

Light Avenue Premium Edition LED series is designed for high performance consumer applications. Remarkable light extraction is reached by a particular top emitting design with vertical chip structure. As this die can be driven at very high currents compared to the chip size, an outstanding cost vs. performance ratio can be obtained.



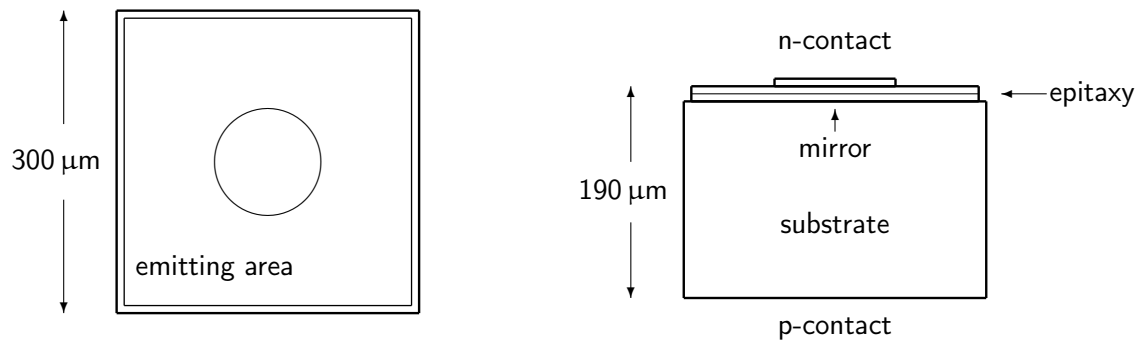
Features

- Highest brightness InGaN chip
- Top emitting device
- Lambertian radiation
- Optimized for SMT applications
- Grouping: radiant power, wavelength

Applications

- Solid state lighting
- LCD backlighting
- Lamps
- Displays
- Light indicators

Delineation



Mechanical characteristics

| DESCRIPTION            | MINIMUM               | TYPICAL <sup>1</sup> | MAXIMUM |
|------------------------|-----------------------|----------------------|---------|
| Chip size (µm)         | 275                   | 300                  | 325     |
| Chip height (µm)       | 170                   | 190                  | 210     |
| Bond pad diameter (µm) | 80                    | 90                   | 110     |
| Top contact            | Cathode (n), gold     |                      |         |
| Bottom contact         | Anode (p), gold alloy |                      |         |
| Die attach             | Epoxy bonding         |                      |         |

Electro-optical characteristics ( $T_A = 25^\circ\text{C}$ )<sup>2</sup>

| PARAMETER           | SYMBOL          | CONDITION               | MIN. | TYP. <sup>1</sup> | MAX.  | UNIT |
|---------------------|-----------------|-------------------------|------|-------------------|-------|------|
| Forward voltage     | $V_F$           | $I_F = 20\text{ mA}$    | 2.70 |                   | 3.70  | V    |
| Reverse voltage     | $V_R$           | $I_R = 10\ \mu\text{A}$ | 5.0  |                   |       | V    |
| Dominant wavelength | $\lambda_{dom}$ | $I_F = 20\text{ mA}$    | 455  |                   | 467.5 | nm   |
| Radiant power       | $\Phi_e$        | $I_F = 20\text{ mA}$    | 6.4  | 12.5              |       | mW   |

Maximum ratings ( $T_A = 25^\circ\text{C}$ )<sup>3</sup>

| PARAMETER                   | SYMBOL   | VALUE     | UNIT |
|-----------------------------|----------|-----------|------|
| Operating temperature range | $T_{op}$ | -40...+85 | °C   |
| Forward current             | $I_F$    | 50        | mA   |
| LED junction temperature    | $T_j$    | 125       | °C   |

Binning ( $I_F = 20\text{ mA}$ )<sup>4</sup>

|                    |        | WAVELENGTH (nm) |             |         |             |
|--------------------|--------|-----------------|-------------|---------|-------------|
|                    |        | 455-460         | 457.5-462.5 | 460-465 | 462.5-467.5 |
| Radiant power (mW) | > 6.4  | Y15             | YM15        | Z15     | ZM15        |
|                    | > 8.0  | Y16             | YM16        | Z16     | ZM16        |
|                    | > 10.0 | Y17             | YM17        | Z17     | ZM17        |
|                    | > 12.5 | Y18             | YM18        | Z18     | ZM18        |
|                    | > 16.0 | Y19             | YM19        | Z19     | ZM19        |
|                    | > 20.0 | Y20             | YM20        | Z20     | ZM20        |
|                    | > 25.0 | Y21             | YM21        | Z21     | ZM21        |

Notes:

- The usage of LEDs in life-support devices or systems has to be expressly and written authorized by the supplier!
- Dice are sensitive to ESD.
- Dice are shipped on blue foil with or without frame and have therefore to be stored between 15 and 30°C and below 60% relative humidity.
- Lead free product - RoHS compliant.
- The information in this document is subject to change without notice and describes the die generally. It shall not be considered as assured characteristics or detailed specification.

- The quality level of the final visual inspection shall comply to an AQL of 1.0 (according to MIL-STD-105E, level II), if the customer performs an incoming visual inspection of a shipment.
- All chips are checked according to the "Failure Catalog of Light Avenue dice" dated 2009-11-14. If this document is not familiar to you, please request it at your next sales office.

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<sup>1</sup>Typical (Typ) data are defined as long-term production mean values. These values are not specified and only given for information.

<sup>2</sup>Measurements are done with an accuracy of  $\pm 15\%$ . Correlation to customer's equipment and products is required.

<sup>3</sup>Maximum ratings are package dependent and may differ between packages. The forward current is not limited by the die but by the effect of the LED junction temperature on the package. If you need more information on pulsed operation, please contact your next sales office about possible driving conditions. If not otherwise specified the maximum pulse current may not exceed the maximum current in continuous mode.

<sup>4</sup>There may be more than one bin on one single foil. Single bins cannot be ordered.