

# LISA3-WW-PIN

~45° wide beam with location pin installation

#### **TECHNICAL SPECIFICATIONS:**

Dimensions	Ø 9.9 mm
Height	7 mm
Fastening	pin
ROHS compliant	yes 🛈



### **MATERIAL SPECIFICATIONS:**

Component	Туре	Material	Colour	Finish
LISA3-WW	Single lens	PMMA	clear	
LISA3-HLD-PIN	Holder	PC	black	

#### **ORDERING INFORMATION:**

Component		Qty in box	MOQ	MPQ	Box weight (kg)
FP16561_LISA3-WW-PIN	Single lens	2000	300	100	1.4
» Box size: 310 x 230 x 60 mm					



# PRODUCT DATASHEET FP16561\_LISA3-WW-PIN



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



#### **PHOTOMETRIC DATA (MEASURED):**

		91*
LED	NF2x757G	
FWHM / FWTM	38.0° / 71.0°	
Efficiency	79 %	
Peak intensity	1.6 cd/lm	
LEDs/each optic	1	
Light colour	White	gr at
Required compone	nts:	



CREE LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	XP-E 51.0° / 79.0° 91 % 1.2 cd/lm 1 White	50° 50° 50° 50° 50° 50° 50° 50° 50° 50°
CREE LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	XP-E2 45.0° / 71.0° 90 % 1.5 cd/m 1 White	34 529 54 69 60 67 90 67 90 90 67 90 67 90 67 90 67 90 90 90 90 90 90 90 90 90 90 90 90 90
CREE LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	XP-G2 49.0° / 78.0° 90 % 1.9 cd/lm 1 White	
CREE LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	XP-G2 HE 53.0° / 87.0° 86 % 1 cd/lm 1 White	



	XT-E	90°
FWHM / FWTM	44.0° / 73.0°	75*
Efficiency	87 %	
Peak intensity	1.5 cd/lm	60* 60*
LEDs/each optic	1	
Light colour	White	97°
Required components:	Winte	34 <sup>3</sup> 25 <sup>3</sup> 4 <sup>3</sup> 25 <sup>4</sup> 25 <sup>4</sup>
	)S	90° 90°
LED	LUXEON 3014	
FWHM / FWTM	38.0° / 65.0°	
Efficiency	90 %	
Peak intensity	2 cd/lm	80°
LEDs/each optic	1	
Light colour	White	a7 a5.
Required components:		
		1630
		300 300
		15° 0° 15°
	)S	90° 99°
	LUXEON 3030 2D (Round LES)	30'     90'       30'     90'
		32.     35.       38.     30.       122.     35.
LED FWHM / FWTM Efficiency	LUXEON 3030 2D (Round LES)	10,     00     00       10,     00     00
LED FWHM / FWTM Efficiency Peak intensity	LUXEON 3030 2D (Round LES) 37.0° / 65.0°	101,     00     00       22,     35,     35,       30,     35,     35,
LED FWHM / FWTM Efficiency	LUXEON 3030 2D (Round LES) 37.0° / 65.0° 86 % 1.9 cd/lm 1	10,     00     00,       33,     36,     36,       34,     36,     36,
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	LUXEON 3030 2D (Round LES) 37.0° / 65.0° 86 % 1.9 cd/lm	101,     04,     101,       00,     00,     00,     00,       00,     00,     00,     00,       00,     00,     00,     00,       00,     00,     00,     00,
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	LUXEON 3030 2D (Round LES) 37.0° / 65.0° 86 % 1.9 cd/lm 1	30.     90.     60.       33.     30.     60.       33.     35.     35.
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	LUXEON 3030 2D (Round LES) 37.0° / 65.0° 86 % 1.9 cd/lm 1	100     00     00       101     101     00
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	LUXEON 3030 2D (Round LES) 37.0° / 65.0° 86 % 1.9 cd/lm 1	10°     0°     10°       0°     10°     0°       0°     00°     0°       0°     00°     0°       10°     00°     0°
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	LUXEON 3030 2D (Round LES) 37.0° / 65.0° 86 % 1.9 cd/lm 1	300 - 300
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LUXEON 3030 2D (Round LES) 37.0° / 65.0° 86 % 1.9 cd/lm 1 White	500
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LUXEON 3030 2D (Round LES) 37.0° / 65.0° 86 % 1.9 cd/lm 1 White	300 300
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LUXEON 3030 2D (Round LES) 37.0° / 65.0° 86 % 1.9 cd/lm 1 White S LUXEON TX	300 300
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LUXEON 3030 2D (Round LES) 37.0° / 65.0° 86 % 1.9 cd/lm 1 White S LUXEON TX 45.0° / 74.0°	500 500 500 500 500 500 500 500 500 500
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LUXEON 3030 2D (Round LES) 37.0° / 65.0° 86 % 1.9 cd/lm 1 White S LUXEON TX 45.0° / 74.0° 87 %	500 500 500 500 500 500 500 500 500 500
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LUXEON 3030 2D (Round LES) 37.0° / 65.0° 86 % 1.9 cd/lm 1 White Vhite LUXEON TX 45.0° / 74.0° 87 % 1.4 cd/lm	500 500 500 500 500 500 500 500 500 500
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LUXEON 3030 2D (Round LES) 37.0° / 65.0° 86 % 1.9 cd/lm 1 White <b>S</b> LUXEON TX 45.0° / 74.0° 87 % 1.4 cd/lm 1	500 500 500 500 500 500 500 500 500 500
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: <b>ED</b> FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	LUXEON 3030 2D (Round LES) 37.0° / 65.0° 86 % 1.9 cd/lm 1 White Vhite LUXEON TX 45.0° / 74.0° 87 % 1.4 cd/lm	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LUXEON 3030 2D (Round LES) 37.0° / 65.0° 86 % 1.9 cd/lm 1 White <b>S</b> LUXEON TX 45.0° / 74.0° 87 % 1.4 cd/lm 1	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: <b>ED</b> FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	LUXEON 3030 2D (Round LES) 37.0° / 65.0° 86 % 1.9 cd/lm 1 White <b>S</b> LUXEON TX 45.0° / 74.0° 87 % 1.4 cd/lm 1	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: <b>WIM / COMPARENT</b> LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	LUXEON 3030 2D (Round LES) 37.0° / 65.0° 86 % 1.9 cd/lm 1 White <b>S</b> LUXEON TX 45.0° / 74.0° 87 % 1.4 cd/lm 1	



		50 <sup>*</sup>
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LUXEON V2 44.0° / 76.0° 89 % 1.5 cd/lm 1 White	
	)S	90 <sup>4</sup> 90
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LUXEON Z 38.5° / 63.0° 89 % 2 cd/lm 1 White	
		107 2000 20"
	DS	900
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LUXEON Z ES 40.0° / 66.0° 90 % 1.9 cd/lm 1 White	
	JS	90*
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	SST-20 41.0° / 70.0° 88 % 1.6 cd/lm 1 White	21 21 21 21 20 20 20 20 20 20 20 20 20 20



ØΝΙCΗΙΛ		80°
LED FWHM / FWTM Efficiency LEDs/each optic Light colour Required components:	NCSU276C 49.0° / 77.0° 91 % 1 UV-A	x, 200 - 40 - 40 - 20 - 40 - 40 - 40 - 40
MICHIΛ		125 <sup>°</sup> 0 <sup>8</sup> 125 <sup>°</sup>
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	NCSxx19B 44.0° / 72.0° 84 % 1.5 cd/lm 1 White	77° 60° 60° 500 500 500 500
		15°
<b>WICHIA</b> LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	NVSW219D 50.0° / 80.0° 86 % 1.1 cd/lm 1 White	
<b>WICHIA</b> LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	NVSW219F 52.0° / 84.0° 88 % 1.1 cd/lm 1 White	91 92 92 93 94 95 95 95 96 96 96 96 96 96



<b>ΜΝΙCΗΙΛ</b>		90° 90°
LED	NVSxx19B/NVSxx19C	
FWHM / FWTM	45.0° / 78.0°	73.
Efficiency	85 %	400
Peak intensity	1.3 cd/lm	be be
LEDs/each optic	1	
Light colour	White	45* 800 45*
Required components:		
		120
		30.
		15% 0% 35%
OSRAM Opto Semiconductors		90*
LED	Duris S5 (2 chip)	
FWHM / FWTM	36.0° / 66.0°	
Efficiency	88 %	60 <sup>1</sup> 60 <sup>2</sup>
Peak intensity	1.9 cd/lm	
LEDs/each optic	1	
Light colour	White	93* 42*
Required components:		
		300 300
OSRAM		
OSRAM Opto Semiconductors		99 <sup>4</sup>
LED	Duris S5 (Single chip)	27 28 29 29 29 29 29 29 29 29
LED FWHM / FWTM	37.0° / 64.0°	39° 39° 39° 39° 39° 39° 39° 39° 39° 39°
LED FWHM / FWTM Efficiency	37.0° / 64.0° 86 %	60 <sup>4</sup> 00 6 <sup>4</sup>
LED FWHM / FWTM Efficiency Peak intensity	37.0° / 64.0° 86 % 1.9 cd/lm	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	37.0° / 64.0° 86 % 1.9 cd/lm 1	127     67     127       90*     90*     90*       90*     90*     90*       90*     90*     90*       90*     90*     90*       90*     90*     90*       90*     90*     90*       90*     90*     90*       90*     90*     90*
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	37.0° / 64.0° 86 % 1.9 cd/lm	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	37.0° / 64.0° 86 % 1.9 cd/lm 1	127     6°     12°       90°     90°     90° <
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	37.0° / 64.0° 86 % 1.9 cd/lm 1	20° 10° 10° 10°
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	37.0° / 64.0° 86 % 1.9 cd/lm 1	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	37.0° / 64.0° 86 % 1.9 cd/lm 1	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	37.0° / 64.0° 86 % 1.9 cd/lm 1	30
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	37.0° / 64.0° 86 % 1.9 cd/lm 1	30 <sup>4</sup> 13 <sup>7</sup> 28 <sup>10</sup> 1 <sup>5</sup> 2 <sup>4</sup>
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	37.0° / 64.0° 86 % 1.9 cd/lm 1 White	30 <sup>4</sup> 13 <sup>7</sup> 28 <sup>10</sup> 1 <sup>5</sup> 2 <sup>4</sup>
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	37.0° / 64.0° 86 % 1.9 cd/lm 1 White OSCONIQ P 3030	30 <sup>4</sup> 137 340 37 <sup>2</sup>
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: COSRAM Opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity	37.0° / 64.0° 86 % 1.9 cd/lm 1 White OSCONIQ P 3030 38.0° / 66.0°	30 <sup>4</sup> 137 340 37 <sup>2</sup>
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	37.0° / 64.0° 86 % 1.9 cd/lm 1 White OSCONIQ P 3030 38.0° / 66.0° 87 %	30 <sup>4</sup> 137 340 37 <sup>2</sup>
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	37.0° / 64.0° 86 % 1.9 cd/lm 1 White OSCONIQ P 3030 38.0° / 66.0° 87 % 1.9 cd/lm	20- 12- 20- 20- 20- 20- 20- 20- 20- 20- 20- 2
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	37.0° / 64.0° 86 % 1.9 cd/lm 1 White OSCONIQ P 3030 38.0° / 66.0° 87 % 1.9 cd/lm 1	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	37.0° / 64.0° 86 % 1.9 cd/lm 1 White OSCONIQ P 3030 38.0° / 66.0° 87 % 1.9 cd/lm 1	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	37.0° / 64.0° 86 % 1.9 cd/lm 1 White OSCONIQ P 3030 38.0° / 66.0° 87 % 1.9 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: Opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	37.0° / 64.0° 86 % 1.9 cd/lm 1 White OSCONIQ P 3030 38.0° / 66.0° 87 % 1.9 cd/lm 1	50° 50° 50° 50° 50° 50° 50° 50° 50° 50°



OSRAM		90° 90°
Opto Semiconductors	OSLON Black	
FWHM / FWTM	33.0° / 60.0°	75* 25*
Efficiency	90 %	
Peak intensity	90 % 2.4 cd/lm	60° 60°
LEDs/each optic		
Light colour	1 White	45°
Required components:	White	1000
Required components.		
		30° 36° 36° 15°
OSRAM Opto Semiconductors		90° 90°
Opto Semiconductors	OSLON Black Flat	
FWHM / FWTM	36.0° / 64.0°	25*
Efficiency	90 %	
Peak intensity	2.1 cd/lm	60* 60*
LEDs/each optic	1	
Light colour	Red	9°
Required components:		
		1630
		$\times$ / $\vee$ / $\times$
		30* 36*
		15° 0° 15°
OSRAM		90° 95°
OSRAM Opto Semiconductors	OSI ON Square CSSRM2/CSSRM3	99 <sup>4</sup> 99 <sup>4</sup> 99 <sup>4</sup>
LED	OSLON Square CSSRM2/CSSRM3	25. 25. 25. 25. 25. 25. 25. 25.
LED FWHM / FWTM	43.0° / 78.0°	
LED FWHM / FWTM Efficiency	43.0° / 78.0° 88 %	
LED FWHM / FWTM Efficiency Peak intensity	43.0° / 78.0° 88 % 1.6 cd/lm	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	43.0° / 78.0° 88 % 1.6 cd/lm 1	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	43.0° / 78.0° 88 % 1.6 cd/lm	73 66 60 60 60 60 75
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	43.0° / 78.0° 88 % 1.6 cd/lm 1	73 66 60 60 60 60 75
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	43.0° / 78.0° 88 % 1.6 cd/lm 1	60 60 73 73 75 75
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	43.0° / 78.0° 88 % 1.6 cd/lm 1	73 66 60 60 60 60 75
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	43.0° / 78.0° 88 % 1.6 cd/lm 1	73 66 60 60 60 60 75
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	43.0° / 78.0° 88 % 1.6 cd/lm 1	73 66 60 60 60 60 75
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	43.0° / 78.0° 88 % 1.6 cd/lm 1 White	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	43.0° / 78.0° 88 % 1.6 cd/lm 1 White OSLON Square EC	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: OPTO Semiconductors LED FWHM / FWTM	43.0° / 78.0° 88 % 1.6 cd/lm 1 White OSLON Square EC 44.0° / 75.0°	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: OBSRAM Opto Semiconductors LED FWHM / FWTM Efficiency	43.0° / 78.0° 88 % 1.6 cd/lm 1 White OSLON Square EC 44.0° / 75.0° 88 %	30     30       30     30
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity	43.0° / 78.0° 88 % 1.6 cd/lm 1 White OSLON Square EC 44.0° / 75.0° 88 % 1.4 cd/lm	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	43.0° / 78.0° 88 % 1.6 cd/lm 1 White OSLON Square EC 44.0° / 75.0° 88 % 1.4 cd/lm 1	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	43.0° / 78.0° 88 % 1.6 cd/lm 1 White OSLON Square EC 44.0° / 75.0° 88 % 1.4 cd/lm	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	43.0° / 78.0° 88 % 1.6 cd/lm 1 White OSLON Square EC 44.0° / 75.0° 88 % 1.4 cd/lm 1	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	43.0° / 78.0° 88 % 1.6 cd/lm 1 White OSLON Square EC 44.0° / 75.0° 88 % 1.4 cd/lm 1	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	43.0° / 78.0° 88 % 1.6 cd/lm 1 White OSLON Square EC 44.0° / 75.0° 88 % 1.4 cd/lm 1	



OSRAM Opto Semiconductors		50*
LED	OSLON SSL 150	
FWHM / FWTM	45.0° / 73.0°	75*
Efficiency	90 %	400
Peak intensity	90 % 1.4 cd/lm	50°
LEDs/each optic	1	45 <sup>4</sup>
Light colour	White	
Required components:		1230
		30° 30° 15° 30°
OSRAM		
Opto Semiconductors		90° 90°
		72
LED	SFH 4715AS	
FWHM / FWTM	30.0° / 57.0°	801 60.
Efficiency	89 %	
LEDs/each optic	1	
Light colour	IR	97° 45°
Required components:		
		2400
		30-
OSRAM		
OSRAM Opto Semiconductors		90 <sup>+</sup>
LED	Synios P2720 1 mm	35
LED FWHM / FWTM	37.0° / 64.0°	25. 26. 26.
LED FWHM / FWTM Efficiency	37.0° / 64.0° 90 %	64 64 22 24 25 25 25 25 25 25 25 25 25 25 25 25 25
LED FWHM / FWTM Efficiency Peak intensity	37.0° / 64.0° 90 % 2 cd/lm	64 65 65 65 65 65 65 65 65 65 65 65 65 65
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	37.0° / 64.0° 90 % 2 cd/lm 1	90 (Kr.
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	37.0° / 64.0° 90 % 2 cd/lm	gr
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic	37.0° / 64.0° 90 % 2 cd/lm 1	gr 60
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	37.0° / 64.0° 90 % 2 cd/lm 1	90 (Kr.
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	37.0° / 64.0° 90 % 2 cd/lm 1	gr 60
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	37.0° / 64.0° 90 % 2 cd/lm 1	gr 60
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	37.0° / 64.0° 90 % 2 cd/lm 1	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	37.0° / 64.0° 90 % 2 cd/lm 1 Red	gr 60
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	37.0° / 64.0° 90 % 2 cd/lm 1 Red SYNIOS S2222 (KW DDLM31)	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Opto Semiconductors LED FWHM / FWTM	37.0° / 64.0° 90 % 2 cd/lm 1 Red SYNIOS S2222 (KW DDLM31) 37.0 + 38.0° / 66.0°	54 54 55 55 55 55 55 55 55 55
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Opto Semiconductors LED FWHM / FWTM Efficiency	37.0° / 64.0° 90 % 2 cd/lm 1 Red SYNIOS S2222 (KW DDLM31) 37.0 + 38.0° / 66.0° 97 %	54 54 55 55 55 55 55 55 55 55
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: Opto Semiconductors LED FWHM / FWTM Efficiency Peak intensity	37.0° / 64.0° 90 % 2 cd/lm 1 Red SYNIOS S2222 (KW DDLM31) 37.0 + 38.0° / 66.0° 97 % 2 cd/lm	54 54 55 55 55 55 55 55 55 55
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	37.0° / 64.0° 90 % 2 cd/lm 1 Red SYNIOS S2222 (KW DDLM31) 37.0 + 38.0° / 66.0° 97 % 2 cd/lm 1	54 54 55 55 55 55 55 55 55 55
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	37.0° / 64.0° 90 % 2 cd/lm 1 Red SYNIOS S2222 (KW DDLM31) 37.0 + 38.0° / 66.0° 97 % 2 cd/lm	54 54 55 55 55 55 55 55 55 55
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	37.0° / 64.0° 90 % 2 cd/lm 1 Red SYNIOS S2222 (KW DDLM31) 37.0 + 38.0° / 66.0° 97 % 2 cd/lm 1	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	37.0° / 64.0° 90 % 2 cd/lm 1 Red SYNIOS S2222 (KW DDLM31) 37.0 + 38.0° / 66.0° 97 % 2 cd/lm 1	54 54 55 55 55 55 55 55 55 55
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	37.0° / 64.0° 90 % 2 cd/lm 1 Red SYNIOS S2222 (KW DDLM31) 37.0 + 38.0° / 66.0° 97 % 2 cd/lm 1	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	37.0° / 64.0° 90 % 2 cd/lm 1 Red SYNIOS S2222 (KW DDLM31) 37.0 + 38.0° / 66.0° 97 % 2 cd/lm 1	



SAMSUN	IG	90* 90*
LED	LH351C	
FWHM / FWTM	48.0° / 82.0°	25.
Efficiency	87 %	400
Peak intensity	1.2 cd/lm	
LEDs/each optic	1	
Light colour	White	e2
Required components:		
		30° 15° 0° 15°
SAMSUN	IG	90°
LED	LH351C	
FWHM / FWTM	46.0° / 80.0°	75* 75*
Efficiency	85 %	400
Peak intensity	1.3 cd/lm	$r \times / $
LEDs/each optic	1	
Light colour	White	g*
Required components:		
		127
		30° 15° 1680 15° 30°
SAMSUN	IG	50°
		99° 39°
SAMSUN LED FWHM/FWTM	LH351D	39 <sup>4</sup> 39 <sup>4</sup> 25 <sup>4</sup>
LED		25 26 26 27 27 27 27
LED FWHM / FWTM	LH351D 47.0° / 86.0°	60° - 60 - 60°
LED FWHM / FWTM Efficiency	LH351D 47.0° / 86.0° 84 %	99 <sup>5</sup> 99 <sup>7</sup> 73 <sup>9</sup> 99 <sup>6</sup> 606 80 <sup>9</sup>
LED FWHM / FWTM Efficiency Peak intensity	LH351D 47.0° / 86.0° 84 % 1.1 cd/lm	5°
FWHM / FWTM Efficiency Peak intensity LEDs/each optic	LH351D 47.0° / 86.0° 84 % 1.1 cd/lm 1	50° 60° 60°
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	LH351D 47.0° / 86.0° 84 % 1.1 cd/lm 1	50° 60° 60°
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	LH351D 47.0° / 86.0° 84 % 1.1 cd/lm 1	50° 60° 60°
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	LH351D 47.0° / 86.0° 84 % 1.1 cd/lm 1	50° - 60° - 60°
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LH351D 47.0° / 86.0° 84 % 1.1 cd/lm 1 White	30. - 80 
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LH351D 47.0° / 86.0° 84 % 1.1 cd/lm 1 White	30- 22- 23- 25- 25- 25- 25- 25- 25- 25- 25
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components:	LH351D 47.0° / 86.0° 84 % 1.1 cd/lm 1 White	30. - 80 
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: <b>SAMSUN</b> LED FWHM / FWTM	LH351D 47.0° / 86.0° 84 % 1.1 cd/lm 1 White	30. - 80 
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: <b>SAMSUN</b> LED FWHM / FWTM Efficiency	LH351D 47.0° / 86.0° 84 % 1.1 cd/lm 1 White	30. - 80 
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: <b>SAMSUN</b> LED FWHM / FWTM	LH351D 47.0° / 86.0° 84 % 1.1 cd/lm 1 White	
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: <b>SAMSUN</b> LED FWHM / FWTM Efficiency Peak intensity	LH351D 47.0° / 86.0° 84 % 1.1 cd/lm 1 White	
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	LH351D 47.0° / 86.0° 84 % 1.1 cd/lm 1 White LM301A 36.0° / 76.0° 88 % 2 cd/lm 1	90 90 90 90 90 90 90 90 90 90
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: <b>SANNSUN</b> LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	LH351D 47.0° / 86.0° 84 % 1.1 cd/lm 1 White LM301A 36.0° / 76.0° 88 % 2 cd/lm 1	90 90 90 90 90 90 90 90 90 90
LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour Required components: <b>SANNSUN</b> LED FWHM / FWTM Efficiency Peak intensity LEDs/each optic Light colour	LH351D 47.0° / 86.0° 84 % 1.1 cd/lm 1 White LM301A 36.0° / 76.0° 88 % 2 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	LH351D 47.0° / 86.0° 84 % 1.1 cd/lm 1 White LM301A 36.0° / 76.0° 88 % 2 cd/lm 1	90     90       32     90       34     90       35     90       90     90       90     90       90     90       90     90       90     90       90     90       90     90       90     90       90     90



SAMSUN	IG	90° 99°
LED	LM302A	
FWHM / FWTM	38.0° / 68.0°	73.
Efficiency	88 %	
Peak intensity	1.9 cd/lm	
LEDs/each optic	1	
Light colour	White	g*
Required components:		30° 25° 0° 35° 55°
<b>STANLEY</b>		90° 90°
LED	MFN1108MS	
FWHM / FWTM	54.0° / 82.0°	23.
Efficiency	92 %	
Peak intensity	1.2 cd/lm	
LEDs/each optic	1	
Light colour	IR	g. de
Required components:		30° 1200 10° 15°
<b>STANLEY</b>		90° 90°
LED	MGN1108MS	
FWHM / FWTM	54.0° / 82.0°	
Efficiency	92 %	60* 400 60*
Peak intensity	1.2 cd/lm	$\wedge / / \wedge \wedge /$
LEDs/each optic	1	$  \times / /   \wedge \times  $
Light colour	IR	451 431
Required components:		30 <sup>4</sup> 127 0 <sup>4</sup> 127 3 <sup>4</sup>



#### **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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#### LEDiL Oy

Joensuunkatu 13 FI-24240 SALO Finland

#### LEDiL Inc. 228 West Page Street Suite D Sycamore IL 60178 USA

Ledil Optics Technology (Shenzhen) Co., Ltd. # 405 , Block B Casic Motor Building Shenzhen 518057 P.R.CHINA

#### Local sales and technical support www.ledil.com/ where\_to\_buy

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