

Product Guide

Components

**Fusion[®]
Optix**

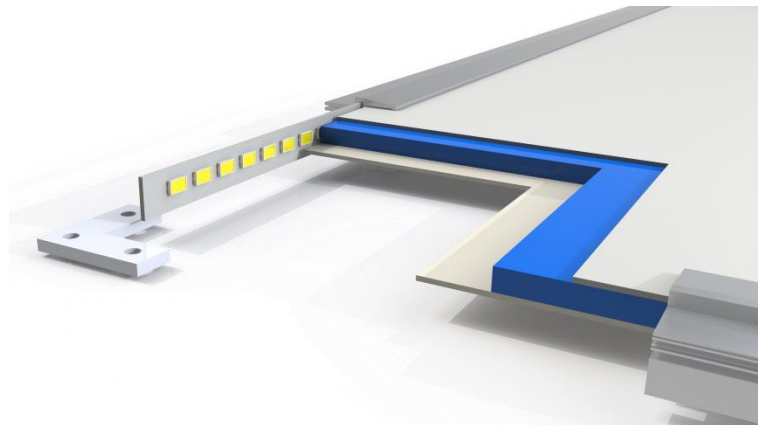


Bright Minds
Make
Light Work[®]

LEDs have redefined the boundaries of lighting design, efficiencies and performance. When it comes to light output per watt LEDs outperform both incandescent and fluorescent light sources.

This outstanding performance, however, can easily be hindered by inefficient optical design and materials.

Fusion Optix products aim at unlocking the full potential of LEDs by maximizing optical efficiency while at the same time reduce costs by innovating in materials, design and manufacturing processes.



BENEFITS

- Some of the industry's highest system efficiencies and performance
- Exceptional light control
- Extremely customizable beam profiles, optical and mechanical properties
- Low-cost manufacturing processes
- Rigorous quality assurance

PRODUCT FAMILIES

LED Light Engines



Unlimited Customizability and Scalability at >120 lm/W

Light Guides



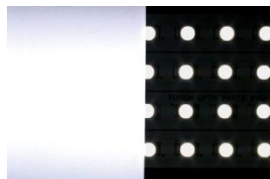
Ultra Thin Designs and Double-Sided Extraction

Array Optics



TIR for Various Beam Profiles at a Fraction of the Cost

Light Diffusers



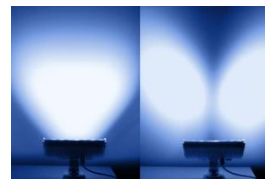
LED Hiding, Surface Uniformity and Glare Reduction

Reflective Components



97% Diffuse Reflectivity

Beam Shapers



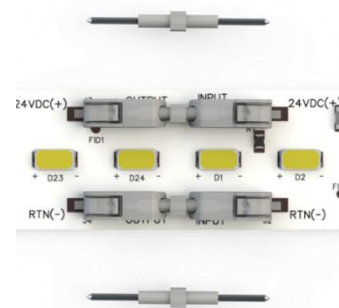
Reduce Glare and Increase Head-On Brightness

LED LIGHT ENGINES

Based on proprietary PCB layouts and thermal management solutions Fusion Optix LED boards offer a wide choice of LED layouts. They are designed to be used in edge or direct lighting and utilize LEDs from major suppliers to ensure the best performance in a particular application.

BENEFITS

- Simpler Fixture Design
- Efficiencies of >120 lm/W
- Unlimited Scalability
- Compatible with 0-10V Dimming Systems
- Up to 50,000 Hour Life
- Designed for On-Board Optics
- Low Cost Customization
- Rapid Turnaround Times

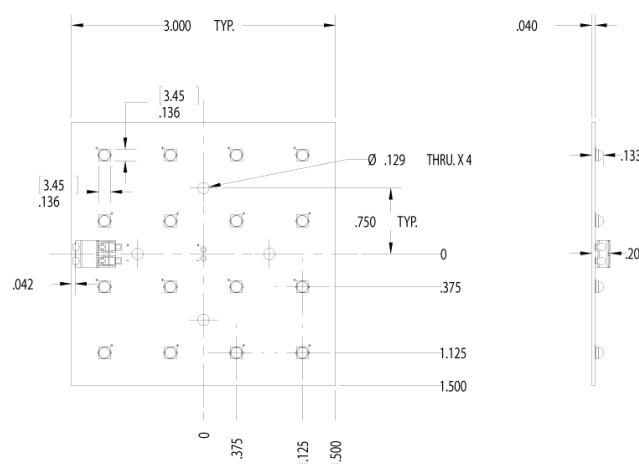
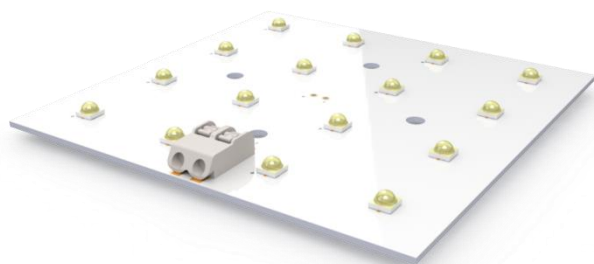


Easy to Scale



Designed for On-Board Optics

SQUARE76 SERIES



Part Number	CCT (K)	Optimized Current (mA)	Current Range (mA)	Voltage Range (VDC)	Power (W)	Lumens Out*	Efficacy (lm/W)*
FOM01-0045-0000	3000	700	400-2400	22 – 24	8.8 - 57.6	1600	99
FOM01-0045-0001	3500						
FOM01-0045-0002	4000						

LED LIGHT ENGINES

FLEX SERIES

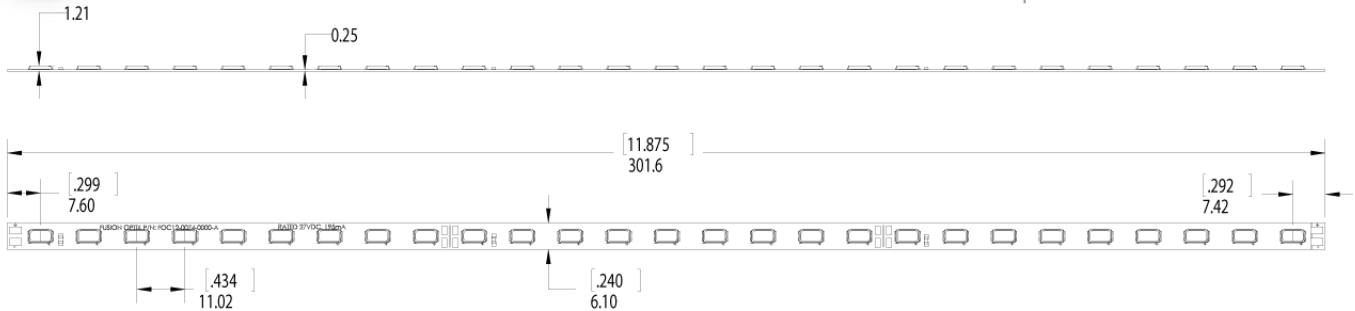
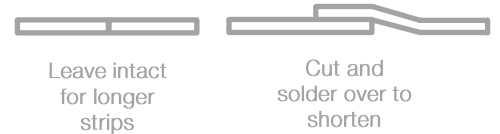


The ultimate flexibility. The flexible form factor allows reduction in the number of components and variability in length.

LENGTH VARIABILITY



Cutable Every 100mm



Description	Part Number	CCT (K)	Optimized Current (mA)	Current Range (mA)	Voltage Range (VDC)	Power (W)	Lumens Out*	Efficacy (lm/W)*
FLEX302L	FOM01-1007-0000	2700	195	90-450	24.84 – 29.16	2.2 -13.2	730	143
	FOM01-1007-0001	3000					730	143
	FOM01-1007-0002	3500					750	148
	FOM01-1007-0003	4000					770	151
	FOM01-1007-0004	5000					810	159

*at optimized current

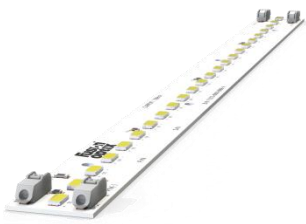
305 SERIES LINEAR



Part Number	LED Board PN	Dim.	LED Count	LED Package Type	CCT	Lumens Out
FOM01-0046-0000	FOC13-0056-0000	304.5m m x 12.7mm	12	6550	3000K	1045
FOM01-0046-0001					3500K	1045
FOM01-0046-0002					4000K	1127
FOM01-0047-0000	FOC13-0057-0000		24		3000K	2095
FOM01-0047-0001					3500K	2095
FOM01-0047-0002					4000K	2250

LED LIGHT ENGINES

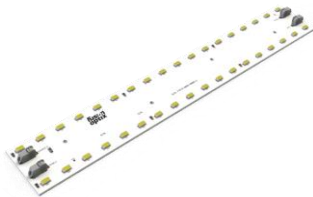
280 SERIES LINEAR



Single Row

Description	Part Number	CCT (K)	Optimized Current (mA)	Current Range (mA)	Voltage Range (VDC)	Power (W)	Lumens Out*	Efficacy (lm/W)*
Low Voltage / High Current	FOM01-1001-0000	2700	600	280 - 800	17.3 - 18.8	4.8 - 15.0	1260	115
	FOM01-1001-0001	3000					1310	120
	FOM01-1001-0002	3500					1390	127
	FOM01-1001-0003	4000					1400	128
	FOM01-1001-0004	5000					1420	130
High Voltage / Low Current	FOM01-1004-0000	2700	300	140 - 400	34.5 - 37.6		1260	115
	FOM01-1004-0001	3000					1310	120
	FOM01-1004-0002	3500					1390	127
	FOM01-1004-0003	4000					1400	128
	FOM01-1004-0004	5000					1420	130

Description	Part Number	CCT (K)	Optimized Input Current (mA)	Current Range (mA)	Voltage Range (VDC)	Power (W)	Lumens Out*	Efficacy (lm/W)*
Low Voltage / High Current	FOM01-1002-0000	2700	900	420 - 1200	17.3-18.8	7.2 - 22.5	1900	115
	FOM01-1002-0001	3000					1970	120
	FOM01-1002-0002	3500					2090	127
	FOM01-1002-0003	4000					2100	128
	FOM01-1002-0004	5000					2140	130
High Voltage / Low Current	FOM01-1005-0000	2700	450	210 - 600	34.5-37.6		1900	115
	FOM01-1005-0001	3000					1970	120
	FOM01-1005-0002	3500					2090	127
	FOM01-1005-0003	4000					2100	128
	FOM01-1005-0004	5000					2140	130



Double Row

Description	Part Number	CCT (K)	Optimized Input Current (mA)	Current Range (mA)	Voltage Range (VDC)	Power (W)	Lumens Out*	Efficacy (lm/W)*
Low Voltage / High Current	FOM01-1003-0000	2700	1200	560 - 1600	17.3-18.8	9.6 - 30.0	2530	115
	FOM01-1003-0001	3000					2630	120
	FOM01-1003-0002	3500					2790	127
	FOM01-1003-0003	4000					2800	128
	FOM01-1003-0004	5000					2850	130
High Voltage / Low Current	FOM01-1006-0000	2700	600	280 - 800	34.5-37.6		2530	115
	FOM01-1006-0001	3000					2630	120
	FOM01-1006-0002	3500					2790	127
	FOM01-1006-0003	4000					2800	128
	FOM01-1006-0004	5000					2850	130



Triple Row

*at optimized current

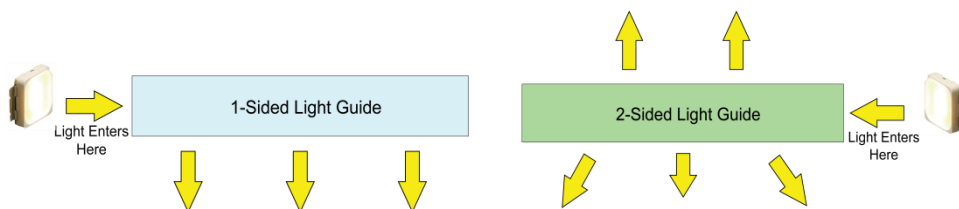
LIGHT GUIDES FOR EDGE LIGHTING

Fusion Optix light guides enable extremely sleek and interesting fixtures without sacrificing efficiency or light control.

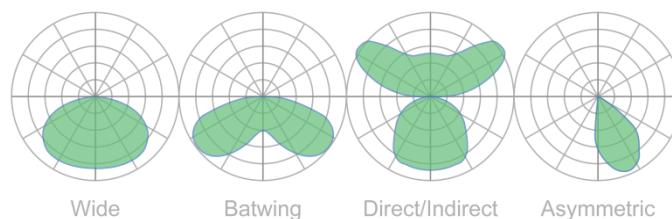
Benefits

- High Transmission and Extraction Efficiencies
- Exceptional Extraction Uniformity
- Precise Light Control
- Great choice of beam profiles
- 2-sided Light Extraction
- Enabling Ultra-Thin Fixture Designs

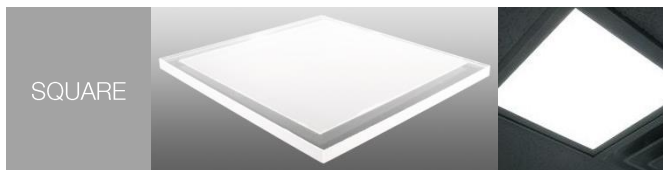
One and Two Sided Extraction



Choice of Beam Profiles



STANDARD PARTS



Part number	LED Sides	Extraction Side	Size (mm)	Thickness (mm)
FOC07-1001-0000	Single-Edge	Single	87 x 87	4.5
FOC07-1002-0000	Single-Edge	Single	137 x 137	4.5
FOC07-1003-0000	Single-Edge	Single	188 x 188	4.5
FOC07-1004-0000	Single-Edge	Single	239 x 239	4.5
FOC07-1005-0000	Single-Edge	Single	290 x 290	4.5
FOC07-1006-0000	Single-Edge	Single	595 x 595	4.5
FOC07-1007-0000	Double-Edge	Single	87 x 87	4.5
FOC07-1008-0000	Double-Edge	Single	137 x 137	4.5
FOC07-1009-0000	Double-Edge	Single	188 x 188	4.5
FOC07-1010-0000	Double-Edge	Single	239 x 239	4.5
FOC07-1011-0000	Double-Edge	Single	290 x 290	4.5
FOC07-1012-0000	Double-Edge	Single	595 x 595	4.5
FOC07-1013-0000	Single-Edge	Double	87 x 87	4.5
FOC07-1014-0000	Single-Edge	Double	137 x 137	4.5
FOC07-1015-0000	Single-Edge	Double	188 x 188	4.5
FOC07-1016-0000	Single-Edge	Double	239 x 239	4.5
FOC07-1017-0000	Single-Edge	Double	290 x 290	4.5
FOC07-1018-0000	Single-Edge	Double	595 x 595	4.5
FOC07-1019-0000	Double-Edge	Double	87 x 87	4.5
FOC07-1020-0000	Double-Edge	Double	137 x 137	4.5
FOC07-1021-0000	Double-Edge	Double	188 x 188	4.5
FOC07-1022-0000	Double-Edge	Double	239 x 239	4.5
FOC07-1023-0000	Double-Edge	Double	290 x 290	4.5
FOC07-1024-0000	Double-Edge	Double	595 x 595	4.5

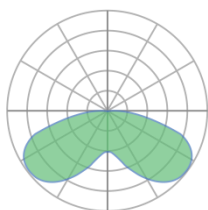
Part number	LED Sides	Extraction Side	Size (mm)	Thickness (mm)
FOC07-1025-0000	Single-Edge	Single	290 x 36	4.5
FOC07-1026-0001	Single-Edge	Single	595 x 36	4.5
FOC07-1027-0002	Single-Edge	Single	290 x 87	4.5
FOC07-1028-0003	Single-Edge	Single	595 x 87	4.5
FOC07-1029-0004	Single-Edge	Single	1204 x 87	4.5
FOC07-1030-0005	Single-Edge	Single	1204 x 267	4.5
FOC07-1031-0006	Double-Edge	Single	290 x 36	4.5
FOC07-1032-0007	Double-Edge	Single	595 x 36	4.5
FOC07-1033-0008	Double-Edge	Single	290 x 87	4.5
FOC07-1034-0009	Double-Edge	Single	595 x 87	4.5
FOC07-1035-0010	Double-Edge	Single	1204 x 87	4.5
FOC07-1036-0011	Double-Edge	Single	1204 x 267	4.5
FOC07-1037-0012	Single-Edge	Double	290 x 36	4.5
FOC07-1038-0013	Single-Edge	Double	595 x 36	4.5
FOC07-1039-0014	Single-Edge	Double	290 x 87	4.5
FOC07-1040-0015	Single-Edge	Double	595 x 87	4.5
FOC07-1041-0016	Single-Edge	Double	1204 x 87	4.5
FOC07-1042-0017	Single-Edge	Double	1204 x 267	4.5
FOC07-1043-0018	Double-Edge	Double	290 x 36	4.5
FOC07-1044-0019	Double-Edge	Double	595 x 36	4.5
FOC07-1045-0020	Double-Edge	Double	290 x 87	4.5
FOC07-1046-0021	Double-Edge	Double	595 x 87	4.5
FOC07-1047-0022	Double-Edge	Double	1204 x 87	4.5
FOC07-1048-0023	Double-Edge	Double	1204 x 252	4.5

SECONDARY OPTICS

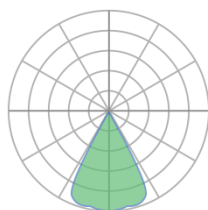
Fusion Optix array optics act similarly to conventional TIR optics but with greater than 90% efficiency and for a fraction of the cost due to the integration of multiple TIR lenses into a single component. All array optics match our standard LED boards enabling various beam profiles straight out of the box.

BENEFITS

- Can cover any number of LEDs
- Choice of beam angles
- Reduced cost and BOM
- No mounting brackets
- Low-cost customization



45° Batwing



40° Symmetric



Linear



Square

Part Number	Beam Profile	Dimension W x L	Thickness	Pairs with LED Module
FOC06-0004-0003	45° Batwing	304.8mm x 25.4mm	9mm	FOM01-0046-XXXX
FOC06-0005-0003				FOM01-0047-XXXX
FOC06-0004-0001	40° Symmetric			FOM01-0046-XXXX
FOC06-0005-0001				FOM01-0047-XXXX
FOC06-0006-0001	60° Symmetric	101.6mm x 101.6mm		FOM01-0045-XXXX

Applications:

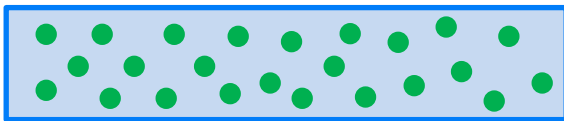
Direct-lit outdoor or indoor linear or square fixtures that require precise high-performance and low-cost beam control, including reading lights, pendants, down lights and street lights.



LIGHT DIFFUSERS

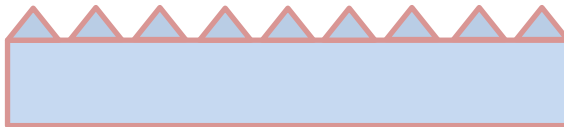
The Fusion Optix product family of light diffusers provides new levels of efficiency and light control for advanced LED lighting applications and is a significant advancement over simple embossed "holographic" or bulk diffusion approaches.

Volumetric Diffusion (Fusion Optix)



Diffusion Particles Suspended within the Volume of the Diffuser Protected from the Elements

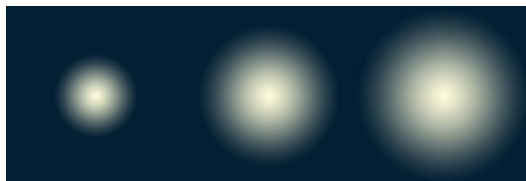
Holographic Diffusion (Competitors)



Diffusion Features on Top of Substrate Exposed to the Elements

CHOICE OF DIFFUSION ANGLES

Symmetrical (Circular)

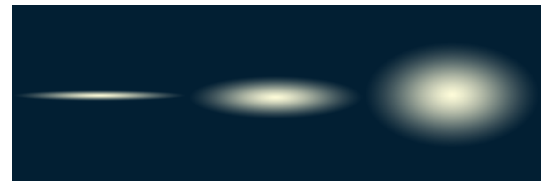


20°x20°

60°x60°

80°x80°

Asymmetrical (Elliptical)

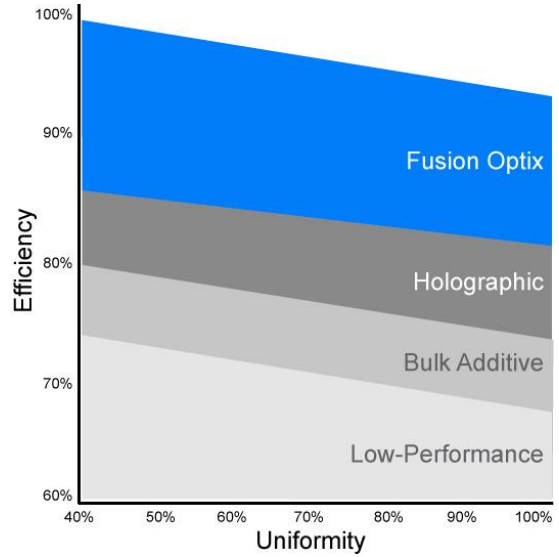


60°x1°

80°x20°

40°x20°

Exceptional Efficiency

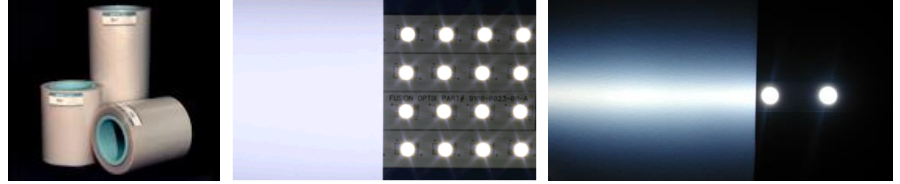


BENEFITS

- Highest Overall Efficiency on the Market
- Exceptional Uniformity
- Wide Choice of Diffusion Angles
- Available in PC and PMMA
- Wide Choice of Form Factors
- Mechanical, UV and Thermal Resistance
- Low Cost Customization Options

LIGHT DIFFUSERS – STANDARD PRODUCTS


Diffusion Film Rolls




Part Number	Part Description	Diffusion Angle	Transmission	Haze	Clarity
FOR04-0006-0000	PCCS-6001-A80, 6in x 500ft	60° x 01°	94%	75%	15.0%
FOR04-0033-0000	PCCS-8020-A110, 6in x 500ft	80° x 20°	79%	100%	3.2%
FOR04-0034-0000	PCCS-7040-A140, 6in x 500ft	70° x 40°	85%	100%	2.7%
FOR04-0008-0000	PCCS-4020-A190, 6in x 500ft	40° x 20°	93%	95%	4.0%
FOR04-0030-0000	PCCS-2020-A110, 6in x 500ft	20° x 20°	93%	95%	4.0%
FOR04-0014-0000	PCCS-4040-A200, 6in x 500ft	40° x 40°	92%	99%	3.0%
FOR04-0018-0000	PCCS-6060-A380, 6in x 500ft	60° x 60°	89%	100%	2.7%
FOR04-0020-0000	PCCS-8080-A550, 6in x 500ft	80° x 80°	80%	100%	2.2%
FOR04-0006-0001	PCCS-6001-A80, 10in x 500ft	60° x 01°	94%	75%	15.0%
FOR04-0033-0001	PCCS-8020-A110, 10in x 500ft	80° x 20°	79%	100%	3.2%
FOR04-0034-0001	PCCS-7040-A140, 10in x 500ft	70° x 40°	85%	100%	2.7%
FOR04-0008-0001	PCCS-4020-A190, 10in x 500ft	40° x 20°	93%	95%	4.0%
FOR04-0030-0001	PCCS-2020-A110, 10in x 500ft	20° x 20°	93%	95%	4.0%
FOR04-0014-0002	PCCS-4040-A200, 10in x 500ft	40° x 40°	92%	99%	3.0%
FOR04-0018-0001	PCCS-6060-A380, 10in x 500ft	60° x 60°	89%	100%	2.7%
FOR04-0020-0001	PCCS-8080-A550, 10in x 500ft	80° x 80°	80%	100%	2.2%
FOR04-0035-0000	PMMA-2020-A150, 6in x 500ft	20° x 20°	93%	95%	4.0%
FOR04-0036-0000	PMMA-4040-A320, 6in x 500ft	40° x 40°	92%	99%	3.0%
FOR04-0037-0000	PMMA-6060-A550, 6in x 500ft	60° x 60°	89%	100%	2.7%
FOR04-0038-0000	PMMA-8080-A790, 6in x 500ft	80° x 80°	80%	100%	2.2%
FOR04-0035-0001	PMMA-2020-A150, 10in x 500ft	20° x 20°	93%	95%	4.0%
FOR04-0036-0001	PMMA-4040-A320, 10in x 500ft	40° x 40°	92%	99%	3.0%
FOR04-0037-0001	PMMA-6060-A550, 10in x 500ft	60° x 60°	89%	100%	2.7%
FOR04-0038-0001	PMMA-8080-A790, 10in x 500ft	80° x 80°	80%	100%	2.2%

LIGHT DIFFUSERS – STANDARD PRODUCTS

Flexible 2D Diffusers



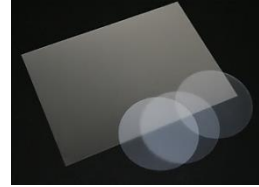
Rectangular	FO Part Number	Item Description	Dimension	Thickness	Material	Diffusion Angle	Trans	Haze	Clarity
	FOC01-1026-0000	Rectangular Flexible Diffuser	289.8 x 35.8 mm	0.11 mm	PC	20° x 20°	93%	95%	4%
	FOC01-1026-0001	Rectangular Flexible Diffuser	289.8 x 35.8 mm	0.2 mm	PC	40° x 40°	92%	99%	3%
	FOC01-1026-0002	Rectangular Flexible Diffuser	289.8 x 35.8 mm	0.38 mm	PC	60° x 60°	89%	100%	3%
	FOC01-1026-0003	Rectangular Flexible Diffuser	289.8 x 35.8 mm	0.55 mm	PC	80° x 80°	80%	100%	2%
	FOC01-1027-0000	Rectangular Flexible Diffuser	594.6 x 35.8 mm	0.11 mm	PC	20° x 20°	93%	95%	4%
	FOC01-1027-0001	Rectangular Flexible Diffuser	594.6 x 35.8 mm	0.2 mm	PC	40° x 40°	92%	99%	3%
	FOC01-1027-0002	Rectangular Flexible Diffuser	594.6 x 35.8 mm	0.38 mm	PC	60° x 60°	89%	100%	3%
	FOC01-1027-0003	Rectangular Flexible Diffuser	594.6 x 35.8 mm	0.55 mm	PC	80° x 80°	80%	100%	2%
	FOC01-1028-0000	Rectangular Flexible Diffuser	289.8 x 86.6 mm	0.11 mm	PC	20° x 20°	93%	95%	4%
	FOC01-1028-0001	Rectangular Flexible Diffuser	289.8 x 86.6 mm	0.2 mm	PC	40° x 40°	92%	99%	3%
	FOC01-1028-0002	Rectangular Flexible Diffuser	289.8 x 86.6 mm	0.38 mm	PC	60° x 60°	89%	100%	3%
	FOC01-1028-0003	Rectangular Flexible Diffuser	289.8 x 86.6 mm	0.55 mm	PC	80° x 80°	80%	100%	2%
	FOC01-1029-0000	Rectangular Flexible Diffuser	594.6 x 86.6 mm	0.11 mm	PC	20° x 20°	93%	95%	4%
	FOC01-1029-0001	Rectangular Flexible Diffuser	594.6 x 86.6 mm	0.2 mm	PC	40° x 40°	92%	99%	3%
	FOC01-1029-0002	Rectangular Flexible Diffuser	594.6 x 86.6 mm	0.38 mm	PC	60° x 60°	89%	100%	3%
	FOC01-1029-0003	Rectangular Flexible Diffuser	594.6 x 86.6 mm	0.55 mm	PC	80° x 80°	80%	100%	2%
	FOC01-1030-0000	Rectangular Flexible Diffuser	1204.2 x 86.6 mm	0.11 mm	PC	20° x 20°	93%	95%	4%
	FOC01-1030-0001	Rectangular Flexible Diffuser	1204.2 x 86.6 mm	0.2 mm	PC	40° x 40°	92%	99%	3%
	FOC01-1030-0002	Rectangular Flexible Diffuser	1204.2 x 86.6 mm	0.38 mm	PC	60° x 60°	89%	100%	3%
	FOC01-1030-0003	Rectangular Flexible Diffuser	1204.2 x 86.6 mm	0.55 mm	PC	80° x 80°	80%	100%	2%
	FOC01-1031-0000	Rectangular Flexible Diffuser	1204.2 x 251.7 mm	0.11 mm	PC	20° x 20°	93%	95%	4%
	FOC01-1031-0001	Rectangular Flexible Diffuser	1204.2 x 251.7 mm	0.2 mm	PC	40° x 40°	92%	99%	3%
	FOC01-1031-0002	Rectangular Flexible Diffuser	1204.2 x 251.7 mm	0.38 mm	PC	60° x 60°	89%	100%	3%
	FOC01-1031-0003	Rectangular Flexible Diffuser	1204.2 x 251.7 mm	0.55 mm	PC	80° x 80°	80%	100%	2%



Square	FO Part Number	Item Description	Dimension	Thickness	Material	Diffusion Angle	Trans	Haze	Clarity
	FOC01-1036-0000	Square Flexible Diffuser	30.7 x 30.7 mm	0.11 mm	PC	20° x 20°	93%	95%	4%
	FOC01-1036-0001	Square Flexible Diffuser	30.7 x 30.7 mm	0.2 mm	PC	40° x 40°	92%	99%	3%
	FOC01-1036-0002	Square Flexible Diffuser	30.7 x 30.7 mm	0.38 mm	PC	60° x 60°	89%	100%	3%
	FOC01-1036-0003	Square Flexible Diffuser	30.7 x 30.7 mm	0.55 mm	PC	80° x 80°	80%	100%	2%
	FOC01-1037-0000	Square Flexible Diffuser	86.6 x 86.6 mm	0.11 mm	PC	20° x 20°	93%	95%	4%
	FOC01-1037-0001	Square Flexible Diffuser	86.6 x 86.6 mm	0.2 mm	PC	40° x 40°	92%	99%	3%
	FOC01-1037-0002	Square Flexible Diffuser	86.6 x 86.6 mm	0.38 mm	PC	60° x 60°	89%	100%	3%
	FOC01-1037-0003	Square Flexible Diffuser	86.6 x 86.6 mm	0.55 mm	PC	80° x 80°	80%	100%	2%
	FOC01-1032-0000	Square Flexible Diffuser	137.4 x 137.4 mm	0.11 mm	PC	20° x 20°	93%	95%	4%
	FOC01-1032-0001	Square Flexible Diffuser	137.4 x 137.4 mm	0.2 mm	PC	40° x 40°	92%	99%	3%
	FOC01-1032-0002	Square Flexible Diffuser	137.4 x 137.4 mm	0.38 mm	PC	60° x 60°	89%	100%	3%
	FOC01-1032-0003	Square Flexible Diffuser	137.4 x 137.4 mm	0.55 mm	PC	80° x 80°	80%	100%	2%
	FOC01-1033-0000	Square Flexible Diffuser	188.2 x 188.2 mm	0.11 mm	PC	20° x 20°	93%	95%	4%
	FOC01-1033-0001	Square Flexible Diffuser	188.2 x 188.2 mm	0.2 mm	PC	40° x 40°	92%	99%	3%
	FOC01-1033-0002	Square Flexible Diffuser	188.2 x 188.2 mm	0.38 mm	PC	60° x 60°	89%	100%	3%
	FOC01-1033-0003	Square Flexible Diffuser	188.2 x 188.2 mm	0.55 mm	PC	80° x 80°	80%	100%	2%
	FOC01-1034-0000	Square Flexible Diffuser	239.0 x 239.0 mm	0.11 mm	PC	20° x 20°	93%	95%	4%
	FOC01-1034-0001	Square Flexible Diffuser	239.0 x 239.0 mm	0.2 mm	PC	40° x 40°	92%	99%	3%
	FOC01-1034-0002	Square Flexible Diffuser	239.0 x 239.0 mm	0.38 mm	PC	60° x 60°	89%	100%	3%
	FOC01-1034-0003	Square Flexible Diffuser	239.0 x 239.0 mm	0.55 mm	PC	80° x 80°	80%	100%	2%
	FOC01-1035-0000	Square Flexible Diffuser	289.8 x 289.8 mm	0.38 mm	PC	60° x 60°	89%	100%	3%
	FOC01-1035-0001	Square Flexible Diffuser	289.8 x 289.8 mm	0.55 mm	PC	80° x 80°	80%	100%	2%

LIGHT DIFFUSERS – STANDARD PRODUCTS

Diffusion Lenses




Linear Lenses	FO Part Number	Item Description	Thickness	Material	Diffusion Angle	Trans	Haze	Clarity
	FOC01-1019-0000	Linear Lens 294.8 x 40.8 mm	2.2 mm	PMMA	20° x 20°	93%	95%	4.0%
	FOC01-1019-0001	Linear Lens 294.8 x 40.8 mm	2.3 mm	PMMA	40° x 40°	92%	99%	3.0%
	FOC01-1019-0002	Linear Lens 294.8 x 40.8 mm	2.6 mm	PMMA	60° x 60°	89%	100%	2.7%
	FOC01-1019-0003	Linear Lens 294.8 x 40.8 mm	2.8 mm	PMMA	80° x 80°	80%	100%	2.2%
	FOC01-1020-0000	Linear Lens 294.8 x 91.6 mm	2.2 mm	PMMA	20° x 20°	93%	95%	4.0%
	FOC01-1020-0001	Linear Lens 294.8 x 91.6 mm	2.3 mm	PMMA	40° x 40°	92%	99%	3.0%
	FOC01-1020-0002	Linear Lens 294.8 x 91.6 mm	2.6 mm	PMMA	60° x 60°	89%	100%	2.7%
	FOC01-1020-0003	Linear Lens 294.8 x 91.6 mm	2.8 mm	PMMA	80° x 80°	80%	100%	2.2%
	FOC01-1021-0000	Linear Lens 599.6 x 269.4 mm	2.2 mm	PMMA	20° x 20°	93%	95%	4.0%
	FOC01-1021-0001	Linear Lens 599.6 x 269.4 mm	2.3 mm	PMMA	40° x 40°	92%	99%	3.0%
	FOC01-1021-0002	Linear Lens 599.6 x 269.4 mm	2.6 mm	PMMA	60° x 60°	89%	100%	2.7%
	FOC01-1021-0003	Linear Lens 599.6 x 269.4 mm	2.8 mm	PMMA	80° x 80°	80%	100%	2.2%
	FOC01-1022-0000	Linear Lens 599.6 x 40.8 mm	2.2 mm	PMMA	20° x 20°	93%	95%	4.0%
	FOC01-1022-0001	Linear Lens 599.6 x 40.8 mm	2.3 mm	PMMA	40° x 40°	92%	99%	3.0%
	FOC01-1022-0002	Linear Lens 599.6 x 40.8 mm	2.6 mm	PMMA	60° x 60°	89%	100%	2.7%
	FOC01-1022-0003	Linear Lens 599.6 x 40.8 mm	2.8 mm	PMMA	80° x 80°	80%	100%	2.2%
	FOC01-1023-0000	Linear Lens 1209.2 x 91.6 mm	2.2 mm	PMMA	20° x 20°	93%	95%	4.0%
	FOC01-1023-0001	Linear Lens 1209.2 x 91.6 mm	2.3 mm	PMMA	40° x 40°	92%	99%	3.0%
	FOC01-1023-0002	Linear Lens 1209.2 x 91.6 mm	2.6 mm	PMMA	60° x 60°	89%	100%	2.7%
	FOC01-1023-0003	Linear Lens 1209.2 x 91.6 mm	2.8 mm	PMMA	80° x 80°	80%	100%	2.2%
	FOC01-1024-0000	Linear Lens 1209.2 x 269.4 mm	2.2 mm	PMMA	20° x 20°	93%	95%	4.0%
	FOC01-1024-0001	Linear Lens 1209.2 x 269.4 mm	2.3 mm	PMMA	40° x 40°	92%	99%	3.0%
	FOC01-1024-0002	Linear Lens 1209.2 x 269.4 mm	2.6 mm	PMMA	60° x 60°	89%	100%	2.7%
	FOC01-1024-0003	Linear Lens 1209.2 x 269.4 mm	2.8 mm	PMMA	80° x 80°	80%	100%	2.2%

Applications:
Linear direct or edge lit
pendants, down lights,
troffers, cabinet lights,
retail lights, cove lights
and wall washers




LIGHT DIFFUSERS – STANDARD PRODUCTS

Diffusion Lenses

Circular Lenses	FO Part Number	Item Description	Thickness	Material	Diffusion Angle	Trans	Haze	Clarity
	FOC01-1010-0000	Circular Lens Φ34mm	2.2 mm	PMMA	20° x 20°	93%	95%	4.0%
	FOC01-1010-0001	Circular Lens Φ34mm	2.3 mm	PMMA	40° x 40°	92%	99%	3.0%
	FOC01-1010-0002	Circular Lens Φ34mm	2.6 mm	PMMA	60° x 60°	89%	100%	2.7%
	FOC01-1010-0003	Circular Lens Φ34mm	2.8 mm	PMMA	80° x 80°	80%	100%	2.2%
	FOC01-1011-0000	Circular Lens Φ45mm	2.2 mm	PMMA	20° x 20°	93%	95%	4.0%
	FOC01-1011-0001	Circular Lens Φ45mm	2.3 mm	PMMA	40° x 40°	92%	99%	3.0%
	FOC01-1011-0002	Circular Lens Φ45mm	2.6 mm	PMMA	60° x 60°	89%	100%	2.7%
	FOC01-1011-0003	Circular Lens Φ45mm	2.8 mm	PMMA	80° x 80°	80%	100%	2.2%
	FOC01-1012-0000	Circular Lens Φ62.5mm	2.2 mm	PMMA	20° x 20°	93%	95%	4.0%
	FOC01-1012-0001	Circular Lens Φ62.5mm	2.3 mm	PMMA	40° x 40°	92%	99%	3.0%
	FOC01-1012-0002	Circular Lens Φ62.5mm	2.6 mm	PMMA	60° x 60°	89%	100%	2.7%
	FOC01-1012-0003	Circular Lens Φ62.5mm	2.8 mm	PMMA	80° x 80°	80%	100%	2.2%
	FOC01-1013-0000	Circular Lens Φ100mm	2.2 mm	PMMA	20° x 20°	93%	95%	4.0%
	FOC01-1013-0001	Circular Lens Φ100mm	2.3 mm	PMMA	40° x 40°	92%	99%	3.0%
	FOC01-1013-0002	Circular Lens Φ100mm	2.6 mm	PMMA	60° x 60°	89%	100%	2.7%
	FOC01-1013-0003	Circular Lens Φ100mm	2.8 mm	PMMA	80° x 80°	80%	100%	2.2%
	FOC01-1014-0000	Circular Lens Φ114mm	2.2 mm	PMMA	20° x 20°	93%	95%	4.0%
	FOC01-1014-0001	Circular Lens Φ114mm	2.3 mm	PMMA	40° x 40°	92%	99%	3.0%
	FOC01-1014-0002	Circular Lens Φ114mm	2.6 mm	PMMA	60° x 60°	89%	100%	2.7%
	FOC01-1014-0003	Circular Lens Φ114mm	2.8 mm	PMMA	80° x 80°	80%	100%	2.2%
FOC01-1015-0000	Circular Lens Φ135mm	2.2 mm	PMMA	20° x 20°	93%	95%	4.0%	
FOC01-1015-0001	Circular Lens Φ135mm	2.3 mm	PMMA	40° x 40°	92%	99%	3.0%	
FOC01-1015-0002	Circular Lens Φ135mm	2.6 mm	PMMA	60° x 60°	89%	100%	2.7%	
FOC01-1015-0003	Circular Lens Φ135mm	2.8 mm	PMMA	80° x 80°	80%	100%	2.2%	

Applications:
Direct or edge lit round down lights, flood lights, spot lights and pendants



Square Lenses	FO Part Number	Item Description	Thickness	Material	Diffusion Angle	Trans	Haze	Clarity
	FOC01-1016-0000	Square Lens 91.6 x 91.6 mm	2.2 mm	PMMA	20° x 20°	93%	95%	4.0%
	FOC01-1016-0001	Square Lens 91.6 x 91.6 mm	2.3 mm	PMMA	40° x 40°	92%	99%	3.0%
	FOC01-1016-0002	Square Lens 91.6 x 91.6 mm	2.6 mm	PMMA	60° x 60°	89%	100%	2.7%
	FOC01-1016-0003	Square Lens 91.6 x 91.6 mm	2.8 mm	PMMA	80° x 80°	80%	100%	2.2%
	FOC01-1017-0000	Square Lens 142.4 x142.4 mm	2.2 mm	PMMA	20° x 20°	93%	95%	4.0%
	FOC01-1017-0001	Square Lens 142.4 x142.4 mm	2.3 mm	PMMA	40° x 40°	92%	99%	3.0%
	FOC01-1017-0002	Square Lens 142.4 x142.4 mm	2.6 mm	PMMA	60° x 60°	89%	100%	2.7%
	FOC01-1017-0003	Square Lens 142.4 x142.4 mm	2.8 mm	PMMA	80° x 80°	80%	100%	2.2%
	FOC01-1018-0000	Square Lens 289.8 x289.8 mm	1.5 mm	PMMA	20° x 20°	91%	97%	3.8%
	FOC01-1018-0001	Square Lens 289.8 x289.8 mm	2 mm	PC	80° x 80°	67%	102%	1.9%
	FOC01-1018-0002	Square Lens 594.6 x594.6 mm	1.5 mm	PMMA	20° x 20°	91%	97%	3.8%
	FOC01-1018-0003	Square Lens 594.6 x594.6 mm	2 mm	PC	80° x 80°	67%	102%	1.9%

Applications:
Direct or edge lit square down lights, troffers and pendants



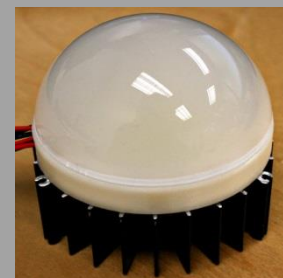
LIGHT DIFFUSERS – STANDARD PRODUCTS

3D Diffusers

Domes	Part Number	Material	Dimensions		Diffusion Angle	Transmission	Haze	Clarity
			Inner Height	Inner Diameter				
	FOC02-1010-0000	PMMA	14 mm	24 mm	60° x 60°	89%	100%	2.70%
	FOC02-1010-0001		14 mm	24 mm	80° x 80°	80%	100%	2.20%
	FOC02-1011-0000		18 mm	33 mm	60° x 60°	89%	100%	2.70%
	FOC02-1011-0001		18 mm	33 mm	80° x 80°	80%	100%	2.20%
	FOC02-1012-0000		24 mm	53 mm	60° x 60°	89%	100%	2.70%
	FOC02-1012-0001		24 mm	53 mm	80° x 80°	80%	100%	2.20%
	FOC02-1013-0000		29 mm	57 mm	60° x 60°	89%	100%	2.70%
	FOC02-1013-0001		29 mm	57 mm	80° x 80°	80%	100%	2.20%
	FOC02-1014-0000		33 mm	64 mm	60° x 60°	89%	100%	2.70%
	FOC02-1014-0001		33 mm	64 mm	80° x 80°	80%	100%	2.20%
	FOC02-1015-0000		55 mm	106 mm	60° x 60°	89%	100%	2.70%
	FOC02-1015-0001		55 mm	106 mm	80° x 80°	80%	100%	2.20%

Applications:
Round fixtures that need better light mixing, wider beam angles and specific mounting

Drop Domes	Part Number	Material	Dimension			Diffusion Angle	Trans	Haze	Clarity
			Inner Height	Inner Diameter	Inner Drop				
	FOC02-1016-0000	PMMA	4.5 mm	62.5 mm	1.5 mm	60° x 60°	89%	100%	2.70%
	FOC02-1016-0001		4.5 mm	62.5 mm	1.5 mm	80° x 80°	80%	100%	2.20%
	FOC02-1017-0000		12 mm	81 mm	8 mm	60° x 60°	89%	100%	2.70%
	FOC02-1017-0001		12 mm	81 mm	8 mm	80° x 80°	80%	100%	2.20%
	FOC02-1018-0000		15 mm	92 mm	8 mm	60° x 60°	89%	100%	2.70%
	FOC02-1018-0001		15 mm	92 mm	8 mm	80° x 80°	80%	100%	2.20%



Hemi Tubes	Part Number	Type	Dimension			Diffusion Angle	Trans	Haze	Clarity
			Inner Height	Inner Diameter	Length				
	FOC02-1019-0000	T5	15 mm	15 mm	305 mm	60° x 60°	89%	100%	2.70%
	FOC02-1019-0001		15 mm	15 mm	305 mm	80° x 80°	80%	100%	2.20%
	FOC02-1020-0000	T8	15 mm	25 mm	305 mm	60° x 60°	89%	100%	2.70%
	FOC02-1020-0001		15 mm	25 mm	305 mm	80° x 80°	80%	100%	2.20%

Applications:
Circular Profile light rails, down lights, cabinet lights, CCFL retrofits

GLASS DIFFUSERS



Applications:

- Stage Lighting
- Clean Room and Lab Lighting
- Machine Vision
- LED, Halogen, HID or Incandescent

Advantages:

- Thermal Resistance
- UV Resistance
- Chemical Resistance

Fusion Optix High Temperature Glass Diffusers are designed for long life and high efficiency under extreme environmental conditions. Able to withstand high temperatures and UV-radiation associated with many high intensity lighting applications, our High Temperature Glass Diffusers enable superior light transmission efficiency and diffusion capabilities for fixtures designed to meet the most demanding specifications.

As with our regular diffusers, Fusion Optix glass diffusers can be infused with ColorTune™ and ColorSure™ technologies so accurate color rendering and high CRIs are possible even in extreme environments. Low-cost customization of size and shape is also available.

FO Part Number	Part Description	Diffusion Angle	Thickness
FOC01-1025-0000	Circular Lens Glass 2020 61.5mm dia	20°x20°	2.5mm
FOC01-1025-0001	Circular Lens Glass 4040 61.5mm dia	40°x40°	
FOC01-1025-0002	Circular Lens Glass 6060 61.5mm dia	60°x60°	
FOC01-1025-0003	Circular Lens Glass 8080 61.5mm dia	80°x80°	

TRANSFLECTIVE COMPONENTS



Fusion Optix Transfective films create an infinite number of new design possibilities for all types of fixtures. Our Transfective films feature extremely low light absorption while simultaneously transmitting and reflecting light. The transmission and reflection percentages are completely customizable and the films are available in a variety of form factors.

REFLECTIVE COMPONENTS

Fusion Optix reflective components are designed to effectively and uniformly reflect light across the visible spectrum with 97% efficiency.

Benefits

- Ultra-high reflectance
- Improve uniformity
- Diffuse reflectivity
- Wide choice of form factors
- Mechanical, UV and thermal resistance
- Low cost customization options

Conversion Options

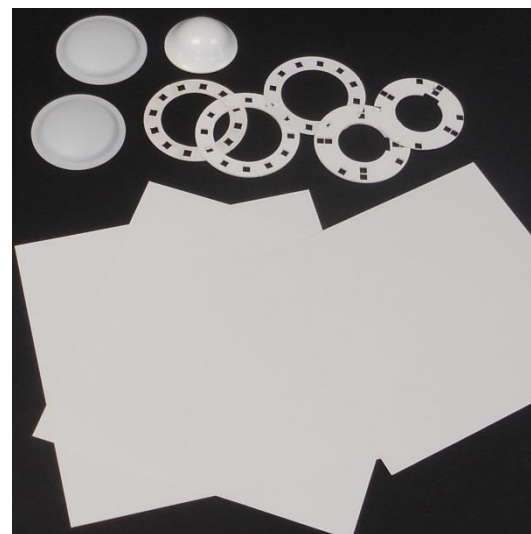
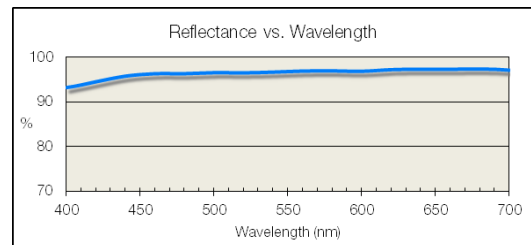
- Custom width rolls
- Die cut, laser cut or thermoformed
- Optional PSA adhesive

Optical Properties

Thickness	Reflectivity at 550um	Gloss @ 60°	Gloss @ 45°	Whiteness
150um	97%	45GU	40GU	100%
FO Test	Spectrophotometer	ASTM D523-89		ASTM E313-79

Standard Parts

Part Number	Description	Dimension L x W
FOC04-1001-0000	Square Reflector WRF-150	102 x 102 mm
FOC04-1002-0000	Square Reflector WRF-150	152 x 152 mm
FOC04-1003-0000	Square Reflector WRF-150	203 x 203 mm
FOC04-1004-0000	Square Reflector WRF-150	254 x 254 mm
FOC04-1005-0000	Square Reflector WRF-150	305 x 305 mm
FOC04-1006-0000	Square Reflector WRF-150	610 x 610 mm
FOC04-1007-0000	Linear Reflector WRF-150	305 x 51 mm
FOC04-1008-0000	Linear Reflector WRF-150	610 x 51 mm
FOC04-1009-0000	Linear Reflector WRF-150	305 x 102 mm
FOC04-1010-0000	Linear Reflector WRF-150	610 x 102 mm
FOC04-1011-0000	Linear Reflector WRF-150	1219 x 102 mm



Applications:
Troffers, down lights, edge lighting,
backlighting

Diffuse Reflection



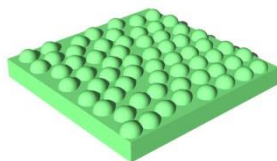
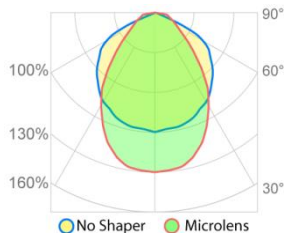
Promoting High Uniformity

BEAM SHAPERS

MicroLens Shapers

Fusion Optix MicroLens Shapers deliver beam collimation, brightness enhancement and light control effects in a variety of lighting display applications.

Beam Profiles remain constant regardless of the viewing direction. This is why these shapers are most appropriate for fixtures with round or square shapes.

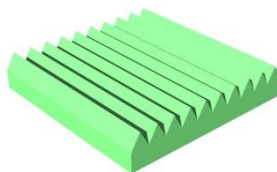
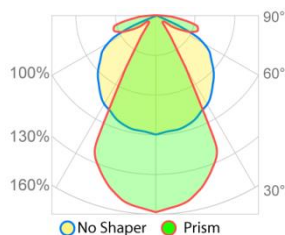


Part Number	Description	Thickness
FOC03-0072-0000	MicroLens Shaper Circular ϕ 101.6mm	275um
FOC03-0073-0000	MicroLens Shaper Circular ϕ 152.4mm dia	
FOC03-0074-0000	MicroLens Shaper Circular 203.2mm dia	
FOC03-0075-0000	MicroLens Shaper Rectangular 304.8 x50.8mm	
FOC03-0076-0000	MicroLens Shaper Rectangular 609.6 x50.8mm	
FOC03-0077-0000	MicroLens Shaper Rectangular 304.8 x101.6mm	
FOC03-0078-0000	MicroLens Shaper Rectangular 609.6 x101.6mm	
FOC03-0079-0000	MicroLens Shaper Rectangular 914.4x 101.6mm	
FOC03-0080-0000	MicroLens Shaper Rectangular 1219.2x101.6mm	
FOC03-0081-0000	MicroLens Shaper Rectangular 304.8x152.4mm	
FOC03-0082-0000	MicroLens Shaper Rectangular 609.6x152.4mm	
FOC03-0083-0000	MicroLens Shaper Square 101.6x101.6mm	
FOC03-0084-0000	MicroLens Shaper Square 152.4x152.4mm	
FOC03-0085-0000	MicroLens Shaper Square 203.2x203.2mm	
FOC03-0086-0000	MicroLens Shaper Square 254x254mm	
FOC03-0087-0000	MicroLens Shaper Square 304.8x304.8mm	

Prism Shapers

Prism Shapers work best for linear fixtures that need narrow beam angles lengthwise or widthwise and brightness enhancement. They can deliver great results for wall washing or reading lights.

Reverse-mounted prism shapers provide interesting dual-split beam profiles.

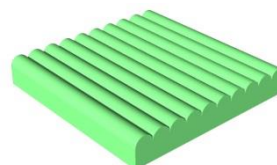
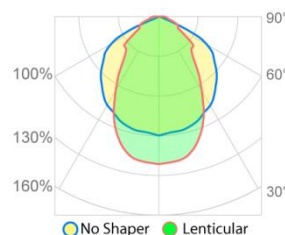


Part Number	Description	Thickness
FOC03-0075-0002	Prism Shaper Rectangular 304.8x50.8mm	250um
FOC03-0076-0002	Prism Shaper Rectangular 609.6x50.8mm	
FOC03-0077-0002	Prism Shaper Rectangular 304.8x101.6mm	
FOC03-0078-0002	Prism Shaper Rectangular 609.6x101.6mm	
FOC03-0079-0002	Prism Shaper Rectangular 914.4x101.6mm	
FOC03-0080-0002	Prism Shaper Rectangular 1219.2x101.6mm	
FOC03-0081-0002	Prism Shaper Rectangular 304.8x152.4mm	
FOC03-0082-0002	Prism Shaper Rectangular 609.6x152.4mm	
FOC03-0083-0002	Prism Shaper Square 101.6x101.6mm	
FOC03-0084-0002	Prism Shaper Square 152.4x152.4mm	
FOC03-0085-0002	Prism Shaper Square 203.2x203.2mm	
FOC03-0086-0002	Prism Shaper Square 254x254mm	
FOC03-0087-0002	Prism Shaper Square 304.8x304.8mm	

Lenticular Shapers

Fusion Optix Lenticular Shapers act similarly to prism shapers but the effect is not as pronounced. On the other hand, lenticular shapers are much more durable.

They yield great results when laminated onto light guides for achieving batwing distributions.



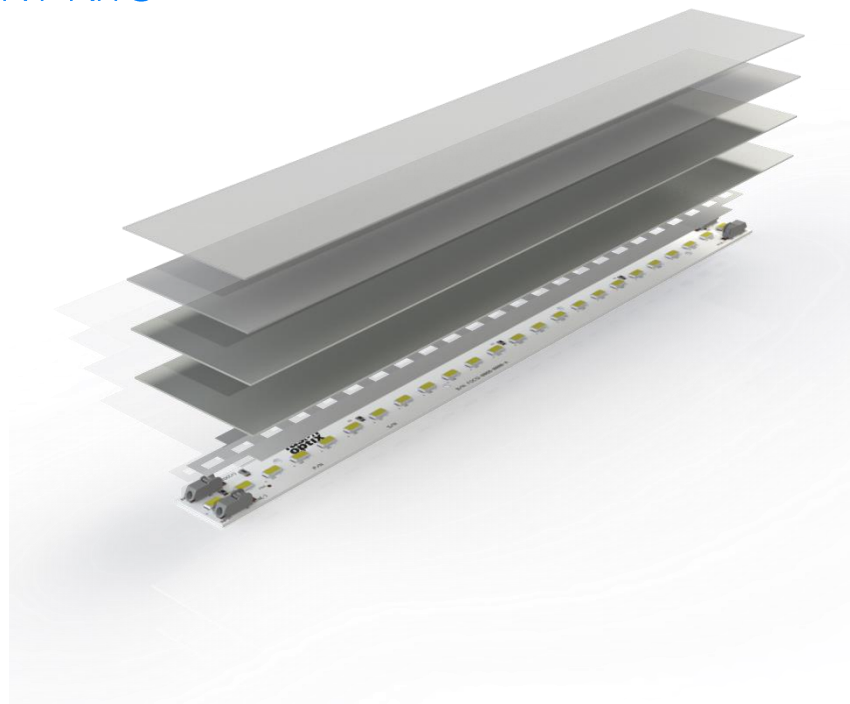
Part Number	Description	Thickness
FOC03-0075-0001	Lenticular Shaper Rectangular 304.8x50.8mm	580um
FOC03-0076-0001	Lenticular Shaper Rectangular 609.6x50.8mm	
FOC03-0077-0001	Lenticular Shaper Rectangular 304.8x101.6mm	
FOC03-0078-0001	Lenticular Shaper Rectangular 609.6x101.6mm	
FOC03-0079-0001	Lenticular Shaper Rectangular 914.4x101.6mm	
FOC03-0080-0001	Lenticular Shaper Rectangular 1219.2x101.6mm	
FOC03-0081-0001	Lenticular Shaper Rectangular 304.8x152.4mm	
FOC03-0082-0001	Lenticular Shaper Rectangular 609.6x152.4mm	
FOC03-0083-0001	Lenticular Shaper Square 101.6x101.6mm	
FOC03-0084-0001	Lenticular Shaper Square 152.4x152.4mm	
FOC03-0085-0001	Lenticular Shaper Square 203.2x203.2mm	
FOC03-0086-0001	Lenticular Shaper Square 254x254mm	
FOC03-0087-0001	Lenticular Shaper Square 304.8x304.8mm	

280 SERIES LINEAR DEVELOPMENT KITS

Fusion Optix Development Kits are a convenient and low-cost way for OEMs to experiment with our various optical films so they can best determine their needs.

Each development kit includes:

- 1x 280 Series HV Linear LED Module @ 3500K
- 1x White Reflector
- 1x Microlens Film
- 1x Prism Film (Horizontal)
- 1x Prism Film (Vertical)
- 1x PC2020 Film
- 1x PC4040 Film
- 1x PC6060 Film
- 1x PC8080 Film
- 1x PC6001 Film
- 1x PC7040 Film



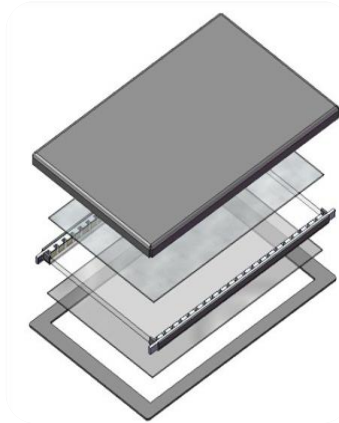
STANDARD OPTIONS

Part Number	Dimensions of LED Module and Reflector	Dimensions of Optical Films
FOD01-1001-0000	280mm x 20mm	280mm x 50mm
FOD01-1002-0000	280mm x 40mm	280mm x 102mm
FOD01-1003-0000	280mm x 60mm	280mm x 152mm

OEM SUPPORT



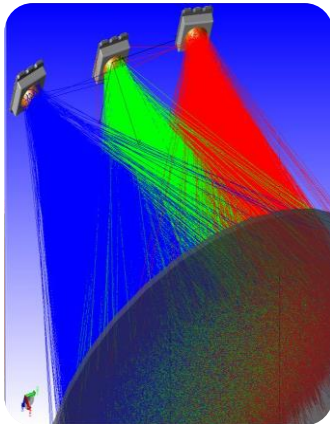
Product Design



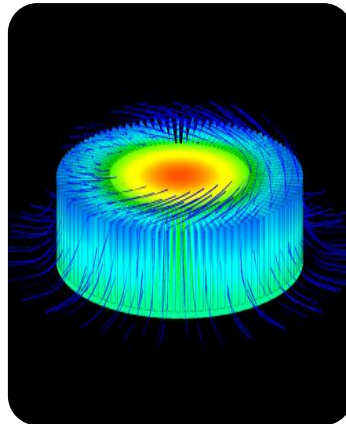
BOM Development



Product Testing



Optical Modeling



Thermal Modeling



Quality Control

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Notes

- 1) All information in this guide is subject to change without notice
- 2) For information regarding product pricing, availability, and Additional Options such as custom form factors, sizes, diffusion angles and materials please contact a Fusion Optix Sales representative at the address and phone number below.
- 3) Custom product samples are available for a nominal set-up/development fee. Please contact a Fusion Optix Sales representative for more information.
- 4) Buyer is responsible for all shipping charges.
- 5) Standard sample orders usually ship within 1 week. Custom orders may take longer.