

## **VERONICA-SQ-MINI-O**

~15° + 50° oval beam

## **TECHNICAL SPECIFICATIONS:**

| Dimensions     | 13.9 x 13.9 mm |
|----------------|----------------|
| Height         | 8.9 mm         |
| Fastening      | tape, pin      |
| ROHS compliant | yes 🛈          |



## **MATERIAL SPECIFICATIONS:**

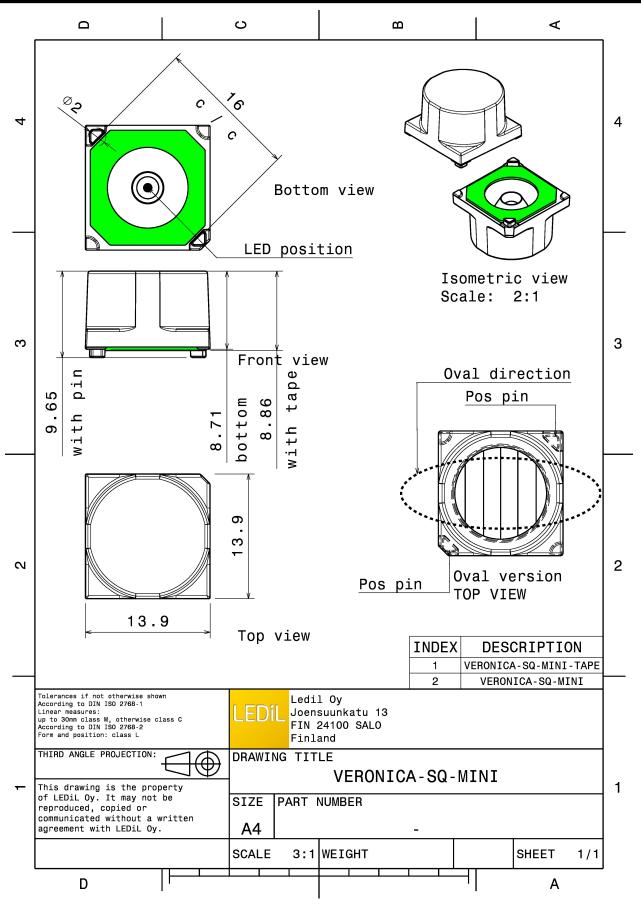
**Component** VERONICA-SQ-MINI-O VERONICA-SQ-MINI-TAPE **Type** Single lens Tape

| Material     | Colour | Finish |
|--------------|--------|--------|
| PMMA         | clear  |        |
| Acrylic foam | clear  |        |

## **ORDERING INFORMATION:**

| Component                      |             | Qty in box | MOQ | MPQ | Box weight (kg) |
|--------------------------------|-------------|------------|-----|-----|-----------------|
| CA14602_VERONICA-SQ-MINI-O     | Single lens | 5544       | 252 | 252 | 7.8             |
| » Box size: 480 x 280 x 300 mm |             |            |     |     |                 |





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



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

|   | ס   |  |    | 90*  | 90                         |
|---|---|--|----|--|----------------------------|
| LED   | <br>XD16  |  |    |  |                            |
| FWHM / FWTM   | 41.0 + 18.0° / 68.0 + 43.0°   |  |    | 75*  | 2.                         |
| Efficiency  | 89 %  |  |    | >  |                            |
| Peak intensity  | 2.2 cd/lm   |  |    | 50° 800  |                            |
| LEDs/each optic   | 1   |  |    |  |                            |
| Light colour  | White   |  |    | gr /   | 43                         |
| Required compone  |   |  |    | 1630   |                            |
|   |   |  |    |  |                            |
|   |   |  |    |  |                            |
|   |   |  |    | 30"  | 36                         |
|   |   |  |    | 15° 2450   | 12,                        |
|   | D   |  |    | 90*  | 90*                        |
| LED   | XP-E2   |  |    |  |                            |
| FWHM / FWTM   | 42.0 + 14.0° / 61.0 + 34.0°   |  |    | 800  | KX 7                       |
| Efficiency  | 92 %  |  |    | 692  | X - 60"                    |
| Peak intensity  | 3.8 cd/lm   |  | -  | 1630   | $K \vee$                   |
| LEDs/each optic   | 1   |  |    |  |                            |
| Light colour  | White   |  |    | 45" 2430   | 65                         |
| Required compone  | ents:   |  |    | $\sim$   |                            |
|   |   |  |    | 2200   |                            |
|   |   |  |    |  |                            |
|   |   |  |    | 30* 4000   | 30                         |
|   |   |  |    | 7  | F                          |
|   |   |  |    | 90*  | 90                         |
|   |   |  |    | •••  | 90*                        |
| LED   | XP-G2   |  |    | 73°  | 90*                        |
| LED<br>FWHM / FWTM  | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°  |  |    | 73*  | 997                        |
| LED<br>FWHM / FWTM<br>Efficiency  | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %  |  |    | 64. 00   | 99 <sup>1</sup>            |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity  | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %<br>2.3 cd/lm   |  | D. | 90°<br>72°<br>60°  | 997<br>772<br>664          |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic   | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %  |  | D  | 6.<br>00<br>90   | 99'<br>99'                 |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity  | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %<br>2.3 cd/lm<br>1<br>White   |  | D. | 9°<br>6°<br>6°<br>6°<br>60<br>80<br>80   | 99<br>72<br>00<br>00<br>00 |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour   | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %<br>2.3 cd/lm<br>1<br>White   |  |    | 71<br>61<br>67   | 99<br>55<br>65             |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour   | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %<br>2.3 cd/lm<br>1<br>White   |  |    | 71<br>61<br>67   | 60<br>90                   |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour   | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %<br>2.3 cd/lm<br>1<br>White   |  |    | 71<br>61<br>67   | 99<br>60<br>60<br>61       |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone   | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %<br>2.3 cd/lm<br>1<br>White<br>ents:  |  |    | 9° (00)  |                            |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone   | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %<br>2.3 cd/lm<br>1<br>White<br>ents:  |  |    | 9° (00)  | 12,0                       |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone   | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %<br>2.3 cd/lm<br>1<br>White<br>ents:  |  |    | 20<br>60<br>90<br>90<br>90<br>90<br>90<br>90<br>90<br>90<br>90<br>90<br>90<br>90<br>90             | 12,0                       |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone   | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %<br>2.3 cd/lm<br>1<br>White<br>ents:<br>XP-G3<br>41.0 + 24.0° / 75.0 + 57.0°                                    |  |    | 20<br>60<br>9<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30        | 99<br>                     |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone<br>CREE (LED<br>FWHM / FWTM<br>Efficiency   | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %<br>2.3 cd/lm<br>1<br>White<br>ents:<br>XP-G3<br>41.0 + 24.0° / 75.0 + 57.0°<br>92 %                            |  |    | 20<br>60<br>9<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30        | 12,                        |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone<br>Required compone<br>Equired compone  | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %<br>2.3 cd/lm<br>1<br>White<br>ents:<br>XP-G3<br>41.0 + 24.0° / 75.0 + 57.0°<br>92 %<br>1.8 cd/lm               |  |    | 20<br>60<br>9<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30<br>30        | 12,                        |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone<br>Required compone<br>Equired compone<br>Efficiency<br>Peak intensity<br>LEDs/each optic             | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %<br>2.3 cd/lm<br>1<br>White<br>ents:<br>XP-G3<br>41.0 + 24.0° / 75.0 + 57.0°<br>92 %<br>1.8 cd/lm<br>1          |  |    | 20<br>60<br>60<br>60<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70 | 12*                        |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone<br>Required compone<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour                | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %<br>2.3 cd/lm<br>1<br>White<br>ents:<br>XP-G3<br>41.0 + 24.0° / 75.0 + 57.0°<br>92 %<br>1.8 cd/lm<br>1<br>White |  |    | 20<br>60<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9 | 12,0                       |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone<br>Required compone<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic          | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %<br>2.3 cd/lm<br>1<br>White<br>ents:<br>XP-G3<br>41.0 + 24.0° / 75.0 + 57.0°<br>92 %<br>1.8 cd/lm<br>1<br>White |  |    | 20<br>60<br>60<br>60<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70<br>70 | <u>15.</u>                 |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone<br>Required compone<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour                | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %<br>2.3 cd/lm<br>1<br>White<br>ents:<br>XP-G3<br>41.0 + 24.0° / 75.0 + 57.0°<br>92 %<br>1.8 cd/lm<br>1<br>White |  |    | 20<br>60<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9 | <u>15.</u>                 |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone<br>Required compone<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour                | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %<br>2.3 cd/lm<br>1<br>White<br>ents:<br>XP-G3<br>41.0 + 24.0° / 75.0 + 57.0°<br>92 %<br>1.8 cd/lm<br>1<br>White |  |    | 20<br>60<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9 | <u>15.</u>                 |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone<br>CREE CELE<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour | XP-G2<br>45.0 + 20.0° / 75.0 + 50.0°<br>92 %<br>2.3 cd/lm<br>1<br>White<br>ents:<br>XP-G3<br>41.0 + 24.0° / 75.0 + 57.0°<br>92 %<br>1.8 cd/lm<br>1<br>White |  |    | 20<br>60<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9 | <u>15.</u>                 |



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

|   | EDC  |                 |
|---|--|-----------------|
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone | LUXEON Rebel<br>42.0 + 20.0° / 71.0 + 50.0°<br>90 %<br>2.1 cd/lm<br>1<br>White       |                 |
|   | EDS  | 90 <sup>1</sup> |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone | LUXEON Rebel ES<br>50.0 + 23.0° / 71.0 + 51.0°<br>80 %<br>2.1 cd/lm<br>1<br>White    |                 |
|   | EDS  | 90°             |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone | LUXEON TX<br>42.0 + 22.0° / 73.0 + 54.0°<br>90 %<br>2.1 cd/lm<br>1<br>White<br>ents: |                 |
| <b>∕</b> NICHI∕   |  | 90°             |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone | NCSxE17A<br>40.0 + 20.0° / 69.0 + 44.0°<br>89 %<br>2.1 cd/lm<br>1<br>White           |                 |



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

| ~                                |  |  |
|----------------------------------|--|--|
| ØNICHI/                          | N Contraction of the second seco | 90°  |
| LED<br>FWHM / FWTM<br>Efficiency | NVSxx19B/NVSxx19C<br>41.0 + 23.0° / 74.0 + 56.0°<br>90 %   |  |
| Peak intensity                   | 1.9 cd/lm  |  |
| LEDs/each optic                  | 1  |  |
| Light colour                     | White  |  |
| Required compone                 | nts:   | 20-<br>20-<br>20-<br>20-<br>20-<br>20-<br>20-<br>20-<br>20-<br>20- |
| OSRAM<br>Opto Semiconductors     |  | 50' 50   |
| LED                              | Duris S5 (2 chip)  |  |
| FWHM / FWTM                      | 76.0 + 22.0° / 79.0 + 61.0°  | 10 10 10 10 10 10 10 10 10 10 10 10 10 1                           |
| Efficiency                       | 74 %   |  |
| Peak intensity                   | 1.6 cd/lm  |  |
| LEDs/each optic                  | 1  |  |
| Light colour                     | White  | er e   |
| Required compone                 | ents:  |  |
|                                  |  | 30- 100 12 <sup>10</sup> 12 <sup>10</sup>                          |
| OSRAM<br>Opto Semiconductors     |  | 90 <sup>+</sup> D  |
| LED                              | OSLON Square EC  |  |
| FWHM / FWTM                      | 42.0 + 20.0° / 72.0 + 49.0°  |  |
| Efficiency                       | 89 %   |  |
| Peak intensity                   | 2.2 cd/lm  |  |
| LEDs/each optic                  | 1  |  |
| Light colour                     | White  | er i i i i i i i i i i i i i i i i i i i                           |
| Required compone                 | ents:  | 2057<br>20-<br>29-<br>00-<br>12-<br>20-                            |
| OSRAM<br>Opto Semiconductors     |  |  |
| LED                              | SFH 4170S  |  |
| FWHM / FWTM                      | 40.0 + 12.0° / 60.0 + 33.0°  |  |
| Efficiency                       | %  |  |
| LEDs/each optic                  | 1  |  |
| Light colour                     | IR   |  |
| Required compone                 | ents:  |  |
|                                  |  |  |
|                                  |  |  |
|                                  |  |  |
|                                  |  |  |



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

#### OSRAM

| LED               | SFH 4180S                   |
|-------------------|-----------------------------|
| FWHM / FWTM       | 38.0 + 11.0° / 58.0 + 31.0° |
| Efficiency        | %                           |
| LEDs/each optic   | 1                           |
| Light colour      | IR                          |
| Required componen | its:                        |

| SAMSI<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone               | LH181A<br>42.0 + 22.0° / 77.0 + 54.0°<br>88 %<br>1.5 cd/lm<br>1<br>White<br>ents: |  |
|--|---|--|
| SAMS<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone                | LH181B<br>22.0 + 41.0° / 54.0 + 75.0°<br>91 %<br>1.8 cd/lm<br>1<br>White          |  |
| seoul semiconoucror<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required compone | Z8Y22P<br>46.0 + 23.0° / 80.0 + 62.0°<br>90 %<br>1.5 cd/lm<br>1<br>White<br>ents: |  |

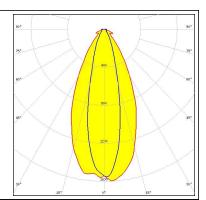


## **PHOTOMETRIC DATA (SIMULATED):**

## 

| LED                  | Х  |
|----------------------|----|
| FWHM / FWTM          | 50 |
| Efficiency           | 90 |
| Peak intensity       | 1. |
| LEDs/each optic      | 1  |
| Light colour         | W  |
| Required components: |    |

XP-G2 HE 50.0 + 26.0° / 88.0 + 59.0° 90 % 1.6 cd/lm 1 White



### 

| LED                  |
|----------------------|
| FWHM / FWTM          |
| Efficiency           |
| Peak intensity       |
| LEDs/each optic      |
| Light colour         |
| Required components: |

| XQ-E HD                     |   |
|-----------------------------|---|
| 54.0 + 16.0° / 80.0 + 34.0° | D |
| 90 %                        |   |
| 2.7 cd/lm                   |   |
| 1                           |   |
| White                       |   |
|                             |   |

#### LED XQ-E HI FWHM / FWTM 54.0 + 12.0° / 78.0 + 26.0° Efficiency 89 % Peak intensity 3.3 cd/lm LEDs/each optic 1 Light colour White Required components: LED LUXEON 2835 Line FWHM / FWTM 54.0 + 16.0° / 80.0 + 41.0° Efficiency 86 % Peak intensity 2.3 cd/lm LEDs/each optic 1 PC Amber Light colour Required components:



| LUMILED  | )S   | 90* 9   |
|--|--|---|
| LED<br>FWHM / FWTM<br>Efficiency   | LUXEON 5050 Round LES<br>54.0 + 36.0° / 118.0 + 106.0°<br>86 %                           | 75  |
| Peak intensity   | 0.8 cd/lm  | 60.4 et   |
| LEDs/each optic  | 1  | 400   |
| Light colour   | White  | a. A  |
| Required components:   |  | 24 <sup>4</sup> 10 <sup>5</sup> 00<br>00<br>10 <sup>5</sup> 10 <sup>5</sup> 10 <sup>5</sup> |
|  | )5   | 90*   |
| LED  | LUXEON C   |   |
| FWHM / FWTM  | 53.0 + 17.0° / 81.0 + 34.0°  |   |
| Efficiency   | 87 %   | 60 <sup>6</sup>   |
| Peak intensity   | 2.6 cd/lm  |   |
| LEDs/each optic  | 1  |   |
| Light colour   | White  | 43* (c)   |
| Required components:   |  | $k \neq 0$ $(1 + 1) > 2$  |
|  |  |   |
|  |  | 2430  |
|  |  | 30° 30 9° 35°   |
|  | )S   | 80 <sup>4</sup>   |
| LED  | LUXEON CZ  |   |
| FWHM / FWTM  | 56.0 + 13.0° / 79.0 + 26.0°  |   |
| Efficiency   | 91 %   |   |
| Peak intensity   | 3.3 cd/lm  |   |
|  |  |   |
| LEDs/each optic  | 1  | 1600  |
|  |  | X / / / X X   |
| LEDs/each optic<br>Light colour<br>Required components:  | 1  | gri   |
| Light colour   | 1  |   |
| Light colour   | 1<br>PC Amber  | 5°.<br>200<br>9°.   |
| Light colour<br>Required components:   | 1<br>PC Amber  |   |
| Light colour<br>Required components:   | 1<br>PC Amber  | 200 Jo - Jo   |
| Light colour<br>Required components:   | 1<br>PC Amber  |   |
| Light colour<br>Required components:   | 1<br>PC Amber<br>S<br>LUXEON CZ<br>54.0 + 12.0° / 78.0 + 25.0°                           |   |
| Light colour<br>Required components:   | 1<br>PC Amber<br>S<br>LUXEON CZ<br>54.0 + 12.0° / 78.0 + 25.0°<br>91 %                   |   |
| Light colour<br>Required components:   | 1<br>PC Amber<br>S<br>LUXEON CZ<br>54.0 + 12.0° / 78.0 + 25.0°<br>91 %<br>3.5 cd/lm      | 00<br>90<br>90<br>90<br>90<br>90<br>90<br>90<br>90<br>90<br>90<br>90<br>90<br>9             |
| Light colour<br>Required components:<br><b>LUMILED</b><br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic | 1<br>PC Amber<br>S<br>LUXEON CZ<br>54.0 + 12.0° / 78.0 + 25.0°<br>91 %<br>3.5 cd/lm<br>1 | 000<br>000<br>000<br>000<br>000<br>000<br>000<br>000<br>000<br>00                           |



|   | DS S  | 90* 90*  |
|---|---|--|
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:                                 | LUXEON Z ES<br>53.0 + 16.0° / 82.0 + 35.0°<br>92 %<br>2.6 cd/lm<br>1<br>White                 | 30° 12° 0° 12° 30°<br>6° 0° 0° 12° 30°<br>6° 0° 0° 0° 0° |
| OSRAM<br>Opto Semiconductors  |   | 90* 90*  |
| LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:                                 | Duris E 2835<br>18.0 + 52.0° / 48.0 + 82.0°<br>88 %<br>2 cd/lm<br>1<br>White                  | 5<br>5<br>6<br>100<br>100<br>100<br>100<br>100           |
| 0000414   |   | 150 00 150   |
| OSRAM<br>Opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components: | OSCONIQ P 3737 (2W version)<br>49.0 + 22.0° / 80.0 + 49.0°<br>83 %<br>1.9 cd/lm<br>1<br>White |  |
| OSRAM<br>Opto Semiconductors<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components: | OSCONIQ P 3737 (3W version)<br>24.0 + 48.0° / 48.0 + 80.0°<br>84 %<br>1.3 cd/lm<br>1<br>White |  |



| Anternatives<br>LED OSLON Square CSSRM2CSSRM3<br>EVMM / PVTM 48.0 + 20.0° / 82.0 + 44.0°<br>Efficiency 2 cd/m<br>Light colour While<br>Required components:   |  |                             |  |
|---|--|-----------------------------|--|
| Peak intensity 2 colim<br>LEDSteach optic 1<br>LEDSteach optic 1<br>LEDSteach optic 1<br>LEDSteach optic 2<br>LED OSLON SSL 150<br>EMEAN INFO SSL | OSRAM<br>Opto Semiconductors<br>LED<br>FWHM / FWTM | 48.0 + 20.0° / 82.0 + 44.0° | 50° 50°  |
| LEDeleach optic 1<br>Light colour White<br>Required components:<br>White<br>Required components:<br>CORREM<br>LED OSLON SSL 150<br>EVM / FVTM 55.0 + 16.0* / 52.0 + 34.0*<br>Efficiency 39 %<br>Peak intensity 2.6 colon<br>LEDeleach optic 1<br>Light colour Blue<br>Required components:<br>EVM / FVTM 55.0 + 15.0 / 50.0 + 30.0*<br>Efficiency 90 %<br>Peak intensity 2.8 colon<br>LEDM / Sch + 15.0* / 50.0 + 30.0*<br>Efficiency 90 %<br>Peak intensity 2.8 colon<br>LEDM / FVTM 55.0 + 10.0*<br>Efficiency 90 %<br>Peak intensity 2.8 colon<br>LEDM / FVTM 55.0 + 10.0*<br>Efficiency 90 %<br>Peak intensity 2.8 colon<br>LEDM / FVTM 55.0 + 10.0*<br>Efficiency 90 %<br>Peak intensity 2.8 colon<br>LEDM / Sch + 15.0* / 50.0 + 30.0*<br>Efficiency 90 %<br>Peak intensity 2.8 colon<br>LEDM / Sch + 15.0*<br>Peak intensity 2.8 colon<br>LEDM / FVTM 55.0 + 10.0*<br>Peak intensity 2.8 colon<br>LEDM / FVTM 55.0 + 10.0*<br>Peak intensity 2.8 colon<br>LEDSiesch optic 1<br>LEDSiesch optic  |  |                             | 60*  |
| Light colour White<br>Required components:  |  |                             | 800  |
| Required components:  |  | 1                           |  |
| OSERM         LED       OSLON SSL 150         FWHM / FWTM       S50 + 16.0° / 82.0 + 34.0°         Efficiency       89 %         Peak intensity       2.6 cd/m         LED       OSLON SSL 150         PWHM / FWTM       S4.0 + 15.0° / 80.0 + 30.0°         Efficiency       9.0 %         PWHM / FWTM       S4.0 + 15.0° / 80.0 + 30.0°         Efficiency       9.0 %         PWHM / FWTM       S4.0 + 15.0° / 80.0 + 30.0°         Efficiency       9.0 %         PWHM / FWTM       S4.0 + 15.0° / 80.0 + 30.0°         Efficiency       9.0 %         PWHM / FWTM       S3.0 + 16.0° / 80.0 + 30.0°         Efficiency       9.0 %         PWHM / FWTM       S3.0 + 16.0° / 80.0 + 30.0°         Efficiency       9.0 %         PWHM / FWTM       S3.0 + 16.0° / 80.0 + 30.0°         Efficiency       9.0 %         PWHM / FWTM       S3.0 + 16.0   |  | White                       | 43°  |
| Satestimutes<br>LED OSLON SSL 150<br>FWHM / FWTM 55.0 + 16.0° / 82.0 + 34.0°<br>Efficiency 99 %<br>Peak intensity 2.5 cd/m<br>LED2/each optic 1<br>Light colour Blue<br>Required components:  | Required components:                               |                             | 200 Jan - 200 Ja |
| FWHM / FWTM 55.0 + 18.0 * / 82.0 + 34.0 *<br>Efficiency 89 %<br>Peak intensity 2.6 cd/m<br>LEDs/each optic 1<br>Light colour Blue<br>Required components:   | OSRAM<br>Opto Semiconductors                       |                             | 90*  |
| Efficiency 89 %<br>Peak intensity 2.6 cd/m<br>LED CostLon SSL 150<br>FWH // FWTM 54.0 + 15.0° / 80.0 + 30.0°<br>Efficiency 90 %<br>Peak intensity 2.8 cd/m<br>LED OSLON SSL 150<br>FWH // FWTM 54.0 + 15.0° / 80.0 + 30.0°<br>Efficiency 90 %<br>Peak intensity 2.8 cd/m<br>LED OSLON SSL 150<br>FWH // FWTM 55.0 + 16.0° / 80.0 + 30.0°<br>Efficiency 90 %<br>Peak intensity 2.8 cd/m<br>LED OSLON SSL 150<br>FWH // FWTM 53.0 + 16.0° / 80.0 + 30.0°<br>Efficiency 90 %<br>Peak intensity 2.8 cd/m<br>LED OSLON SSL 150<br>FWH // FWTM 53.0 + 16.0° / 80.0 + 30.0°<br>Efficiency 90 %<br>Peak intensity 2.8 cd/m<br>LED COSLON SSL 150<br>FWH / FWTM 53.0 + 16.0° / 80.0 + 30.0°<br>Efficiency 90 %<br>Peak intensity 2.8 cd/m<br>LED Vertice 1<br>LED Vertic  | LED  | OSLON SSL 150               |  |
| Efficiency 89 % Peak intensity 2.6 cd/m LED/each optic 1 Light colour Blue Required components:   | FWHM / FWTM  | 55.0 + 16.0° / 82.0 + 34.0° |  |
| LEDs/each optic 1<br>Light colour Blue<br>Required components:  | Efficiency   |                             | 800  |
| Light colour Blue<br>Required components:   | Peak intensity                                     | 2.6 cd/lm                   |  |
| Light colour Blue<br>Required components:   | LEDs/each optic                                    | 1                           |  |
| OSECNE         LED       OSLON SSL 150         FWHM / FWTM       54.0 + 15.0° / 80.0 + 30.0°         Efficiency       90 %         Peak intensity       2.8 cd/lm         LEDs/each optic       1         Light colour       Green         Required components:       Image: Colour optic   | Light colour                                       | Blue                        | gr* 1500 es*   |
| OSECNE         LED       OSLON SSL 150         FWHM / FWTM       54.0 + 15.0° / 80.0 + 30.0°         Efficiency       90 %         Peak intensity       2.8 cd/lm         LEDs/each optic       1         Light colour       Green         Required components:       Image: Colour optic   | Required components:                               |                             |  |
| LED OSLON SSL 150<br>FWHM / FWTM 54.0 + 15.0° / 80.0 + 30.0°<br>Efficiency 90 %<br>Peak intensity 2.8 cd/lm<br>LEDs/each optic 1<br>Light colour Green<br>Required components:<br>EDS<br>EVHM / FWTM 53.0 + 16.0° / 80.0 + 30.0°<br>Efficiency 90 %<br>Peak intensity 2.8 cd/lm<br>LEDs/each optic 1<br>LEDs/each optic 1<br>LEDs/ea  |  |                             | 200 July 201 July 201  |
| LED OSLON SSL 150<br>FWHM / FWTM 54.0 + 15.0° / 80.0 + 30.0°<br>Efficiency 90 %<br>Peak intensity 2.8 cd/lm<br>LEDs/each optic 1<br>Light colour Green<br>Required components:<br>EDS<br>EVHM / FWTM 53.0 + 16.0° / 80.0 + 30.0°<br>Efficiency 90 %<br>Peak intensity 2.8 cd/lm<br>LEDs/each optic 1<br>LEDs/each optic 1<br>LEDs/ea  | OSRAM<br>Opto Semiconductors                       |                             | 90* 90*  |
| Efficiency 90 %<br>Peak intensity 2.8 cd/lm<br>LEDs/each optic 1<br>Light colour Green<br>Required components:<br>COSCAM<br>Grees<br>Required components:<br>LED OSLON SSL 150<br>FWHM / FWTM 53.0 + 16.0° / 80.0 + 30.0°<br>Efficiency 90 %<br>Peak intensity 2.8 cd/lm<br>LEDs/each optic 1<br>Light colour Red<br>Required components:   | LED  | OSLON SSL 150               |  |
| Efficiency 90 %<br>Peak intensity 2.8 cd/lm<br>LEDs/each optic 1<br>Light colour Green<br>Required components:  | FWHM / FWTM  | 54.0 + 15.0° / 80.0 + 30.0° | 235  |
| Peak intensity       2.8 cd/lm         LEDs/each optic       1         Light colour       Green         Required components:  | Efficiency   | 90 %                        |  |
| LEDs/each optic 1<br>Light colour Green<br>Required components:   | Peak intensity                                     | 2.8 cd/lm                   |  |
| Light colour Green<br>Required components:  | LEDs/each optic                                    | 1                           |  |
| Required components:  | Light colour                                       | Green                       | 45* 45*  |
| Optio Semiconductors         LED       OSLON SSL 150         FWHM / FWTM       53.0 + 16.0° / 80.0 + 30.0°         Efficiency       90 %         Peak intensity       2.8 cd/lm         LEDs/each optic       1         Light colour       Red         Required components:       Image: Component State Sta  | Required components:                               |                             | 269<br>269<br>25° 6° 25° 3°  |
| LED OSLON SSL 150<br>FWHM / FWTM 53.0 + 16.0° / 80.0 + 30.0°<br>Efficiency 90 %<br>Peak intensity 2.8 cd/lm<br>LEDs/each optic 1<br>Light colour Red<br>Required components:  |  |                             | 90° 90°  |
| FWHM / FWTM     53.0 + 16.0° / 80.0 + 30.0°       Efficiency     90 %       Peak intensity     2.8 cd/lm       LEDs/each optic     1       Light colour     Red       Required components:  |  | OSLON SSL 150               |  |
| Efficiency 90 %<br>Peak intensity 2.8 cd/lm<br>LEDs/each optic 1<br>Light colour Red<br>Required components:  |  |                             | 75* 75*  |
| Peak intensity 2.8 cd/lm<br>LEDs/each optic 1<br>Light colour Red<br>Required components:   |  |                             |  |
| LEDs/each optic 1<br>Light colour Red<br>Required components:   |  |                             | 60° - 60°  |
| Light colour Red<br>Required components:  |  |                             |  |
| Required components:  |  |                             | 45 <sup>1</sup> 45 <sup>2</sup>  |
| but on less   | Required components:                               |                             | 300  |



| SAMSUN   | IG  | 90° <b>4</b> 90°   |
|--|---|--|
| LED  | LH351B  |  |
| FWHM / FWTM  | 49.0 + 24.0° / 83.0 + 53.0°   | 73* 73   |
| Efficiency   | 84 %  |  |
| Peak intensity   | 1.8 cd/lm   |  |
| LEDs/each optic  | 1   |  |
| Light colour   | White   | er   |
| Required components:   |   | 12200  |
|  |   |  |
|  |   |  |
|  |   | 30   |
| SEOUL  |   | 90° 90   |
| SEOUL SEMICONDUCTOR  |   | 30   |
| LED  | MJT 3030  | 75   |
| FWHM / FWTM  | 50.0 + 20.0° / 82.0 + 48.0°   |  |
| Efficiency   | 85 %  | 60* 60   |
| Peak intensity   | 1.9 cd/lm   |  |
| LEDs/each optic  |   |  |
| Light colour   | White   | 45' 45   |
| Required components:   |   |  |
|  |   | 1600   |
|  |   |  |
|  |   | 30° 2000 30°   |
| SEOUL  |   | 90° 90'  |
| seoul semiconductor  | Z5M1/Z5M2   |  |
| EED<br>FWHM / FWTM   | 201017201012  |  |
|  | 50.0 + 22.0° / 82.0 + 48.0°   | 73*  |
|  | 50.0 + 22.0° / 82.0 + 48.0°<br>88.%   |  |
| Efficiency   | 88 %  | 27 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7   |
| Efficiency<br>Peak intensity   | 88 %<br>2 cd/lm   | 22<br>9*   |
| Efficiency<br>Peak intensity<br>LEDs/each optic  | 88 %<br>2 cd/lm<br>1  |  |
| Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour  | 88 %<br>2 cd/lm   | 5° 00 00   |
| Efficiency<br>Peak intensity<br>LEDs/each optic  | 88 %<br>2 cd/lm<br>1  | 27<br>27<br>27<br>27<br>27<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20 |
| Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour  | 88 %<br>2 cd/lm<br>1  | g. 00<br>g. c  |
| Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour  | 88 %<br>2 cd/lm<br>1  | g. 00<br>g. c  |
| Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour  | 88 %<br>2 cd/lm<br>1  | gr (0)   |
| Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:  | 88 %<br>2 cd/lm<br>1  | g. 00<br>g. c  |
| Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:  | 88 %<br>2 cd/lm<br>1<br>White   | gr 00  |
| Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>seour semiconductor<br>LED  | 88 %<br>2 cd/lm<br>1<br>White<br>Z8Y19  | gr 00  |
| Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>seoul semiconductor<br>LED<br>FWHM / FWTM   | 88 %<br>2 cd/lm<br>1<br>White<br>Z8Y19<br>22.0 + 52.0° / 51.0 + 84.0°                           |  |
| Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>scoul semiconductor<br>LED<br>FWHM / FWTM<br>Efficiency   | 88 %<br>2 cd/lm<br>1<br>White<br>Z8Y19<br>22.0 + 52.0° / 51.0 + 84.0°<br>87 %                   |  |
| Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>stout semconductor<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity                                      | 88 %<br>2 cd/lm<br>1<br>White<br>Z8Y19<br>22.0 + 52.0° / 51.0 + 84.0°<br>87 %<br>1.4 cd/lm      |  |
| Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>secure semiconductor<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic                 | 88 %<br>2 cd/lm<br>1<br>White<br>Z8Y19<br>22.0 + 52.0° / 51.0 + 84.0°<br>87 %<br>1.4 cd/lm<br>1 |  |
| Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>storus tsenconductor<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour | 88 %<br>2 cd/lm<br>1<br>White<br>Z8Y19<br>22.0 + 52.0° / 51.0 + 84.0°<br>87 %<br>1.4 cd/lm      |  |
| Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>stous semiconductor<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic                  | 88 %<br>2 cd/lm<br>1<br>White<br>Z8Y19<br>22.0 + 52.0° / 51.0 + 84.0°<br>87 %<br>1.4 cd/lm<br>1 |  |
| Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>stout semiconductor<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour  | 88 %<br>2 cd/lm<br>1<br>White<br>Z8Y19<br>22.0 + 52.0° / 51.0 + 84.0°<br>87 %<br>1.4 cd/lm<br>1 |  |
| Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour<br>Required components:<br>stout stanconductor<br>LED<br>FWHM / FWTM<br>Efficiency<br>Peak intensity<br>LEDs/each optic<br>Light colour  | 88 %<br>2 cd/lm<br>1<br>White<br>Z8Y19<br>22.0 + 52.0° / 51.0 + 84.0°<br>87 %<br>1.4 cd/lm<br>1 |  |



## **PHOTOMETRIC DATA (SIMULATED):**

| SEOUL SEMICONDUCTOR |                             | 24 <sup>2</sup> |
|---------------------|-----------------------------|-----------------|
| LED                 | Z8Y22T                      |                 |
| FWHM / FWTM         | 51.0 + 25.0° / 87.0 + 61.0° |                 |
| Efficiency          | 87 %                        | 60. 60.         |
| Peak intensity      | 1.4 cd/lm                   |                 |
| LEDs/each optic     | 1                           |                 |
| Light colour        | White                       | ar              |
| Required component  | IS:                         |                 |



#### **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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