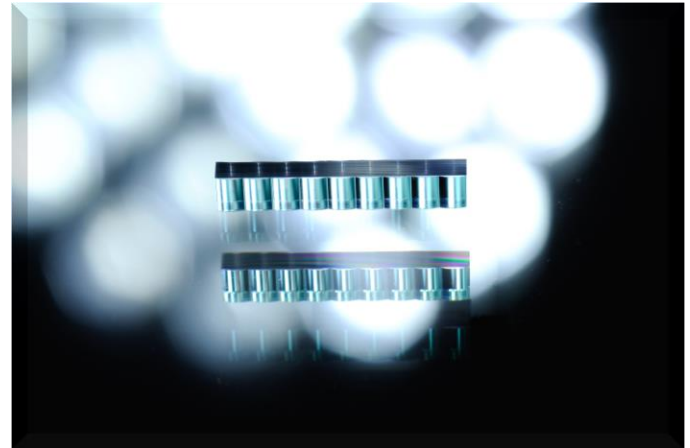


Overview

PowerPhotonic's family of Freeform Field Mapper SACs provide both slow axis collimation and fast axis beam shaping in a single optical element, dramatically improving efficiency, shortening the optical train and reducing cost in diode laser pump or other similar applications.

These optics consist of a monolithic array of lens-like elements. In the slow axis, an array of cylindrical elements reduce divergence, whilst single mode beam shaping elements transform the fast axis into an array of flat top spots.

Made from UV-fused silica, the Field Mapper SACs leverage PowerPhotonic's unique freeform fabrication technology and in-house expertise in optical design, modelling and fully freeform fabrication technology enabling the creation completely custom Field Mapper SAC solutions for use in a wide range of diode lasers and applications.



Target Applications

- High power laser diode bars and stacks
- Solid-state laser pumping
- Fiber-coupled direct diode
- Free-space direct diode

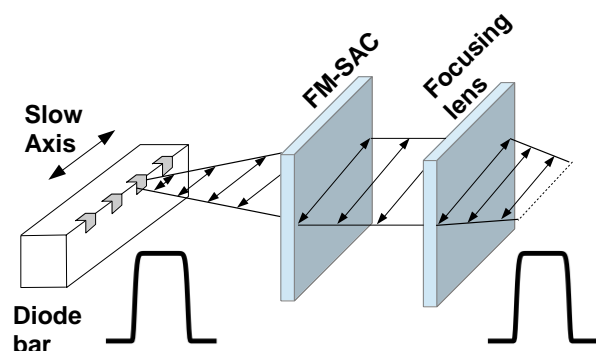
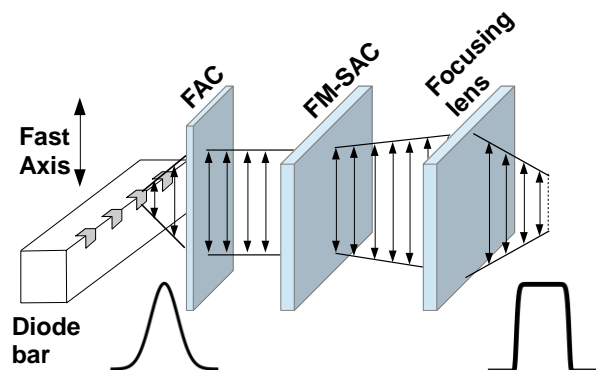
Key Features

- UV-fused silica
- Monolithic design
- Efficient collimation
- Transmission >99%
- Long term mechanical stability
- Flexible size and range of pitch combinations
- Customization options

Benefits

- System performance optimization
- Increased diode pump efficiency
- Shortens the optical train
- Simplifies system alignment
- Low scatter and cross talk
- Compatible with off-the-shelf FACs

How they are used



Standard Product Selection

Part Number	Effective Focal Length EFL (mm)	Pitch P (mm)	NA	Shaped spot size [mm]*	Length L (mm)	Height H (mm)	Thickness T (mm)	# Elements
PP-FMSAC-F220-P50	2.20	0.50	0.10	4.55	12.0	1.50	1.00	19
PP-FMSAC-F260-P50	2.60	0.50	0.09	3.85	12.0	1.50	1.00	19
PP-FMSAC-F300-P50	3.00	0.50	0.08	3.33	12.0	1.50	1.00	19
PP-FMSAC-F350-P50	3.50	0.50	0.07	2.86	12.0	1.50	1.00	19
PP-FMSAC-F400-P50	4.00	0.50	0.06	2.50	12.0	1.50	1.00	19
PP-FMSAC-F450-P50	4.50	0.50	0.05	2.22	12.0	1.50	1.00	19
PP-FMSAC-F350-P100	3.50	1.00	0.14	0.40	12.0	1.50	1.00	10
PP-FMSAC-F800-P100	8.00	1.00	0.06	1.25	12.0	1.50	1.00	10
PP-FMSAC-F900-P100	9.00	1.00	0.05	1.11	12.0	1.50	1.00	10
PP-FMSAC-F1000-P100	10.00	1.00	0.05	1.00	12.0	1.50	1.00	10
PP-FMSAC-Fxxx-Pxxx	Custom	Custom	Custom	Custom	Custom	Custom	Custom	Custom

AR coating can be added on request

NA: Numerical aperture

EFL: Effective focal length @ 808nm

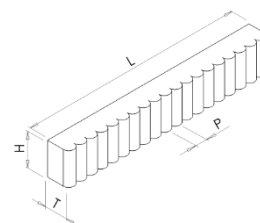
P: Pitch of emitter

All custom parameters can be customer specified

L: Length (+/-0.10mm)

H: Height (+/- 0.05mm)

T: Thickness (+/- 0.02mm)



*Shaped spot size when used with a 100mm EFL focusing lens and assuming a 100µm emitter size in the slow axis (size matched to create a flat-top square) - other variations of spot size possible on request

Customization Program

Due to the unique nature of the PowerPhotonic manufacturing process, our standard products can be easily modified to meet specific requirements. Please contact PowerPhotonic for additional information.

Options

- ☉ Focal length
- ☉ Pitch, Length, Height, Thickness
- ☉ Number of emitters
- ☉ Shaped spot size
- ☉ Coatings
- ☉ Smile correction
- ☉ Monolithic collimation of complete stack

About Us

PowerPhotonic is a global leader in precision laser machined micro-optics products. Our business was founded with the objective of providing unsurpassed excellence in all aspects of design and manufacture of micro-optics for optical and laser applications. Our world-class design skills are supported by an innovative and flexible manufacturing process that allows the company to design both a broad range of state-of-the-art standard micro-optics products and uniquely, to offer a low cost and rapid fabrication service for creating completely freeform optical surfaces.

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