

2023

Luminus
Specialty Lighting
Catalog



Improving Life with Photons™

Luminus Company Introduction

Improving Life with Photons

Luminus creates LEDs which are enabling customers to improve lives across disciplines, and in homes and businesses. Luminus products are used in various types of medical equipment, UV solutions for disinfection, high color rendering white for healthy illumination, full spectrum horticulture, infrared for security, projection for education and entertainment, and countless other applications.



- Headquartered in:
Silicon Valley
(Sunnyvale, CA, USA)
- Branches in:
Xiamen (China),
Shenzhen (China),
Hsinchu (Taiwan),
Penang (Malaysia)
Eindhoven (The Netherlands)
- Founded in 2002 to commercialize technology developed at M.I.T.
- Leadership in very high-power LEDs with exceptional light beam quality
- Broad range of white and monochromatic solutions for general illumination and specialty lighting markets
- Global applications support



Specialty LEDs









- Solutions ranging from Ultraviolet to Infrared with input powers from 1 W to over 180 W
- High-intensity specialty LEDs (up to 650 A/cm²) replacing performance lamp technologies such as xenon and metal halides
- Extensive offering for markets including:
 - UV-A and UV-C Purification and Disinfection
 - Medical and Life Sciences Instruments
 - Industry: UV Curing, Machine Vision, Obstruction
 - Vision & Sensing
 - Projection Technologies – Consumer, 3D Printing and Industrial
 - Stage, Entertainment and Studio Lighting
 - Portable and Vehicle Auxiliary Lighting
 - Indoor and Outdoor Directional Lighting
 - Horticulture Lighting



Illumination LEDs

- High quality of light and industry-leading efficacy engineered in Silicon Valley
- Widest range of COB sizes and CCT/CRI combinations
- Unique 1616 midpower LEDs with wide viewing angle and 95+ CRI
- Dynamic COBs for human centric lighting
- Unique and custom spectra available

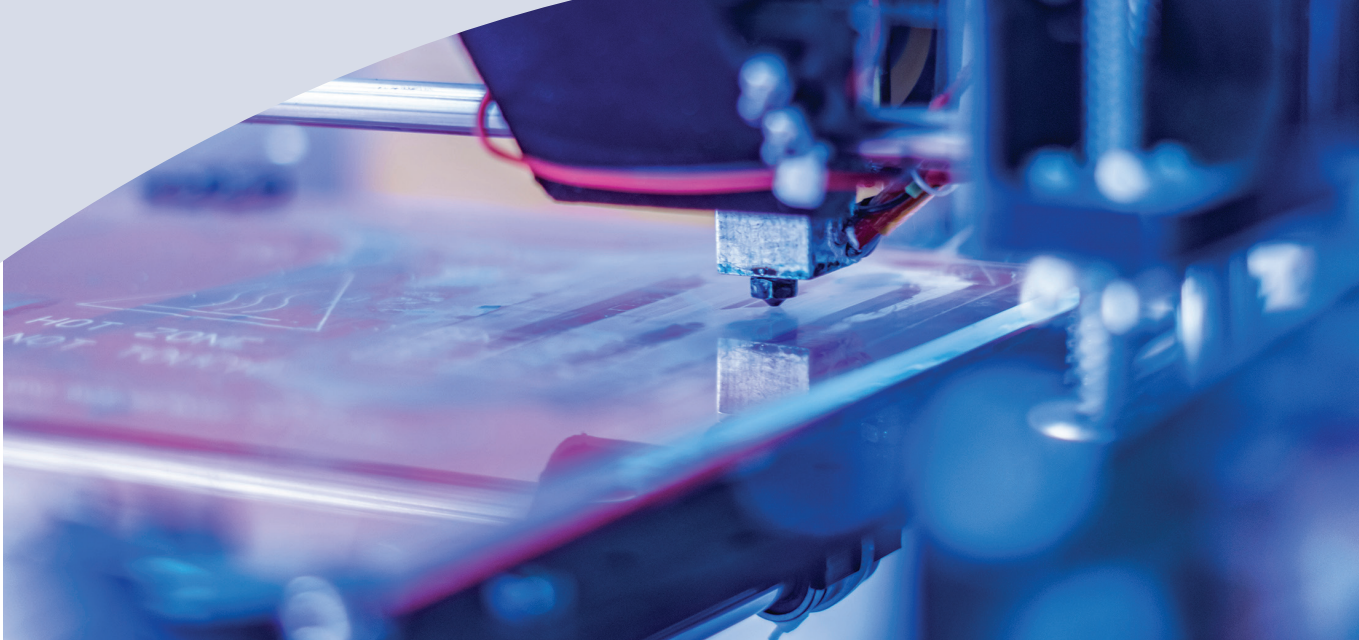
SPECIALTY LIGHTING AT GLANCE

Product Line	Sample Applications	
UV-A LEDs	UV Curing	
	3D Printing & Industrial	
	Medical & Life Sciences	
UV-B LEDs (New)	Life Sciences, Medical and Horticulture	
UV-C LEDs	Disinfection & Sterilization	
Infrared LEDs	Vision & Sensing	
High Power White SMD	Portable & Bicycle Lights	
	Automotive Auxiliary Lights & Work Lights	
	Indoor Directional Lighting	
	Outdoor & Roadway Lighting	
	Industrial Lighting	
Color Surface Mount Series	Horticulture Lighting	
	Industrial Equipment	
	Life Sciences and Phototherapy	
	Architectural & Stage	
Specialty White & Color High Intensity COB Series	Medical & Life Sciences	
	Stage Lighting	
	Machine Vision & Industrial	
Projection LEDs	Home Entertainment Pico Projectors (<2,000 lm)	
	Business / Home Theater Projectors (>2,000 lm)	
	Industrial Projection	

* For your actual applications, please feel free to contact us for more suitable recommendations.

Contents

UV-A	6
UV-B	8
UV-C	8
Infrared	9
High Power White SMD	10
Color Surface Mount	12
Specialty White & Color High Intensity COB Series	14
Projection LEDs	16
Automotive LEDs	18
Horticulture LEDs	20
Applications Engineering Support	22
Ecosystems Partners	23

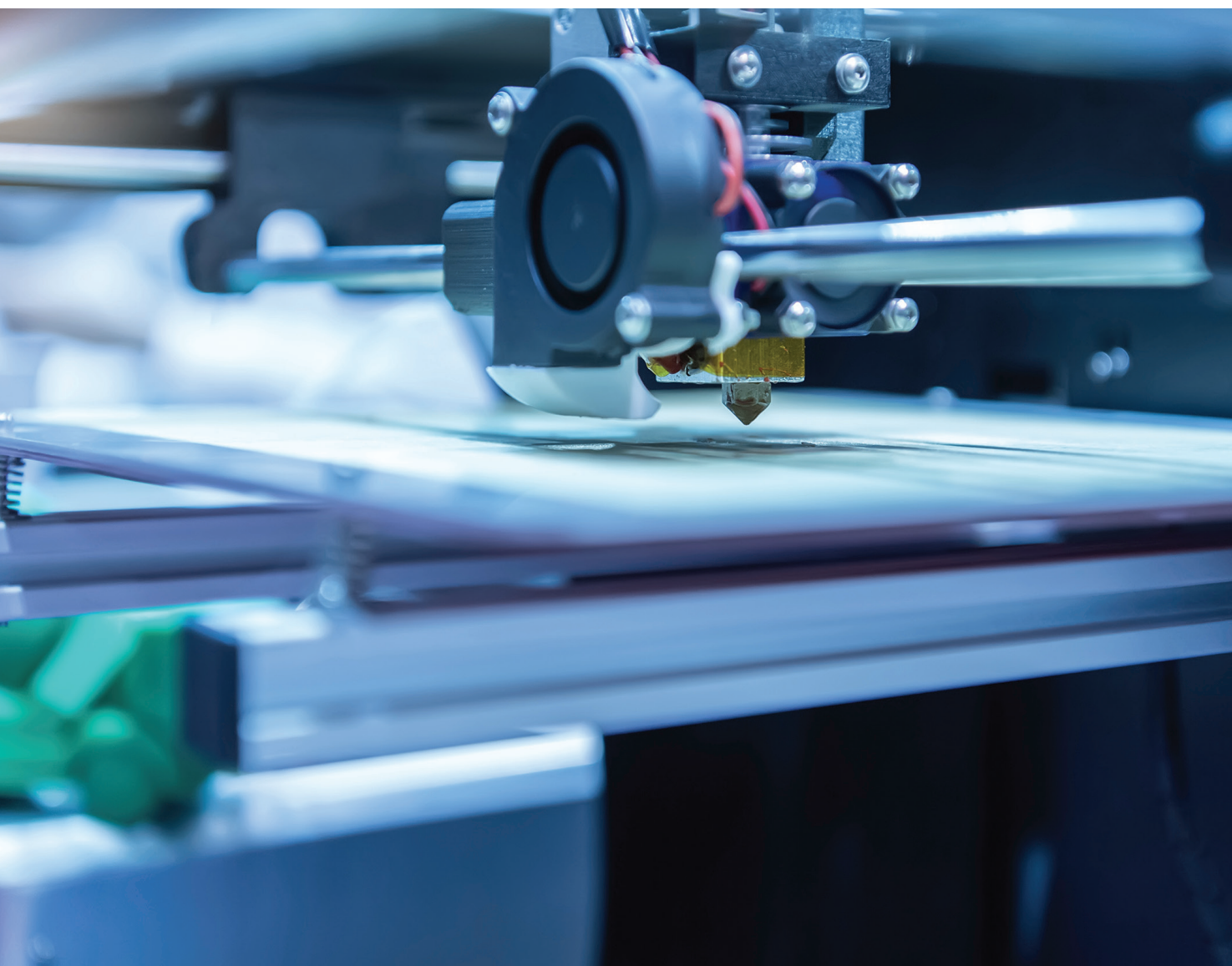


UV-A PRODUCTS

Image	Product	Wavelength	Package (mm)	Viewing Angle	Current (Typ.-Max. A)	Flux (Typ.-Max. W)
	SST-08	365nm	3.45×3.45	40° 130°	0.5-0.7	0.7-1.0
		385/395nm				0.9-1.3
		405nm				0.8-1.1
	SST-10	365nm	3.45×3.45	130°	0.5-1.5	0.9-1.5
		385nm				1.0-2.8
		395nm				1.0-2.8
		405/415nm				0.9-2.6
	SBT-10X	365nm	3.5×3.5	120°	1-3	1.1-2.4
		385/395nm				1.6-4.8
		405/415nm				1.4-4.2
	CBM-25X	385nm	26.5×16	Flat window	1-4	3.2-9.6
		405nm				3.2-9.6
	CBM-50X	365nm	26.5×16	Flat window	2-6	4.8-10.4
		385nm				6.0-18.0
		405nm				5.9-17.7
	CBT-90	405/415nm	28×26.75	Flat window	18-27	19.5-25.0
	CBM-120	365nm	28×26.75	Flat window	9-18	10.3-20.0
		385nm				14.4-32.0
		405nm				12.8-29.0
	CBM-160X	365nm	32×32	Flat window	3-9	13.2-35.0
		385nm				17.7-60.0
		405nm				17.7-60.0

UV-A LEDs

- ☞ Wide range of UVA wavelengths: 365 nm to 420 nm
- ☞ Vertical chip technology enables extremely high UV power from compact packages
- ☞ High conductivity copper core board and ceramic packages for thermal management
- ☞ Ideal solid state sources for 3D printing, fiber coupling and other etendue limited applications
- ☞ Integrated COB design for ease of system integration and optimum cooling
- ☞ Industry leading Watts/mm² from high current operation maximizes performance in curing and industrial applications
- ☞ Minimal product changes to support multi-year life-cycle of medical and Industrial equipment



*New - UV-B LEDs

- ☞ 310 nm and 340 nm LEDs designed for phototherapy, horticulture and life sciences are now available. Contact sales@luminus.com for more details.

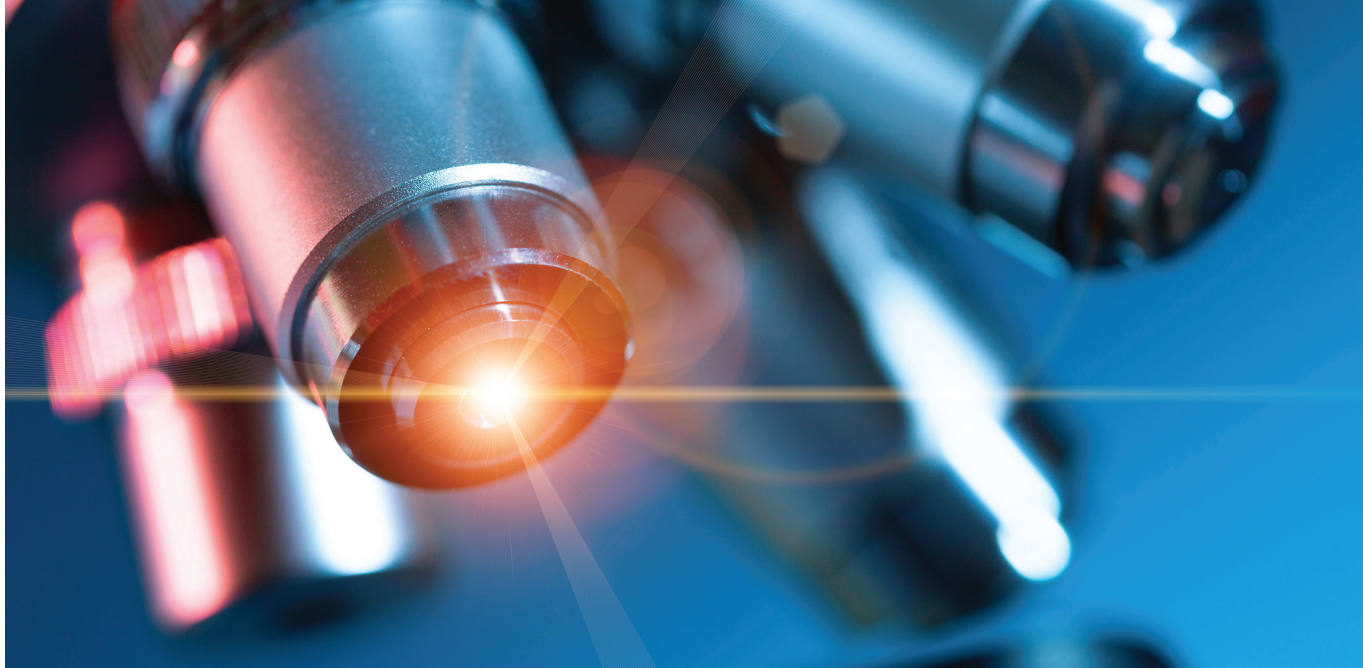
UV-C LEDs

- ☞ Wavelength options designed for a broad range of applications: 265 nm and 275 nm for disinfection and purification; 285 nm for horticulture.
- ☞ Wide range of power outputs from 3 mW-500 mW
- ☞ Viewing angle ranges from 60° to 150°
- ☞ Extensive range of power options to address a wide variety of applications- from surface disinfection to water and air purification applications
- ☞ High reliability, low thermal resistance packages enable drive currents up to 800 mA max
- ☞ Standard surface mount packages for easy integration


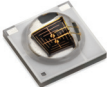
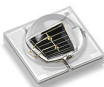
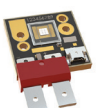



UV-C PRODUCTS

Image	Product	Wavelength	Package (mm)	Viewing Angle	Current (Typ.-Max. mA)	Flux (Typ.-Max. mW)	
	XBT-1313	270-280nm	SMT	1.3x1.3	150°	40-100	5-12
	XBT-3535-Mini	270-280nm		3.5x3.5	130°	150-225	14-36
	XBT-3535 Gen 2	260-285nm		3.5x3.5	130°	350-800	40-130
	XST-3535	270-280nm		3.5x3.5	60°	350-800	45-101
	XFM-5050-ES	270-280nm		5.0x5.0	150°	300-600	100-245
	XFM-5050 Gen 2	270-280nm		5.0x5.0	150°	500-800	120-300 150-420 225-500



INFRARED LEDs

Image	Product	Wavelength	Package (mm)	Viewing Angle	Current (Typ.-Max. A)	Flux (Typ.-Max. W)	
	SST-05-IR	850nm	SMT	3.45×3.45	40°, 70°	0.35-1	0.3-0.9
	SST-10-IR	850nm		3.45×3.45	90°, 130°	0.35-1.5	0.3-1.2
		940nm					0.2-0.9
	SST-10-IRD	810nm		3.45×3.45	90°, 130°	0.35-1.5	0.6-2.2
		850nm			50°, 90°, 130°		0.5-2.1
		940nm					
	CBM-90-IRD	780nm	COB	28×26.75	Flat window	13.5-18.0	10.5-14
		850nm					13-16.9
		940nm					
	CBM-120-FR	730nm		28×26.75	Flat window	9.0-18.0	6.5-10.7

Infrared LEDs

- ☞ Wavelength options include 730 nm, 780 nm, 810 nm, 850 nm and 940 nm
- ☞ Available in single and stacked junctions, with industry leading wall-plug efficiency
- ☞ Viewing angle options from 40° to 130° simplify optical design
- ☞ Best-in-class SMD products with solder pad compatibility to industry standard high power LEDs
- ☞ Short-pulse operation up to 5 A

High Power White SMD

- ☞ Product line ranging from 1W to over 60 W
- ☞ Monolithic emitters for best directionality and artifact-free far field
- ☞ SST series delivers superior directionality and throw distance
- ☞ SFT series is ideal for maximum throw distance or applications requiring optical coupling
- ☞ SBT series features a large, monolithic chip with uniform emitting area of 9 mm² and an extremely high optical output with up to 5,400 lumens at 18 A from a single chip

Applications:

- ☞ Portable & Personal Lighting
- ☞ Outdoor Directional Lighting
- ☞ Work-Lights
- ☞ Indoor Directional Lighting
- ☞ After-Market Automotive
- ☞ Machine Vision
- ☞ Stage Lighting Strobe Lights








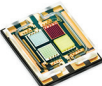




HIGH POWER WHITE SMD LEDs

Image	Product	CCT	CRI	Package (mm)	Viewing Angle	DC Current (Typ. - Max. A)	Luminous Flux (Min. - Max. lm)	
	SST-12-WxS	5000K-7500K	Min. 65, Typ. 70	SMT	3.45 × 3.45 × 2.00	120°	0.7-1.8	250-324 @ 0.7 A
	SST-12-WxH	2700K-4000K	Min. 95		3.45 × 3.45 × 2.00	120°	0.35-1.5	93-114 @ 0.35 A
	SST-20-WxS	5000K-7500K	Min. 65, Typ. 70		3.45 × 3.45 × 1.98	120°	1.5-3.0	585-665 @ 1.5 A
	SST-20-WxH	2700K-4000K	Min. 95		3.45 × 3.45 × 1.98	120°	0.35-2.0	100-139 @ 0.35 A
	SST-40-WxS	5000K-7500K	Min. 65, Typ. 70		5.00 × 5.00 × 3.01	120°	1.5-6.0	594-713 @ 1.5 A
	SST-70X-WxS	5000K-6500K	Min. 65, Typ. 70		5.00 × 5.00 × 3.01	135°	1.5-5.25 (6V) 0.75-2.625 (12V)	1120-1380 @ 1.5 A
	SFT-40-WxS	5000K-6500K	Min. 65, Typ. 70		5.00 × 5.00 × 1.03	120°	1.5-8.0	594-673 @ 1.5 A
	SFT-70X-WxS	5000K-6500K	Min. 65, Typ. 70		5.00 × 5.00 × 1.03	120°	1.5-7.0 (6V) 0.75-3.5 (12V)	1120-1290 @ 1.5 A
	SBT-90-W	5700K	Min. 65, Typ. 70		11.00 × 10.00 × 1.54	120°	9.0-18.0	2780-3200 @ 9 A

COLOR SMDs

Image	Product	Color		Package (mm)	Viewing Angle	Current (Typ.-Max. A)	Flux* (Typ.-Max.)	
	SST-10	B	450nm	3535 SMT	3.45×3.45	90°,130°	0.35-1.5	630-2160mW
		SB	470nm					41-147
		G	527nm					148-421
		R	621nm					71-284
		DR	660nm					450-1800mW
		FR	730nm					310-1240mW
	SST-20	B	450nm	3535 SMT	3.45×3.45	120°	0.35-3.0	750-4100mW
		DR	660nm					1030-2600mW
	SFT-10	B	455nm	3535 EMC	3.50×3.50	Windowless	0.7-4.0	34-119
		CG	555nm					305-1140
		RA	613nm					120-348
	SFT-14	B	455nm	3535 EMC	3.50×3.50	Windowless	0.98-5.6	45-166
		CG	555nm					45-166
		RA	613nm					158-513
	SFT-20	B	455nm	3535 EMC	3.50×3.50	Windowless	1.4-8.0	80-265
		CG	555nm					520-1820
		RA	613nm					240-615
	SBT-90	R	620nm	SMT	11.0×10.0	Flat window	9.0-13.5	945-1350
	SBM-40 LC	R	622nm	SMT	5.75×4.68	Flat window	0.7-1.0	45-133
		G	527nm					112-281
		B	455nm					630-1260mW
		W	6500K					140-295
	SBM-40 SC	R	623nm	SMT	5.75×4.68	Flat window	1.0-2.0	90-253
		G	525nm					210-404
		B	454nm					1.0-2.3W
		W	6500K					210-543
	SBM-40 HC	R	623nm	SMT	5.75×4.68	Flat window	1.0-3.0	110-280
		G	525nm					220-500
		B	454nm					1.1-3.4W
		W	6500K					270-800

* In lumens unless stated otherwise

Color Surface Mount Series

- ☞ Low thermal resistance
- ☞ High current density (up to 4 A/mm²)
- ☞ Surface Mount Device package form factor enables flexibility to size conscious designs
- ☞ SST series blue and deep red ideal for horticulture applications
- ☞ SFT-10 / SFT-20 series RGB ideal for projection display applications
- ☞ SBM-40 series features four high intensity die closely packaged for easier optical color-mixing



Specialty Color and White COBs

- ☞ Monolithic emitters for best directionality and artifact free far field
- ☞ Designed for optimal coupling into a light engines or optical fiber bundles
- ☞ Large operating current density from $\ll 1 \text{ A/mm}^2$ to $3\text{-}4 \text{ A/mm}^2$ in continuous mode
- ☞ Extremely good reliability under CW and pulse conditions
- ☞ Low thermal resistance chip-on-board packaging technology
- ☞ Available in different emission area and wavelengths covering the whole visible range
- ☞ White spectrums available at multiple color points with low and high CRI options
- ☞ Long product life cycles, aligned with end systems life cycles in medical and industrial market

Applications:

- ☞ Life Sciences and Medical
- ☞ Entertainment and Stage Lighting
- ☞ Industrial and Machine Vision
- ☞ High-Power Xenon, Halogen and Metal-Halide Replacement Solutions

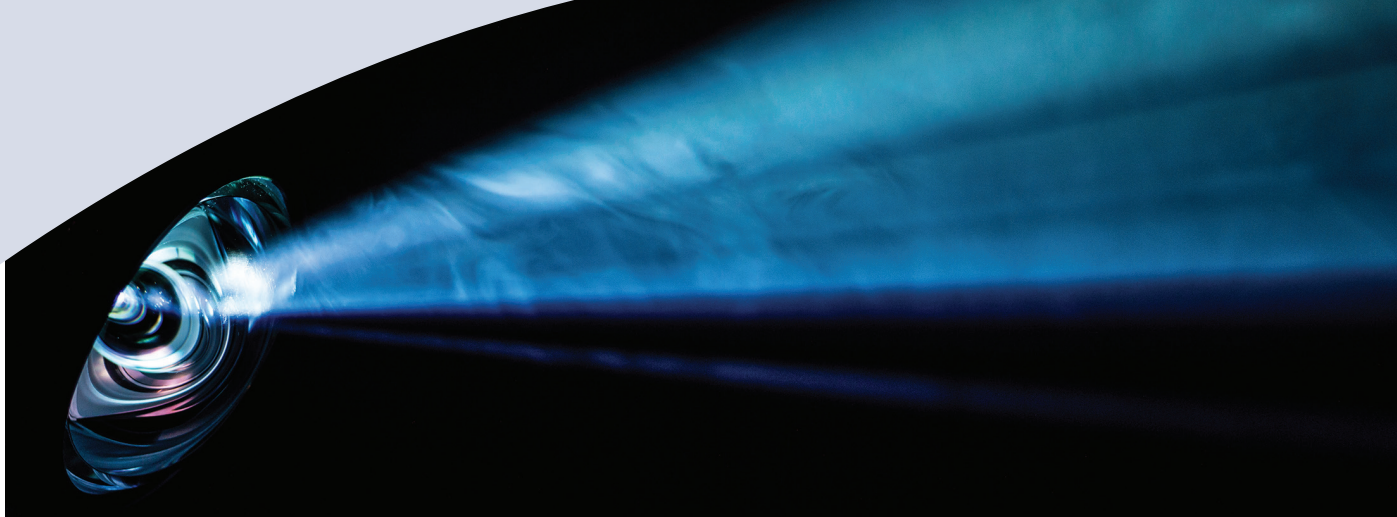




SPECIALTY WHITE AND COLOR COBs

Image	Product	CCT	CRI/Wav	Package (mm)	Optical Interface	Current (Typ.-Max. A)	Flux* (Typ.-Max.)	
	CBM-40-SB	Sky Blue	470nm	COB	26.5×16	Flat Window	6.0	5.5-6.5W
	CFT-50X	CFT-50X	70		26.5×18	Windowless	12.5-15.0	3000-3300
		6000K, WDH	90					1700-1900
	CBT-90	5700/6500K	70		28×26.75	Flat window	18.0	2200-2500
	CFT-90	5700/6500/7800K	70		28×26.75	Windowless	22.5-27.0	5500-6000
		5700K, WDH	93					3000-3400
	CBT-140	6500K, WCS	70		28×26.75	Flat window	21.0-28.0	4200-5000
		5700K, WDH	92					3400-4000
	PT-39 L21	B	460nm		26.5×16	Flat window	5.9-9.8	210-300
	PT-39 L51	DR	650nm		21.85×15	Flat window	7.5-10.0	3.6-4.5W
		G	520nm					2.9-3.6W
	CBT-90	B	460nm		28×26.75	Flat window	13.5-27.0	500-750
		G	527nm					2100-3360
		RX	620nm					1030-1130
	CFT-90	CG	576nm	28×26.75	Windowless	22.5-27.0	12.5-14W	
	CBM-120	FR	730nm	28×26.75	Flat window	9.0-18.0	6.5-10.7W	
	PT-121	B	460nm	28×26.75	Flat window	18.0-30.0	620-860	
		G	525nm				3640-5200	
		RAX	613nm				1485-2650	

* In lumens unless stated otherwise



PROJECTION

Image	Product	Color		Package (mm)	Optical Interface	Current (Typ.-Max. A)	Flux* (Typ.~Max.)	Compatible DMD** size		
	SFM-03X	B	455nm	3030 EMC	3.0×3.0	Windowless	Coming Soon Contact Luminus		0.16" or below	
RA		613nm								
	SFT-03X	G	555nm		3.0×3.0	Windowless	Coming Soon Contact Luminus		0.16" or below	
W		5700K								
	SFM-06X	B	455nm		3535 EMC	3.0×3.0	Windowless	0.5-1.5	0.70-1.60W	0.20" , 0.30"
RA		613nm	78-141							
	SFT-10	B	455nm			3.50×3.50	Windowless	0.7-5.0	0.95-3.7W	0.20" , 0.30"
CG		555nm	305-1200							
RA		613nm	120-360							
	SFT-14	B	455nm	3.50×3.50		Windowless	0.98-6.0	1.5-6.3W	0.20" , 0.30"	
G		555nm	490-1960							
RA		555nm	158-530							
	SFT-20 (5 A/mm ²)	B	455nm	3.50×3.50	Windowless	1.4-10.0	2.2-9.2W	0.30" , 0.33"		
CG		555nm	620-2400							
RA		613nm	240-750							
	SFT-20X (6 A/mm ²)	B	455nm	7070 EMC	7.00×7.00	Windowless	Coming Soon Contact Luminus		0.30" , 0.33"	
CG		555nm								
RA		613nm								
	PT-26 (5 A/mm ²)	B	454nm	COB	21.0×15.5	Windowless	6.5-13.0	7.0-10.7W	0.33"	
CG		555nm	2300-3560							
RA		613nm	830-1050							
	PT-26 (6 A/mm ²)	B	455nm		21.0×15.5	Windowless	Contact Luminus		0.33"	
CG		555nm								
RA		613nm								
	PTM-40X	B	455nm		27.0×15.5	Windowless	8.0-12.0	13.0-16.2W	0.45" , 0.47"	
CG		555nm	5600-6800							
RA		613nm	8.0	1790						
	PT-121	B	460nm	28×26.75	Flat window	30.0-36.0	1000-1050	0.70" , 0.80" , 0.90"		
G		525nm	5200-5500							
RAX		613nm	2650-2860							

* In lumens unless stated otherwise

** Digital Micro Display

Projection LEDs

- ☞ High current density Red/Green/Blue for maximal projector output up to CG & B 6 A/mm² RA 4 A/mm²
- ☞ Solutions optimized for micro-displays ranging from 0.16" to 0.95", including optimized chipsets matched to TI DLP™ 0.16", 0.2x", 0.3x" and 0.4x" DMDs maximizing performance as well as system level efficiency
- ☞ Combined high performance and high reliability
- ☞ Ideal for projection and micro display, heads up display, Augmented/Mixed Reality (AR/MR), industrial applications and home theater



IMPROVING LIFE WITH PHOTONS™

Automotive LEDs

Lighting has become an integral component of the development of modern vehicles, contributing to improvements in active and passive safety and increasingly becoming a central element of both exterior and interior styling.

Megatrends such as vehicle electrification, shared mobility, and autonomous vehicles have also created new requirements as well as opportunities in the automotive environment.

Projection technologies bring unique capabilities to address these, whether related to safety, vehicle personalization or emerging value-added applications.

The growing list of automotive projection applications includes:

- ✎ Augmented Reality Heads-Up Displays (AR HUD)
- ✎ Holographic Head-Up Displays
- ✎ Interior Dynamic Lighting
- ✎ Exterior personalization and styling via dynamic ground projection
- ✎ Side or rear windows projection
- ✎ Vehicle to X communication and warning by projecting dynamic content on the ground around the car
- ✎ Headlights with mega-pixel resolution supporting Adaptive Driving Beams (ADB) and projection of complex symbols

With over 20 years experience in LED projection systems, Luminus is developing Automotive-qualified LED chipsets addressing the unique needs of these applications.





Product Highlights

- ☞ Optimum performance/efficiency: LED solutions designed for each application's optical requirements and features, maximizing efficiency and performance within light engine size and input power constraints.
- ☞ Scalable chipset offering matched to automotive-qualified micro-displays, including Texas Instruments' DLPTM Digital Micro-Displays (DMD):
 - DLP202x-Q1 (0.2" class - 588 x 330 pixels)
 - DLP302x-Q1 (0.3" class - 864 x 480 pixels)
 - DLP46xx-Q1(0.46" class - 960 x 480 pixels)
 - DLP55xx-Q1 (0.55" class - 1152 x 576 pixels)
- ☞ Matched red-green-blue chipsets for full color display and dynamic lighting applications
- ☞ White LEDs for monochromatic dynamic ground projection and forward lighting applications
- ☞ AEC-Q102 Qualification in process

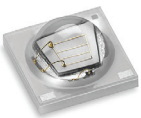
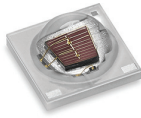
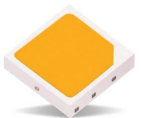
Horticulture LEDs

- Selection of SMD, midpower and COB series
- High PPF efficacy across a plant's life cycle
- Mid Power LEDs used for optimal PPF/W and low PPF/\$
- High Power LEDs used to boost spectrum at 660 nm and 730 nm
- COB LED horticulture product line used for compact fixtures

Luminus' horticulture LEDs offer industry leading performance in terms of PPF (Photosynthetic Photon Flux) and PPF/W metrics and come in a variety of package types ranging from mid-power to high power LEDs.

Visit <https://calculator.luminus.com/horticulture> to select the optimized solution for your application.

HORTICULTURE LEDs

	Image	Product	Wavelength/CCT	Viewing Angle	Test Current (mA)	Max. Current (A)	Forward Voltage (V)
3535 SMD		SST-10-B	450nm	90°/130°	350	1.5	2.90
		SST-20-B	450nm	120°	350	3.0	2.80
		SST-10-DR	660nm	90°/130°	350	1.5	2.10
		SST-20-DR	660nm	120°	700	2.0	2.10
		SST-10-FR	730nm	90°/130°	350	1.5	1.90
	MP-3030-120H	30-80	120°	65	400	2.68	
		40-80					
		50-80					
		57-80					



Typ. lm	Typ. mW	WPE/LPW	PPF(μmol/s) 360-830nm	PPF/W(μmol/J) 360-830nm	PPF(μmol/s) 400-700nm	PPF/W(μmol/J) 400-700nm
21.0	630	62%	2.38	2.34	2.37	2.33
23.0	710	72%	2.68	2.73	2.67	2.72
	525	72%	2.88	3.92	2.87	3.90
	1050	72%	5.76	3.92	5.74	3.90
	420	44%	2.53	3.80	0.19	0.29
37.5	119	215lm/W	0.58	3.35	0.57	3.24
39.5	123	227lm/W	0.58	3.34	0.56	3.20
39.5	126	227lm/W	0.58	3.35	0.57	3.24
39.5	125	227lm/W	0.58	3.35	0.56	3.23

Applications Engineering Support & Help Desk

Luminus' FAQ and Applications Page

<https://luminusdevices.zendesk.com/hc/en-us>

In 2021, Luminus launched a help desk site to answer questions about Luminus LEDs, lighting challenges and solutions, LED design guidelines, general articles about LEDs, useful websites, apps and more.



Application Notes, Design Files, Ecosystem Solution and Online Calculators

www.luminus.com

Development Kits

Available for purchase to evaluate a wide range of configurations and operating modes.

SnapEDA

www.snapeda.com

Luminus' electronic design library files are available on SnapEDA. 3D step files, symbols and footprints are available in a wide variety of formats including Altium, Eagle, Pads, OrCAD, and more.



Ecosystem Partners

Luminus has partnered with experts in developing and manufacturing LED components and light engines in an effort to assist our customers in expediting time to market. For a complete listing of all Luminus' ecosystem partners visit www.luminus.com/resource/ecosystem.

Find Us Online

Stay up to date with product releases, corporate news and more.
[@LuminusDevices](https://twitter.com/LuminusDevices).





CONTACT US

Luminus Devices, Inc.

US Headquarters
1145 Sonora Ct.
Sunnyvale, CA 94086, USA
sales@luminus.com
www.luminus.com

European Sales Office

High Tech Campus 10
5656 AE Eindhoven
The Netherlands
+31 6 2494 5252

Luminus Devices, Inc (Xiamen)

Operations Office
7th Floor, Building A1, No. 506-508,
Guojin Plaza, Qianpu Road, Xiamen, Fujian, China
Shunping Chen: +86-18620399565
Leon Li: +86-13860446602
Tel: +86-592-5500727
shunping.chen@luminus.com
leon.li@luminus.com



Improving Life with Photons™