

Overview

PowerPhotonic provides a range of smile correctors for laser diode bar and stack applications. These innovative products remove the effects of “smile” error on the collimated beam.

The “smile” effect, caused by CTE mismatch during solder bonding, prevents the fast axis collimation (FAC) lens being correctly positioned for all points along the bar, resulting in beams with variable pointing direction. This increases overall fast-axis divergence, and can have a severely detrimental impact on VBG locking efficiency and locking range.

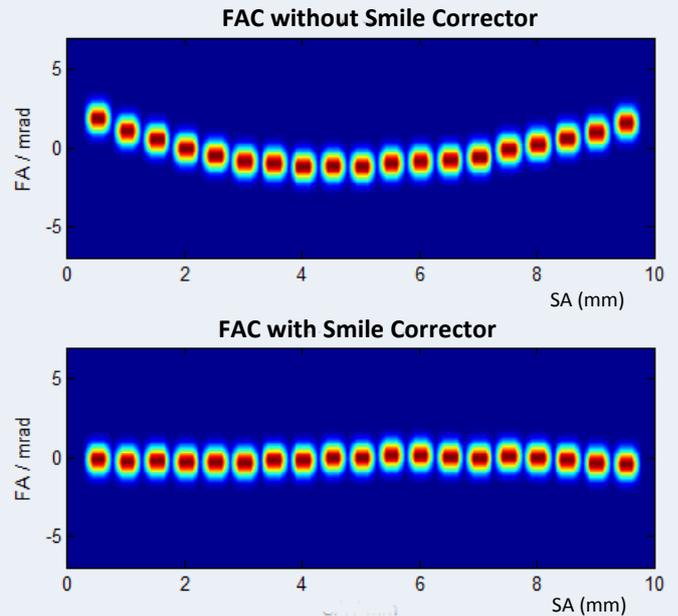
The PowerPhotonic Smile Correctors remove the impact of these degradations resulting in a dramatic improvement in laser performance.

Key Features

- Single optic that can reduce smile to a level that no longer affects system performance
- Monolithic design
- Fixed or custom variants possible
- Transmission >99%
- UV-fused Silica

Benefits

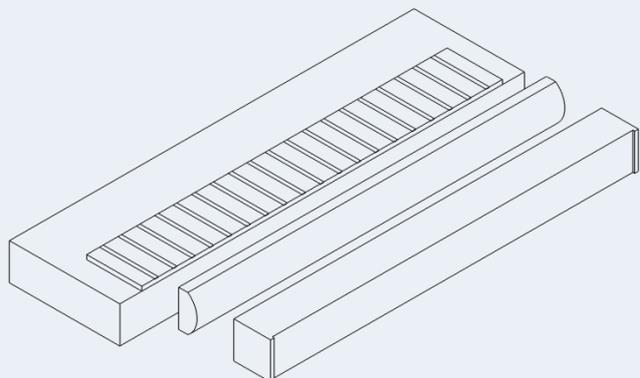
- Decreases fast-axis divergence
- Increases fibre-coupled power
- Increases VBG locking efficiency and locking range
- Small number of select on test variants can effectively remove a wide range of smile errors
- Increases assembly yield in wavelength-locked and high brightness products



Target Applications

- Laser diode bars and laser diode stacks
- Solid-state laser pumping
- Wavelength-locked diode lasers
- Fibre direct-diode

How it is Used



Standard Product Selection

Part Number	Smile P-V (mrad)	SA Clear Aperture (mm)	Pitch P (mm)	Length L (mm)	Height H (mm)	Thickness T (mm)	# Emitters
PP-SMC-S5-C950-V1-AR1	0.50	9.50	0.50	12.0	1.50	1.00	19
PP-SMC-S10-C950-V1-AR1	1.00	9.50	0.50	12.0	1.50	1.00	19
PP-SMC-S15-C950-V1-AR1	1.50	9.50	0.50	12.0	1.50	1.00	19
PP-SMC-S20-C950-V1-AR1	2.00	9.50	0.50	12.0	1.50	1.00	19
PP-SMC-S25-C950-V1-AR1	2.50	9.50	0.50	12.0	1.50	1.00	19
PP-SMC-S30-C950-V1-AR1	3.00	9.50	0.50	12.0	1.50	1.00	19
PP-SMC-Sxx-Cxxx-Vx-ARx	tbd	tbd	tbd	tbd	tbd	tbd	tbd

AR1 optical coating: Broadband 900-1100nm R<0.25%,
other coatings on request

Smile P-V: Peak to valley error across diode bar

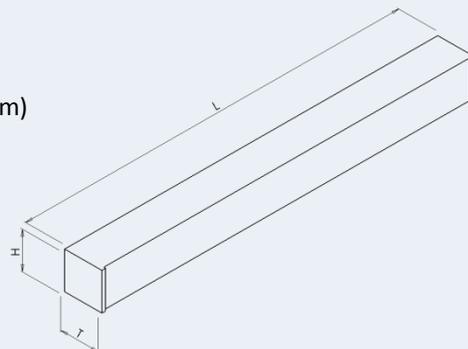
SA: Slow axis

All tbd parameters can be customer specified

L: Length (+/-0.10 mm)

H: Height (+/- 0.05 mm)

T: Thickness (+/- 0.02 mm)



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 the PowerPhotonic for additional information.

Options

- Length, Height
- SA Clear aperture
- AR Coatings
- Custom smile correction

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 micro-optics product design 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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