

# HB-2X2-5050-S

~25° spot beam for industrial applications

#### **SPECIFICATION:**

Dimensions	50.0 x 50.0 mm
Height	10.4 mm
Fastening	screw
ROHS compliant	yes 🛈

### MATERIALS:

Component HB-2X2-5050-S **Type** Multi-lens

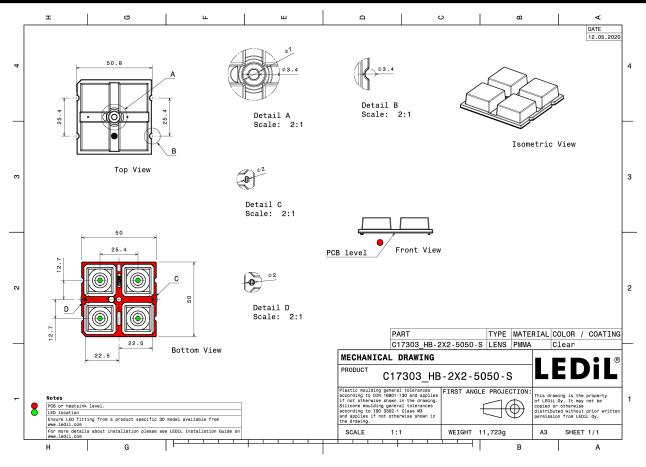


#### **ORDERING INFORMATION:**

Component	Qty in box	MOQ	MPQ	Box weight (kg)
C17303_HB-2X2-5050-S	800	160	160	10.2
» Box size: 480 x 280 x 300 mm				



PRODUCT DATASHEET C17303\_HB-2X2-5050-S



See also our general installation guide: www.ledil.com/installation\_guide



### **OPTICAL RESULTS (MEASURED):**

UMIL	.EDS	90*
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required compone	LUXEON XR-5050 SQR (L213-xxxx016MRH001) 28.0° / 55.0° 94 % 2.5 cd/lm 1 White	5 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
MST Your solu	RecLED 173x50mm 2900lm 740 2x6 5050 Opt G1	39*
FWHM / FWTM	33.0° / 60.0°	
Efficiency	94 %	605
Peak intensity	2 cd/lm	
LEDs/each optic Light colour	1 White	
Required compone		30° 13° 0° 13°
PHILIP	25	90°
LED	Fortimo FastFlex LED 2x8 DA HE	
FWHM / FWTM	29.0° / 56.0°	79
Efficiency	95 %	60, 000
Peak intensity	2.4 cd/lm	
LEDs/each optic	1	
Light colour	White	45°
Required compone	ents:	



CREES LED LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	J Series 5050 Round LES 26.0° / 50.0° 93 % 3.4 cd/lm 1 White	5° 5° 5° 5° 5° 50 50 50 5° 5° 50 5° 5° 5° 5° 5° 5° 5° 5° 5° 5° 5° 5° 5°
CREE©LED LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	J Series 5050 Square LES 6V 24.0° / 48.0° 92 % 3.5 cd/lm 1 White	99* 99* 99* 99* 90 90 90 90 90 90 90 90 90 90
CREES LED LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	XM-L RGBW (XMLDCL HI) 26.0° / 48.0° 94 % 3.5 cd/lm 1 RGBW	5° 60 60 60 5° 50 50 50 50 50 50 50 50 50 50
CREES LED LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	XP-G2 21.0° / 38.0° 96 % 5.4 cd/lm 1 White	20 20 20 20 20 20 20 20 20 20



		50°
LED	XP-G3	75°
FWHM / FWTM	24.0° / 44.0°	
Efficiency	89 %	69 <sup>5</sup> 50 <sup>6</sup>
Peak intensity	3.8 cd/lm	
LEDs/each optic	1	
Light colour	White	200
Required components:		32%
Protective plat	e, glass	34" 4000 30"
		0 <sup>1</sup> 15 <sup>3</sup> 0 <sup>1</sup> 15 <sup>3</sup>
LED	XP-P	
ED FWHM / FWTM	xP-P 18.0° / 30.0°	75. 75.
Efficiency	91 %	
Peak intensity	7.5 cd/lm	60*
LEDs/each optic	1	
Light colour	White	gr
Required components:		
Protective plat	e, glass	6130
		30* 30* 30*
	05	50*
	LUXEON 5050 HE	
		77
LED	LUXEON 5050 HE	
LED FWHM / FWTM	LUXEON 5050 HE 26.0° / 50.0°	77
LED FWHM / FWTM Efficiency	LUXEON 5050 HE 26.0° / 50.0° 87 %	77
LED FWHM / FWTM Efficiency Peak intensity	LUXEON 5050 HE 26.0° / 50.0° 87 % 3.1 cd/lm	60 <sup>4</sup> 60 <sup>4</sup>
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	LUXEON 5050 HE 26.0° / 50.0° 87 % 3.1 cd/lm 1	27 27 20 20 20 20 20 20 20 20 20 20 20 20 20
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LUXEON 5050 HE 26.0° / 50.0° 87 % 3.1 cd/lm 1 White	27 27 20 200 200 200 200 200
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	LUXEON 5050 HE 26.0° / 50.0° 87 % 3.1 cd/lm 1 White	27 27 20 20 20 20 20 20 20 20 20 20 20 20 20
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LUXEON 5050 HE 26.0° / 50.0° 87 % 3.1 cd/lm 1 White	27 27 20 20 20 20 20 20 20 20 20 20 20 20 20
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate	LUXEON 5050 HE 26.0° / 50.0° 87 % 3.1 cd/lm 1 White a, glass	25 64 77 77 857 857 857 857 857 857
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate	LUXEON 5050 HE 26.0° / 50.0° 87 % 3.1 cd/lm 1 White e, glass LUXEON 5050 Round LES	20 20 20 20 20 20 20 20 20 20
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate CONTINUED LED FWHM / FWTM	LUXEON 5050 HE 26.0° / 50.0° 87 % 3.1 cd/lm 1 White a, glass LUXEON 5050 Round LES 28.0° / 52.0°	200 200 200 200 200 200 200 200
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate COMPLET LED FWHM / FWTM Efficiency	LUXEON 5050 HE 26.0° / 50.0° 87 % 3.1 cd/lm 1 White a, glass LUXEON 5050 Round LES 28.0° / 52.0° 83 %	30*         32%         32%         32%           500         60*         60*           500         10*         60*
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate When the state of the stat	LUXEON 5050 HE 26.0° / 50.0° 87 % 3.1 cd/lm 1 White e, glass LUXEON 5050 Round LES 28.0° / 52.0° 83 % 2.8 cd/lm	30*         257         60         67           30*         257         67         67           500         500         67         67           500         500         67         67           500         500         67         67           500         500         67         67           500         500         67         67           500         500         67         67           500         500         67         67           500         500         67         67           500         500         67         67           500         500         500         67           500         500         500         67           500         500         500         67           500         500         500         67           500         500         500         67           500         500         500         67           500         500         500         500           500         500         500         500           500         500         500         500
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate <b>While Composed</b> LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	LUXEON 5050 HE 26.0° / 50.0° 87 % 3.1 cd/lm 1 White e, glass LUXEON 5050 Round LES 28.0° / 52.0° 83 % 2.8 cd/lm 1	30*         257         60         67           30*         257         67         67           500         500         67         67           500         500         67         67           500         500         67         67           500         500         67         67           500         500         67         67           500         500         67         67           500         500         67         67           500         500         67         67           500         500         67         67           500         500         500         67           500         500         500         67           500         500         500         67           500         500         500         67           500         500         500         67           500         500         500         67           500         500         500         500           500         500         500         500           500         500         500         500
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate When the state of the stat	LUXEON 5050 HE 26.0° / 50.0° 87 % 3.1 cd/lm 1 White e, glass LUXEON 5050 Round LES 28.0° / 52.0° 83 % 2.8 cd/lm	50 50 50 50 50 50 50 50 50 50
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate Who Protective plate ED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LUXEON 5050 HE 26.0° / 50.0° 87 % 3.1 cd/lm 1 White e, glass LUXEON 5050 Round LES 28.0° / 52.0° 83 % 2.8 cd/lm 1 White	200 200 200 200 200 200 200 200
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate White components: Protective plate ED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	LUXEON 5050 HE 26.0° / 50.0° 87 % 3.1 cd/lm 1 White e, glass LUXEON 5050 Round LES 28.0° / 52.0° 83 % 2.8 cd/lm 1 White	



	05	50°
LED	LUXEON 5050 Round LES	75-
FWHM / FWTM	27.0° / 51.0°	
Efficiency	90 %	69.5
Peak intensity	3.1 cd/lm	
LEDs/each optic	1	1690
Light colour	White	
Required components:		2430
		30° 3200 360 15° 0° 15°
	)S	90° 00
LED	LUXEON 5050 Square LES	
FWHM / FWTM	28.0° / 57.0°	75.
Efficiency	87 %	
Peak intensity	2.5 cd/lm	
LEDs/each optic	1	
Light colour	White	45 <sup>4</sup> 65
Required components:		1630
Protective plat	e, glass	
		30° 30°
	)S	90 <sup>4</sup> 90 <sup>4</sup>
LED	LUXEON 7070	
FWHM / FWTM	38.0° / 79.0°	75
Efficiency	89 %	400
Peak intensity	1.4 cd/lm	60 <sup>10</sup>
LEDs/each optic	1	
Light colour	White	475 45
Required components:		
		1220
		220
	05	30 40 20 40
		200 200 200 200 200 200 200 200 200 200
LED	LUXEON HL2X	
LED FWHM / FWTM	LUXEON HL2X 24.0° / 44.0°	
LED FWHM / FWTM Efficiency	LUXEON HL2X 24.0° / 44.0° 95 %	
LED FWHM / FWTM Efficiency Peak intensity	LUXEON HL2X 24.0° / 44.0° 95 % 4.1 cd/lm	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	LUXEON HL2X 24.0° / 44.0° 95 % 4.1 cd/lm 1	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	LUXEON HL2X 24.0° / 44.0° 95 % 4.1 cd/lm	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	LUXEON HL2X 24.0° / 44.0° 95 % 4.1 cd/lm 1	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	LUXEON HL2X 24.0° / 44.0° 95 % 4.1 cd/lm 1	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	LUXEON HL2X 24.0° / 44.0° 95 % 4.1 cd/lm 1	



	DS	90° 90°
LED	LUXEON HL2X-D	73.
FWHM / FWTM	24.0° / 46.0°	
Efficiency	96 %	600 60
Peak intensity	4 cd/lm	- 1000
LEDs/each optic	1	
Light colour Required components:	White	
Required components.		3200
		15° 0° 15° 0°
UMILEC	S S	90° 90'
LED	LUXEON HL2X-D	
FWHM / FWTM	24.0° / 46.0°	
Efficiency	88 %	
Peak intensity	3.6 cd/lm	1500
LEDs/each optic	1	
Light colour	White	43° 437
Required components:		
Protective plate	, glass	330
i retective plat		$\times$ / $\vee$ / $\times$
		30° 30° 30°
	95	90° 90°
LED	LUXEON HL2X-P	
FWHM / FWTM	24.0° / 47.0°	
Efficiency	95 %	60° / / / / / / / / / / / / / / / / / / /
Peak intensity	3.7 cd/lm	1600
LEDs/each optic	1	
Light colour	White	43° 430
Required components:		
,		$\times / \times$
		50
		22
		22
<b>Μ</b> ΝΙCΗΙΛ	NFMW48xA	22
	NFMW48xA 29.0° / 55.0°	22
<b>NICHIA</b> LED FWHM / FWTM		22
	29.0° / 55.0°	20 <sup>-1</sup> 20 20 <sup>-1</sup> 20 <sup>-1</sup> 20 20 <sup>-1</sup> 20 20 <sup>-1</sup> 20 20 <sup>-1</sup> 20 20 <sup>-1</sup> 20 20 <sup>-</sup>
ED FWHM / FWTM Efficiency	29.0° / 55.0° 90 %	20 <sup>-1</sup> 20 20 <sup>-1</sup> 20 <sup>-1</sup> 20 20 <sup>-1</sup> 20 20 <sup>-1</sup> 20 20 <sup>-1</sup> 20 20 <sup>-1</sup> 20 20 <sup>-</sup>
ED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	29.0° / 55.0° 90 % 2.7 cd/lm	20 <sup>1</sup> 20 <sup>1</sup> 20 <sup>2</sup>
ED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	29.0° / 55.0° 90 % 2.7 cd/lm 1	200 000 200 000 200 2
ED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	29.0° / 55.0° 90 % 2.7 cd/lm 1	25° 250 200 26° 200 27° 200 27° 200 280 200 200 200 200 200 200 200 200 200 20
ED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	29.0° / 55.0° 90 % 2.7 cd/lm 1	800 800 800 800 800 800 800 800



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<b>Μ</b> ΝΙCΗΙΛ		909
LED	NFMW48xA	
FWHM / FWTM	28.0° / 54.0°	757
Efficiency	93 %	
Peak intensity	2.8 cd/lm	50°
LEDs/each optic	1	
Light colour	White	45* 45*
Required components:		
		2430
		15% 0% 15%
OSRAM Opto Semiconductors		90°
LED	Duris S8	
FWHM / FWTM	31.0° / 56.0°	
Efficiency	87 %	60 <sup>1</sup> 000 60 <sup>2</sup>
Peak intensity	2.3 cd/lm	$\langle / / / / \rangle$
LEDs/each optic	1	$ X  /  A  \wedge X$
Light colour	White	97 <sup>4</sup> 47°
Required components:		
		30* 2050 30*
		15° 0° 15°
0000414		
OSRAM Opto Semiconductors		90° 90°
OSRAM Opto Semiconductors LED	OSCONIQ C 2424	
Opto Semiconductors	OSCONIQ C 2424 16.0° / 30.0°	99°
Opto Semiconductors LED		
Opto Semiconductors LED FWHM / FWTM	16.0° / 30.0°	
opto Semiconductors LED FWHM / FWTM Efficiency	16.0° / 30.0° 96 %	
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	16.0° / 30.0° 96 % 9.4 cd/lm	g
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	16.0° / 30.0° 96 % 9.4 cd/lm 1	73° - 72° 160° - 100° -
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	16.0° / 30.0° 96 % 9.4 cd/lm 1	g. g. 300 90 90 90 90 90 90 90 90
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	16.0° / 30.0° 96 % 9.4 cd/lm 1	g. g. 300 90 90 90 90 90 90 90 90
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	16.0° / 30.0° 96 % 9.4 cd/lm 1	30°
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	16.0° / 30.0° 96 % 9.4 cd/lm 1	23°
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	16.0° / 30.0° 96 % 9.4 cd/lm 1 White	30°
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	16.0° / 30.0° 96 % 9.4 cd/lm 1 White OSCONIQ P 3737 Flat	23°
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: OSRAM Opto Semiconductors LED FWHM / FWTM	16.0° / 30.0° 96 % 9.4 cd/lm 1 White OSCONIQ P 3737 Flat 18.0° / 34.0°	30.         22.         0.         32.           64.         90.0         90.0         90.0           65.         90.0         90.0         90.0
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: OSRAM Opto Semiconductors LED FWHM / FWTM Efficiency	16.0° / 30.0° 96 % 9.4 cd/lm 1 White OSCONIQ P 3737 Flat 18.0° / 34.0° 95 %	22 23 24 25 25 25 25 25 25 25 25 25 25
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	16.0° / 30.0° 96 % 9.4 cd/lm 1 White OSCONIQ P 3737 Flat 18.0° / 34.0° 95 % 6.8 cd/lm	22 23 24 25 25 25 25 25 25 25 25 25 25
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: OSSRAM Opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	16.0° / 30.0° 96 % 9.4 cd/lm 1 White OSCONIQ P 3737 Flat 18.0° / 34.0° 95 % 6.8 cd/lm 1	
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:  COSRAM Opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	16.0° / 30.0° 96 % 9.4 cd/lm 1 White OSCONIQ P 3737 Flat 18.0° / 34.0° 95 % 6.8 cd/lm	
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: OSSRAM Opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	16.0° / 30.0° 96 % 9.4 cd/lm 1 White OSCONIQ P 3737 Flat 18.0° / 34.0° 95 % 6.8 cd/lm 1	
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:  COSRAM Opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	16.0° / 30.0° 96 % 9.4 cd/lm 1 White OSCONIQ P 3737 Flat 18.0° / 34.0° 95 % 6.8 cd/lm 1	
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:  COSRAM Opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	16.0° / 30.0° 96 % 9.4 cd/lm 1 White OSCONIQ P 3737 Flat 18.0° / 34.0° 95 % 6.8 cd/lm 1	6. 6. 700 700 700 700 700 700 700 70
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:  OSSRAM Opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	16.0° / 30.0° 96 % 9.4 cd/lm 1 White OSCONIQ P 3737 Flat 18.0° / 34.0° 95 % 6.8 cd/lm 1	it.



OSRAM Opto Semiconductors		50°
Opto Semiconductors	OSCONIQ S 5050	
FWHM / FWTM	28.0° / 52.0°	75"
Efficiency	94 %	
Peak intensity	2.8 cd/lm	60° 60°
LEDs/each optic	1	
Light colour	White	. e7*
Required components:		
		2400
		30°
		15° 0° 15°
OSRAM Opto Semiconductors		90* 90*
LED	OSCONIQ S 5050	
FWHM / FWTM	28.0° / 52.0°	$ \land \land \land \land \land \land$
Efficiency	85 %	60°
Peak intensity	2.6 cd/lm	
LEDs/each optic	1	
Light colour	White	9° - 500 - 6°
Required components:		
Protective plate		
FIDIECTIVE plate	z, ylass	2430
		360
1		
OSRAM Opto Semiconductors		90° 90°
OSRAM Opto Semiconductors LED	OSLON Square CSSRM2/CSSRM3	
Opto Semiconductors	OSLON Square CSSRM2/CSSRM3 24.0° / 42.0°	27 - 27 27 27 27
Opto Semiconductors		
Opto Semiconductors LED FWHM / FWTM	24.0° / 42.0°	
opto Semiconductors LED FWHM / FWTM Efficiency	24.0° / 42.0° 87 %	75
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity	24.0° / 42.0° 87 % 4 cd/lm	75
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	24.0° / 42.0° 87 % 4 cd/lm 1	g; g; g; , , , , , , , , , , , , , , , ,
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	24.0° / 42.0° 87 % 4 cd/lm 1 White	75
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	24.0° / 42.0° 87 % 4 cd/lm 1 White	5 5 5 5 5 5 5 5 5 5 5 5 5 5 7 5 7 5 7 5
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	24.0° / 42.0° 87 % 4 cd/lm 1 White	5 5 5 5 5 5 5 5 5 5 5 5 5 5 7 5 7 5 7 5
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate	24.0° / 42.0° 87 % 4 cd/lm 1 White	5 5 5 5 5 5 5 5 5 5 5 5 5 5 7 5 7 5 7 5
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate	24.0° / 42.0° 87 % 4 cd/lm 1 White	g; g; g; , , , , , , , , , , , , , , , ,
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate	24.0° / 42.0° 87 % 4 cd/lm 1 White 9, glass OSLON Square CSSRM2/CSSRM3	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 7 5 7 5 7
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate OSRAM Opto Semiconductors LED FWHM / FWTM	24.0° / 42.0° 87 % 4 cd/lm 1 White 9, glass OSLON Square CSSRM2/CSSRM3 20.0° / 38.0°	
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate OSRAM Opto Semiconductors LED FWHM / FWTM Efficiency	24.0° / 42.0° 87 % 4 cd/lm 1 White e, glass OSLON Square CSSRM2/CSSRM3 20.0° / 38.0° 95 %	250 250 250 250 250 250 250 250 250 250
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate OSRAM Opto Semiconductors LED FWHM / FWTM	24.0° / 42.0° 87 % 4 cd/lm 1 White 9, glass OSLON Square CSSRM2/CSSRM3 20.0° / 38.0°	
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate OSRAM Opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity	24.0° / 42.0° 87 % 4 cd/lm 1 White e, glass OSLON Square CSSRM2/CSSRM3 20.0° / 38.0° 95 % 5.6 cd/lm	
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate Opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	24.0° / 42.0° 87 % 4 cd/lm 1 White e, glass OSLON Square CSSRM2/CSSRM3 20.0° / 38.0° 95 % 5.6 cd/lm 1	
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate Opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	24.0° / 42.0° 87 % 4 cd/lm 1 White e, glass OSLON Square CSSRM2/CSSRM3 20.0° / 38.0° 95 % 5.6 cd/lm 1	
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate Opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	24.0° / 42.0° 87 % 4 cd/lm 1 White e, glass OSLON Square CSSRM2/CSSRM3 20.0° / 38.0° 95 % 5.6 cd/lm 1	
opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Protective plate Opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	24.0° / 42.0° 87 % 4 cd/lm 1 White e, glass OSLON Square CSSRM2/CSSRM3 20.0° / 38.0° 95 % 5.6 cd/lm 1	



OSRAM Opto Semiconductors LED FWHM / FWTM	OSLON Square Flat 17.0° / 30.0°	25. 25. 27.
Efficiency	96 %	
Peak intensity	8.5 cd/lm	80 <sup>5</sup> 80 <sup>5</sup>
LEDs/each optic	1	
Light colour	White	47° 65°
Required components:		30 <sup>4</sup> 127 0 <sup>4</sup> 127 3 <sup>4</sup>
OSRAM Opto Semiconductors		90* A 90*
LED	OSTAR Projection Compact (Kx.CSLNM1.xx)	
FWHM / FWTM	19.0° / 32.0°	75 1000
Efficiency	96 %	
Peak intensity	7.5 cd/lm	60° 60°
LEDs/each optic	1	
Light colour	White	er es
Required components:		600
		15 <sup>5</sup> 0 <sup>6</sup> 25 <sup>5</sup>
SAMSUN	IG	90 <sup>+</sup> 90 <sup>+</sup>
LED	LH502C	99 <sup>4</sup> 90 <sup>4</sup>
LED FWHM / FWTM	LH502C 28.0° / 54.0°	735 735 294 735
LED FWHM / FWTM Efficiency	LH502C 28.0° / 54.0° 92 %	90 <sup>4</sup> - 20 <sup>5</sup> - 20 <sup>4</sup>
LED FWHM / FWTM Efficiency Peak intensity	LH502C 28.0° / 54.0°	99 <sup>4</sup> 90 <sup>5</sup> 90 <sup>5</sup>
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	LH502C 28.0° / 54.0° 92 % 2.8 cd/lm 1	50 50 50 50 50 50 50 50 50 50
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LH502C 28.0° / 54.0° 92 % 2.8 cd/lm 1 White	99. 60
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LH502C 28.0° / 54.0° 92 % 2.8 cd/lm 1 White	ege ege ege 609 607 607
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LH502C 28.0° / 54.0° 92 % 2.8 cd/lm 1 White	202 69 69 60 60 60 60 60 60 60 60 60 60 60 60 60
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LH502C 28.0° / 54.0° 92 % 2.8 cd/lm 1 White	202 69 69 60 60 60 60 60 60 60 60 60 60 60 60 60
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: <b>SAMSUN</b> LED FWHM / FWTM	LH502C 28.0° / 54.0° 92 % 2.8 cd/lm 1 White	202 69 69 60 60 60 60 60 60 60 60 60 60 60 60 60
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: <b>SAMSUN</b> LED FWHM / FWTM Efficiency	LH502C 28.0° / 54.0° 92 % 2.8 cd/lm 1 White	200 200 200 200 200 200 200 200
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: <b>SAMSUN</b> LED FWHM / FWTM Efficiency Peak intensity	LH502C 28.0° / 54.0° 92 % 2.8 cd/lm 1 White LH502C 28.0° / 54.0° 85 %	20 20 20 20 20 20 20 20 20 20
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: <b>SAMSUN</b> LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	LH502C 28.0° / 54.0° 92 % 2.8 cd/lm 1 White LH502C 28.0° / 54.0° 85 % 2.6 cd/lm	20 20 20 20 20 20 20 20 20 20
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: <b>SAMSUN</b> LED FWHM / FWTM Efficiency Peak intensity	LH502C 28.0° / 54.0° 92 % 2.8 cd/lm 1 White LH502C 28.0° / 54.0° 85 % 2.6 cd/lm 1	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: <b>SAMSUN</b> LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	LH502C 28.0° / 54.0° 92 % 2.8 cd/lm 1 White LH502C 28.0° / 54.0° 85 % 2.6 cd/lm 1 White	



SAMSU	NG	50*
LED	LH508B	
FWHM / FWTM	28.0° / 56.0°	
Efficiency	92 %	60 60
Peak intensity	2.7 cd/lm	
LEDs/each optic	1	
Light colour	White	ar <mark>- 200 - </mark> ar
Required components:		200.
SAMSU	NG	90 <sup>4</sup> 90 <sup>4</sup>
LED	LM301B	
FWHM / FWTM	16.0° / 32.0°	200 20
Efficiency	94 %	
Peak intensity	7.7 cd/lm	
LEDs/each optic	1	
Light colour	White	a. a.
Required components:	:	
		500
		3/* 800 3/*
SEOUL		125 <sup>4</sup> 0 <sup>4</sup> 15 <sup>5</sup>
SEOUL SEMICONDUCTOR		30 <sup>4</sup> 30 <sup>4</sup>
LED	MJT 5050	77 77
FWHM / FWTM	30.0° / 60.0°	
Efficiency	92 %	61 - 000 - 90 <sup>4</sup>
Peak intensity	2.4 cd/lm	
LEDs/each optic	1	
Light colour	White	g* do
Required components:	:	



#### **GENERAL INFORMATION:**

NOTE: The typical beam angle will be changed by different color, chip size and chip position tolerance. The typical total beam angle is the full angle measured where the luminous intensity is half of the peak value.

#### MATERIALS:

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