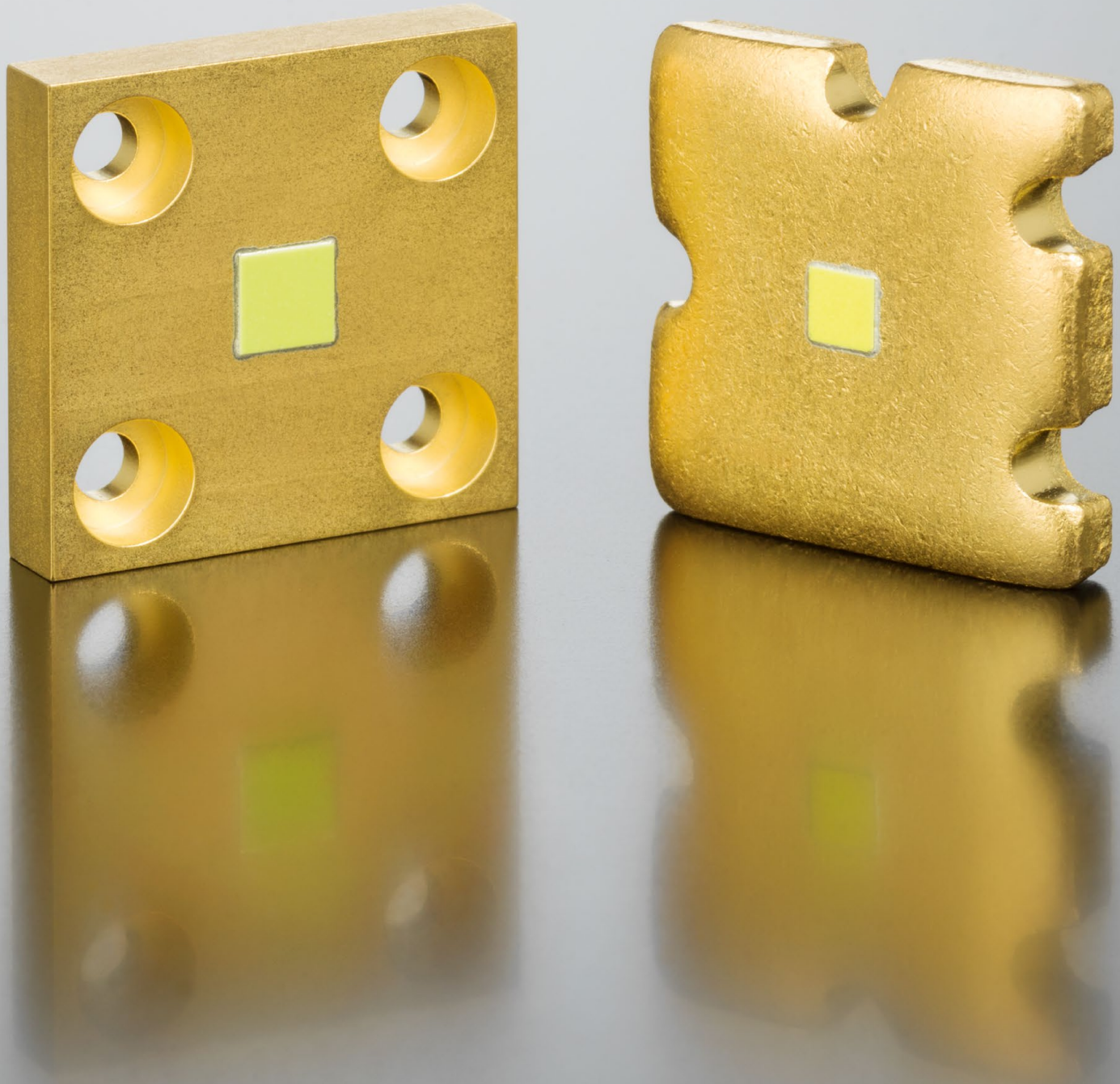
SCHOTT



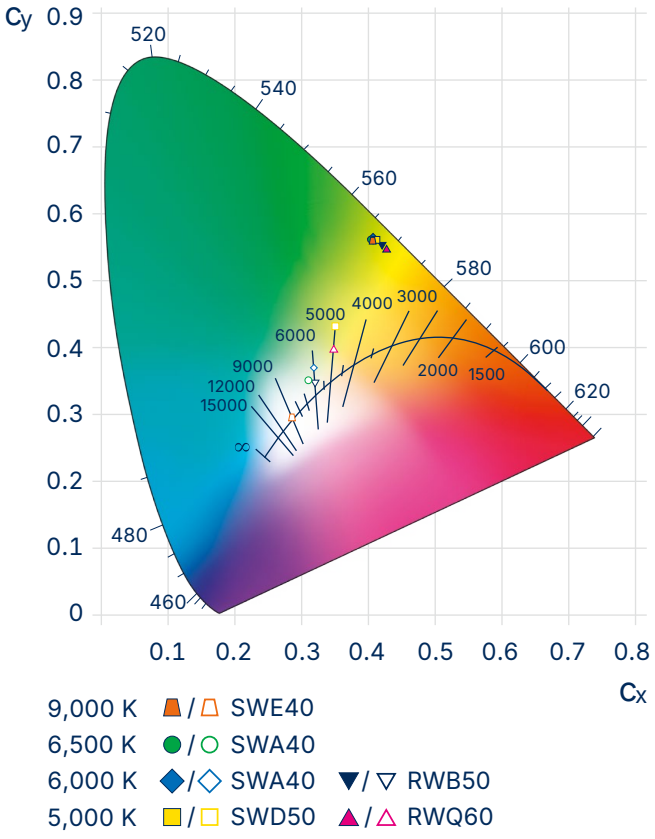
Static ceramic converter

Enabler for high luminance light sources

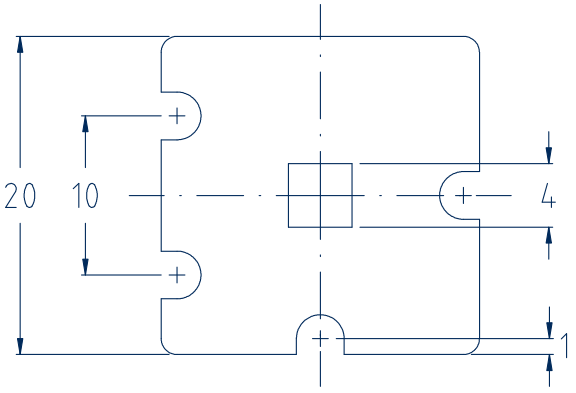
Version March 2026

White ceramic converter

SCHOTT static converters provide high irradiance and superior luminance. Assembled on a heat sink these components enable compact light sources without moving parts. This is a fully inorganic solution offering high reliability.[4]
SCHOTT offers various types of white static converter materials with correlated color temperatures (CCT) from 5,000 K to 9,000 K, serving a wide range of applications.



High volume heatspreader design

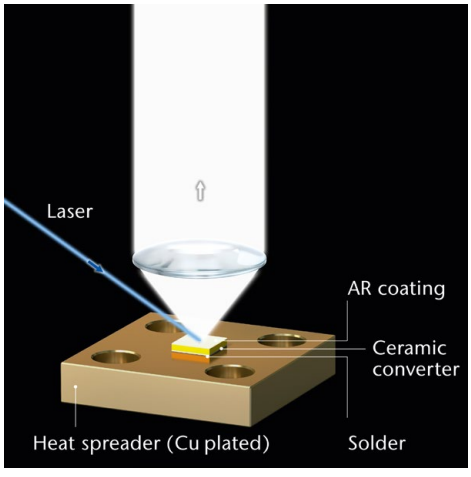


High volume samples available with
heat spreader dimensions of 20 x 20 x 4 mm and
phosphor material dimensions of 4 x 4 mm at different thicknesses.

Tolerances apply, technical drawings available upon request.

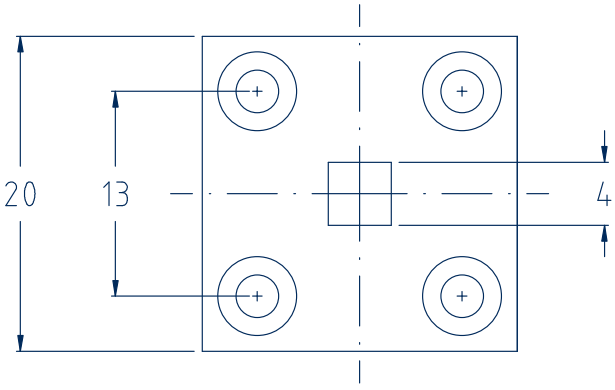
Customization available upon request.

Design example for white light generation



For white light generation, the material is designed to diffuse the optimal amount of blue light to achieve the desired color coordinates.

Standard heatspreader design



Standard samples available with
heat spreader dimensions of 20 x 20 x 4 mm and
phosphor material dimensions of 4 x 4 x 0.150 mm.

Tolerances apply, technical drawings available upon request.

Customization available upon request.

[4] Operation above 65 °C on the heat spreader is not recommended.

Technical details – white

80 µm die thickness[1], anti-reflection coated phosphor on heatspreader

Optical specifications	9,000 K White SWE40	6,500 K White SWA40
Conversion efficacy [lm/W]	> 180	> 200
Conversion efficiency [W/W]	> 56 %	> 62 %
Emission color coordinates c_x[2]	0.4070	0.4050
Emission color coordinates c_y[2]	0.5590	0.5610
White color coordinates c_x[3]	0.2865	0.3100
White color coordinates c_y[3]	0.2965	0.3510

150 µm die thickness[1], anti-reflection coated phosphor on heatspreader

Optical specifications	6,000 K		5,000 K	
	White SWA40	White RWB50	White SWD50	White RWQ60
Conversion efficacy [lm/W]	> 230	> 220	> 250	> 230
Conversion efficiency [W/W]	> 63 %	> 62 %	> 64 %	> 61 %
Emission color coordinates c_x[2]	0.4070	0.4220	0.4115	0.4270
Emission color coordinates c_y[2]	0.5620	0.5525	0.5605	0.5505
White color coordinates c_x[3]	0.3195	0.3210	0.3515	0.3485
White color coordinates c_y[3]	0.3710	0.3470	0.4310	0.3940

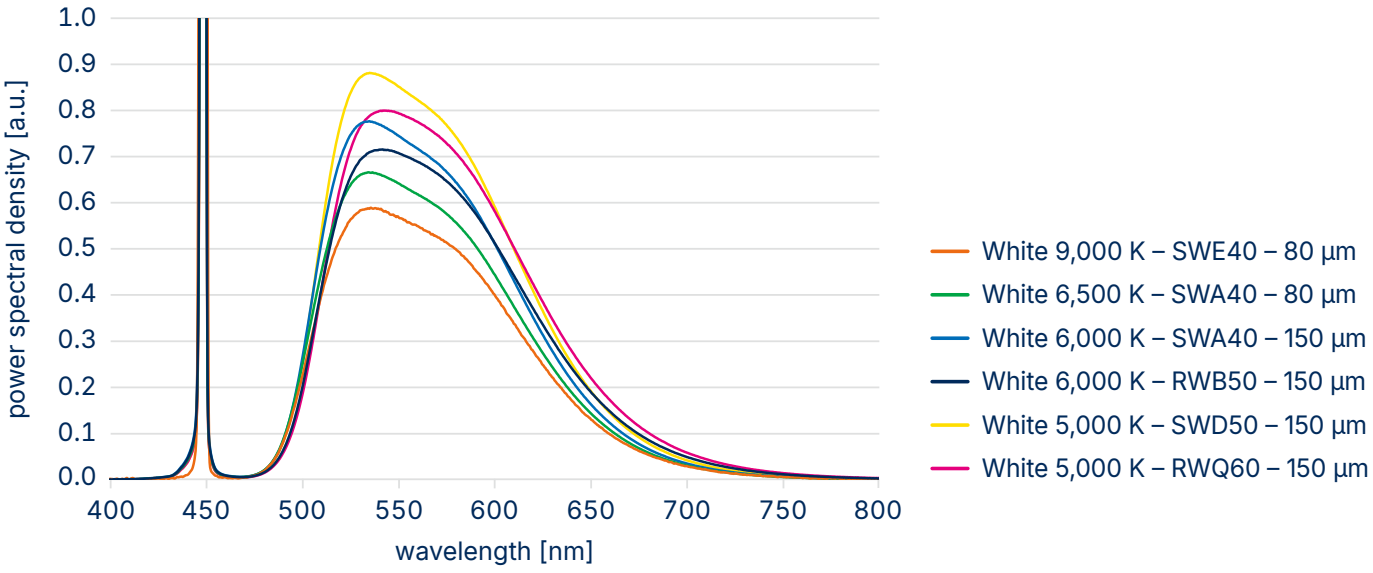
White color coordinates change with blue laser wavelength and are measured at 449.5 nm.
Emission spectrum is defined by the power spectral density > 465 nm, detected in normal direction.
Efficacy and efficiency is measured for full (white) spectrum, defined by the power spectral density > 400 nm.
AR coating optimized for blue light incident angle of 60°.
Efficacy, efficiency and color coordinates measured with 60° incident angle of blue laser at low laser power.

[1] Tolerances apply and are available upon request.
[2] Center values, tolerances for 9,000 K ± 0.01, for all others ± 0.007
[3] Tolerance window see previous pages.

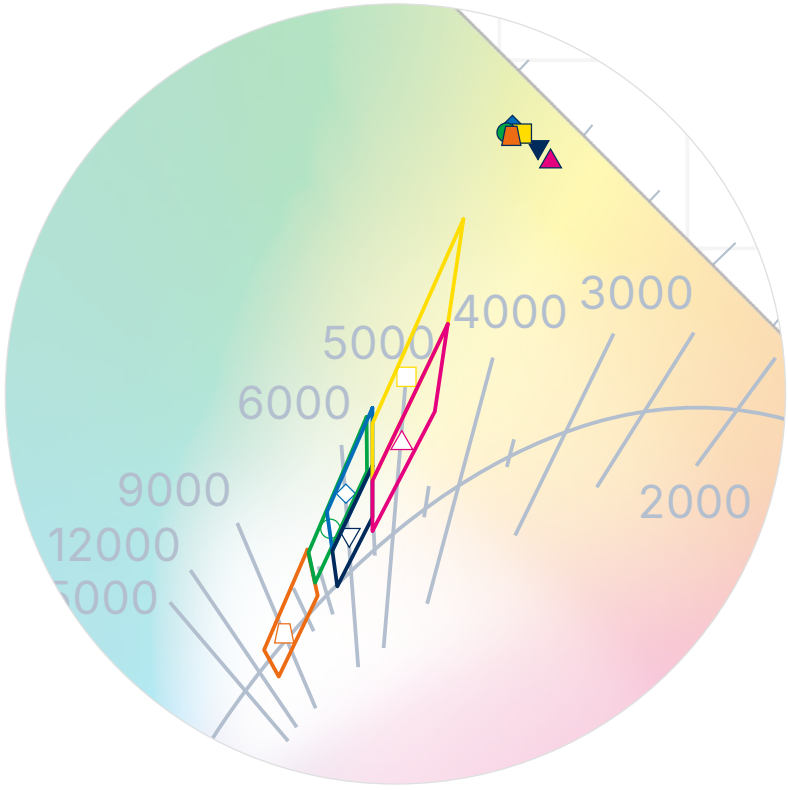
More details see webpage:
schott.com/ceramic-converter

Several types of white material

Emission spectrum



Tolerance window for white color coordinates (c_x and c_y)



Visualization of spec in the CIE 1931 color space.

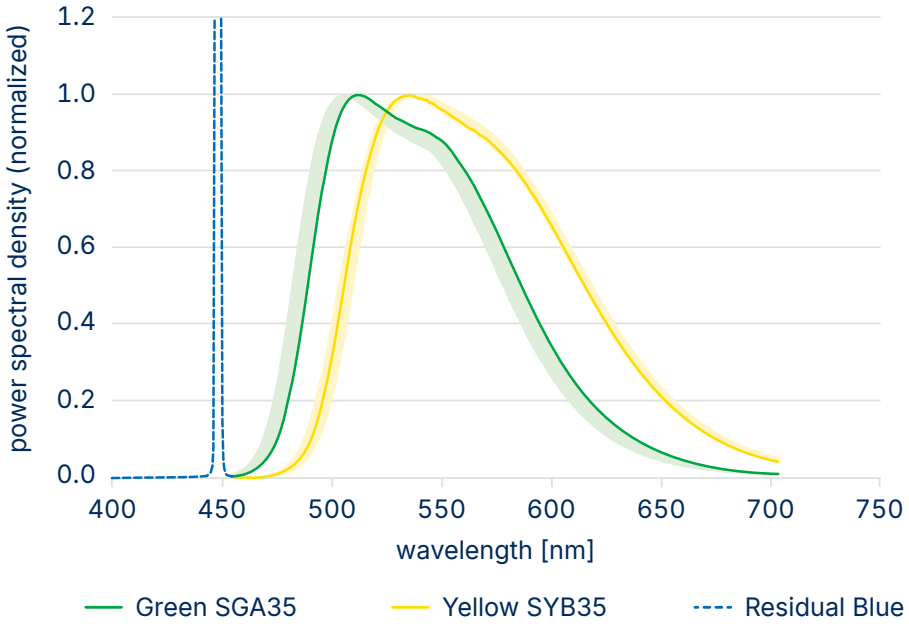
Tolerance window

	c_x	c_y
9,000 K		
White SWE40	0.2981	0.3400
	0.2749	0.2866
	0.2828	0.2728
	0.3035	0.3156
6,500 K		
White SWA40	0.3295	0.4103
	0.2985	0.3385
	0.3021	0.3224
	0.3298	0.3814
6,000 K		
White SWA40	0.3326	0.4150
	0.3085	0.3600
	0.3114	0.3396
	0.3325	0.3842
White RWB50	0.3325	0.3842
	0.3114	0.3396
	0.3139	0.3205
	0.3325	0.3572
5,000 K		
White SWD50	0.3810	0.5150
	0.3326	0.4069
	0.3326	0.3765
	0.3726	0.4595
White RWQ60	0.3726	0.4595
	0.3326	0.3765
	0.3325	0.3497
	0.3658	0.4133

Green and yellow converter material

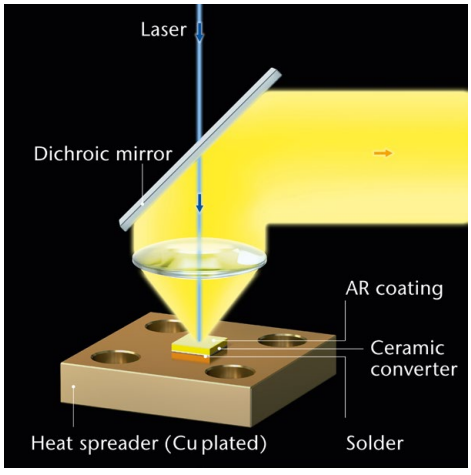
SCHOTT manufactures ceramic phosphor converters for metrology, imaging and digital projection from yellow and green materials in several variants.

Emission spectrum



Range shows different materials including SYA35, SYA15, SYB35, SYB15, SYC35, SYC15, SYF35 and SGA35, SGA15, SGB35, SGF35, SGG35, GGB35 and others.

Design example for yellow or green light generation



Blue laser light is applied via a dichroic mirror. This also blocks residual blue light, that is reflected from the sample. The pure emission spectrum of green or yellow light ideal for applications such as digital projection or stage lighting.

Technical details – yellow & green

Yellow (80 µm die thickness[5], anti-reflection coated phosphor on heatspreader)

Optical specifications	Yellow SYA35	Yellow SYA15	Yellow SYB35	Yellow SYB15	Yellow SYC35	Yellow SYC15	Yellow SYF35	Yellow SYF15
Conversion efficacy [lm/W]	> 235	> 260	> 250	> 275	> 240	> 265	> 200	*
Conversion efficiency [W/W]	> 49 %	> 54 %	> 52 %	> 57 %	> 50 %	> 55 %	> 42 %	*
Emission color coordinates c_x[6]	0.410	0.410	0.415	0.415	0.425	0.425	0.405	*
Emission color coordinates c_y[6]	0.561	0.561	0.560	0.560	0.555	0.555	0.561	*

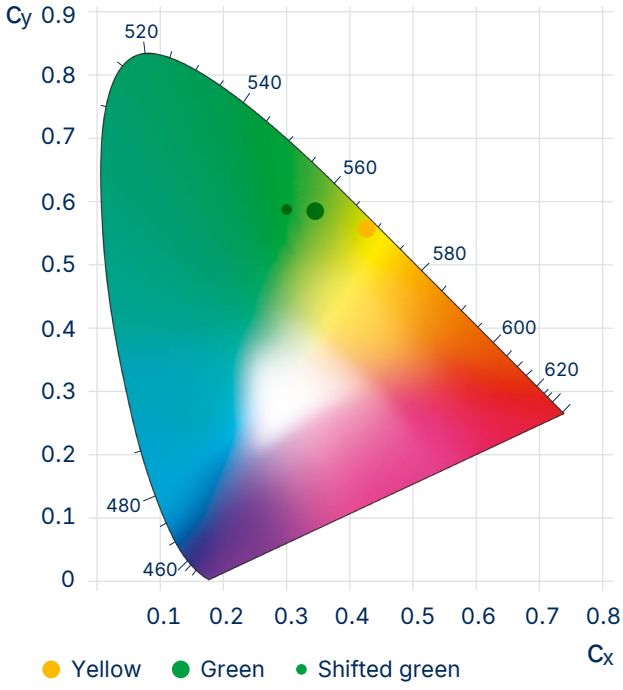
Green (80 µm die thickness[5], anti-reflection coated phosphor on heatspreader)

Optical specifications	Green SGA35	Green SGA15	Green SGB35	Green SGB15	Green SGF35	Green SGF15	Green SGG35	Green SGG15	Shifted Green GGB35	Shifted Green GGB15
Conversion efficacy [lm/W]	> 270	> 295	> 260	*	> 240	*	> 210	*	> 260	*
Conversion efficiency [W/W]	> 57 %	> 62 %	> 55 %	*	> 51 %	*	> 45 %	*	> 57 %	*
Emission color coordinates c_x[6]	0.330	0.330	0.326	*	0.317	*	0.314	*	0.297	*
Emission color coordinates c_y[6]	0.588	0.588	0.587	*	0.583	*	0.578	*	0.579	*

Emission spectrum defined by the power spectral density > 465 nm, detected in normal direction.
Efficacy and efficiency specified for emission spectrum.
Anti-reflection coated phosphor optimized for blue light normal incidence.
Efficacy, efficiency and color coordinates measured with 60° incident angle of blue laser (449.5 nm) at low laser power.

[5] Tolerances apply and are available upon request.
[6] Center values, tolerances ± 0.01
* Samples available upon request.

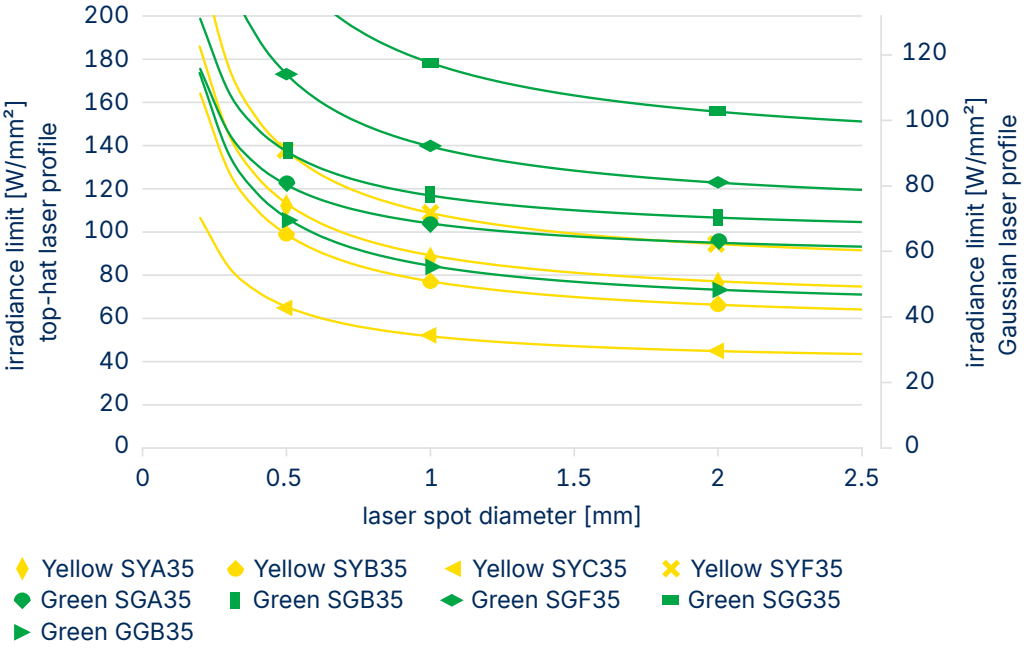
More details see webpage:
schott.com/ceramic-converter



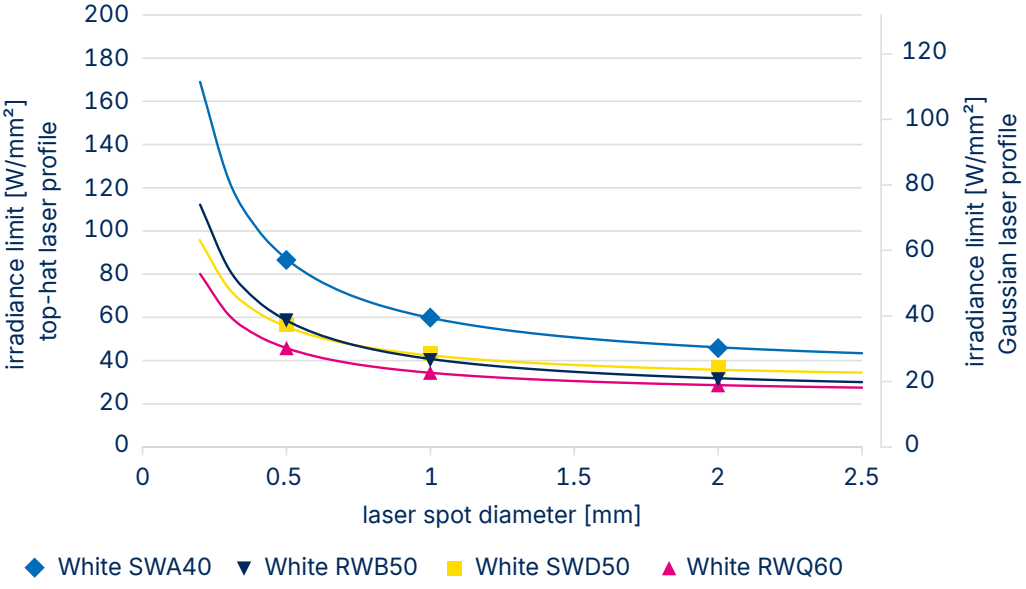
Color coordinates of green and yellow ceramic converter material in the CIE 1931/2° color space

Products offer high irradiance limits for maximum luminance

Yellow and green – 80 µm die thickness



White 5,000 K and white 6,000 K – 150 µm die thickness



Indicated irradiance limits are not based on measurements, but on validated numerical simulation, taking into account all properties of relevance. Accordingly, the values on this page may in no case be understood as technical product specifications, and are for general orientation purposes, only.
The values apply for illumination by a 450 nm CW mode laser, and for good thermal contact of a heatspreader sized 20 x 20 x 4 to a heatsink at 30 °C.
For safety reasons stay at least 20 % below indicated irradiance limit.

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