Buyer's Guide

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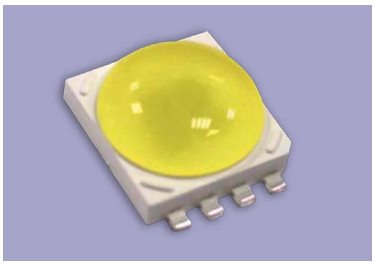

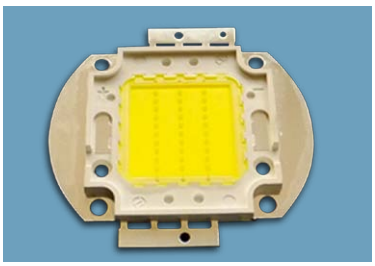

High-voltage LEDs

- √ Key trends
- √ Industry outlook
- √ Supplier profiles
- √ Top products

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Table of Contents

Buyer's Guide to sourcing high-voltage LEDs

An exclusive and in-depth report on high-voltage LEDs, including key trends, industry outlook, suppliers and top products

High-voltage LED production under way

More manufacturers are expected to venture into the line, spurred by the strong indoor lighting application market.

Suppliers of high-voltage LEDs in China are still few and turn out the type in small volume, but this will change in the next one or two years. Most plan to increase output as requirement from the indoor illumination sector climbs, while further technological developments will attract a greater number of makers. The variant represents between 5 and 20 percent of local LED yield at present.

Shenzhen Kinglight Optoelectronic Co. Ltd is among the major domestic suppliers offering the advanced diode. It holds a national patent for AC-driven models, which have the driver and lighting circuits on the same substrate. The 7 to 9W products run directly on 220VAC, and boast efficiency of more than 92 percent, besides having enhanced heat dissipation and life span. These have 3,000 or 6,000K correlated color temperature or CCT, 80 CRI and a luminous efficacy surpassing 100 lm/W.

The manufacturer also offers DC-driven versions. The JT-K2835 series has 0.3 to 1W rated power, 27 to 120 lumens luminous flux and 80 CRI. The rated voltage and current are 6 to 18V and 30 to 100mA.

High-voltage LEDs consist of low-power diodes connected in series. Compared with conventional variants, these require a voltage exceeding 20V, enabling operation from the mains supply without the need for an adapter and making the latter suitable for indoor lighting.

In addition, such diodes have advantages of high reliability and compact form.

The technology, however, is not mature yet, keeping most domestic enterprises focused on low-voltage units for outdoor applications.

The current challenge in the high-voltage category lies in realizing series connection in diode chips.

Customization will continue to drive product development in the region.

Growing local market

China makers of high-voltage LEDs are looking forward to an annual sales uptick surpassing 20 percent in the next one or two years. They are banking on the national government's push for the adoption of the green technology in homes and inside public areas to expand the application base.

The administration allocated $350 million for the switch under the 12th Five-Year Plan. This is projected to benefit the domestic lighting industry with yearly growth of more than 50 percent in total revenue in 2011-15.

The sector realized $16.1 billion aggregate sales in 2014, according to OFweek. By end-2015, this will jump to $30.6 billion.

The upstream diode industry also stands to gain from the trend globally, which will bolster demand for high-voltage LEDs by 15 to 20 percent this year. The main overseas markets are the US, Europe and the Asia-Pacific region.

Besides Shenzhen Kinglight, the key China suppliers of such diodes include Wuhan AquaLite.

Most makers are in the provinces of Guangdong, Jiangsu and Zhejiang. They also offer SMD, high-power and COB LEDs.

Typical selection

Mainstream high-voltage releases in AC and DC-driven models have rated voltage of more than 20VDC or 220VAC. These have over 100 lm/W luminous efficacy and above 90 percent efficiency. CCT is 3,000 to 6,000K.

The products use PCT package material for its better feature set than PPA and comparable performance with EMC.

The input has ceramic fiber, ensuring low saturation, and resistance to UV and elevated temperatures.

Shenzhen Kinglight uses PCT in its high-voltage SMD units not only to bring down cost but also to achieve greater heat dissipation and efficiency. The company predicts the material will be the popular option in the future.

The majority of companies ensure products comply with RoHS guidelines.

They source manufacturing inputs locally. LED chips, however, come mainly from Taiwan and US providers.

The supply and the cost of materials and components, which also include PCBs and adhesives, remain stable and will keep prices at current levels until year-end.

Some manufacturers will reduce rates, anticipating competition from new entrants. The adjustment will be less than 5 percent. ☐

A selection of high-voltage LEDs from China

LED features 110 lumens

BonLED Optoelectronic Co. Ltd

The BL-HP10W65A-1W model from BonLED Optoelectronic Co. Ltd has 110 lumens, 5,000 to 8,000K and 120-degree viewing angle. It comes in white, green, blue, red, yellow and amber. The RoHS-compliant unit has 2.8 to 4V forward and 5V reverse voltage, and 350 forward and 10mA reverse current. It operates in -40 to 80 C and stores in -40 to 100 C. The junction temperature is 135 C. The component can be soldered in up to 260 C for five seconds. It suits indoor and outdoor lighting, and LCD backlighting.

CONTACT SUPPLIER

COB LED with 110 lm/W

★★★☆☆☆

Foshan Evercore offers model ZH-F5038 COB LED for indoor lights. The unit has 2,200 to 6,500K and more than 90 CRI. It boasts 110 lm/W luminous efficacy. The 36W unit is rated at 8 to 36V and 1,250mA. It has an aluminum base. The LED chips used are from Epistar. The product conforms to CE, LM-80 and RoHS. The minimum order is 100 units.

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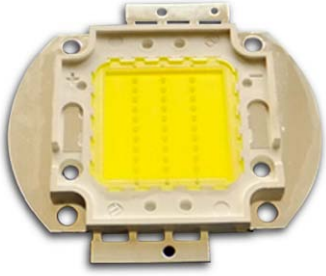

High-voltage LED has 3,000 to 6,500K

Hong Kong Nyxstar Lighting Co. Ltd

★★★☆☆☆

The Rich100W model from Hong Kong Nyxstar has 3,000 to 6,500K color temperature and 70 CRI. Its luminous efficacy is 95 to 105 lm/W.

The 10x10mm unit requires 30 to 34V and 3,500mA. It adopts chips from Bridgelux, Epileds or Epistar. COB versions in 1 to 500W are available. No minimum order is required.

CONTACT SUPPLIER

1W LED in warm, cool white

Lucky Light Electronics Asia Co. Ltd

Lucky Light Electronics Asia Co. Ltd's model R3030W-W2H-Q100-B high-power LED comes in warm and cool white. It has 100 to 110 lumens, 5,500 to 6,500K and 130-degree viewing angle. Applications include indoor and outdoor lighting, and LCD backlighting.

The 1W diode measures 3x3x0.52mm. It meets RoHS. The minimum order is 8,000 units.

CONTACT SUPPLIER

LED in 3 to 13.5W variants

Ningbo Zhongce Electronics Co. Ltd

The G15 Series-COB-G model from Ningbo Zhongce Electronics Co. Ltd comes in 3 to 13.5W versions with 2,700K and ≥95 lm/W, 3,000K and ≥100 lm/W, 4,000K and ≥105 lm/W, 5,000K and ≥115 lm/W, and 6,000K and ≥120 lm/W. It has 350 to 520mA.

CONTACT SUPPLIER

High-voltage LED for indoor lighting

Qingdao Hehui Optoelectronic Co. Ltd

★★★☆☆☆

The model HH-LEDLight high-voltage LED from Qingdao Hehui comes in 3, 5, 12, 24, 110 and 220V versions for indoor lighting. The product can be customized according to buyers' requirements.

The maker requires a minimum order of 1,000 units for delivery within 20 days.

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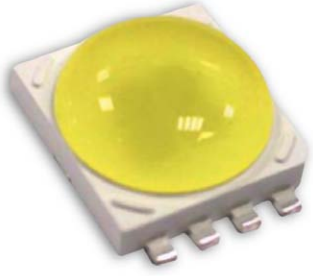

High-voltage LED has 600mA forward current

Shenzhen Yayuhong Optoelectronic & Technology Co. Ltd

★★★☆☆☆

Shenzhen Yayuhong's model YYH PC8N-6LN-B24R8 COB LED has 45V rated voltage, 600mA forward current and 120 C junction temperature. It suits reading lamps, downlights, and decorative and garden lighting.

The maker requires a minimum order of 200 units. Delivery is within 7 days.

CONTACT SUPPLIER

Supplier comparison table								
Company	Year established	Main product lines	Total annual sales ($mn)	Total annual exports ($mn)	Top export markets	Number of staff	MOQ (units)	
Baby Lighting Co. Ltd	2007	LEDs	•	•	North America, Western Europe, Asia	500	•	CONTACT SUPPLIER
Beijing Yuji Science and Technology Co. Ltd	2005	LEDs	4.2	4.1	Central/South America, Asia, Australasia	250	1,000	CONTACT SUPPLIER
BonLED Optoelectronic Co. Ltd	2002	LEDs	5	4.5	Central/South America, Asia, Australasia	350	1,000	CONTACT SUPPLIER
BOSMFC Optoelectronics Co. Ltd	2004	LEDs	0.1	0.005	Asia, Australasia, Central/South America	100	2,000	CONTACT SUPPLIER
Everluck Optoelectronic Technology (Shenzhen) Co. Ltd	2003	LEDs	•	•	Eastern Europe, North America	100	100	CONTACT SUPPLIER
Foshan Evercore Optoelectronic Technology Co. Ltd	2010	LEDs	•	•	North America, Western Europe, Asia	60	100	CONTACT SUPPLIER
Hong Kong Nyxstar Lighting Co. Ltd	2003	LEDs	2	1.6	Asia, Australasia, Central/South America	100	1	CONTACT SUPPLIER
Lucky Light Electronics (Asia) Co. Ltd	1990	LEDs	•	•	North America, Eastern Europe, Middle East, Africa	1,000	1,000	CONTACT SUPPLIER
Ningbo Zhongce Electronics Co. Ltd	1956	LEDs	•	•	North America, Western Europe, Asia	1,000	10	CONTACT SUPPLIER
Qingdao Hehui Optoelectronic Co. Ltd	2007	LEDs	0.8	0.2	Asia, North America, Western Europe	200	1,000	CONTACT SUPPLIER
Shenzhen Yayuhong Optoelectronic & Technology Co. Ltd	2000	LEDs	2	1.7	Asia, Australasia, Central/South America	250	200	CONTACT SUPPLIER
Yomaris International Co. Ltd	2010	LEDs	•	•	North America, Western Europe, Asia	100	•	CONTACT SUPPLIER

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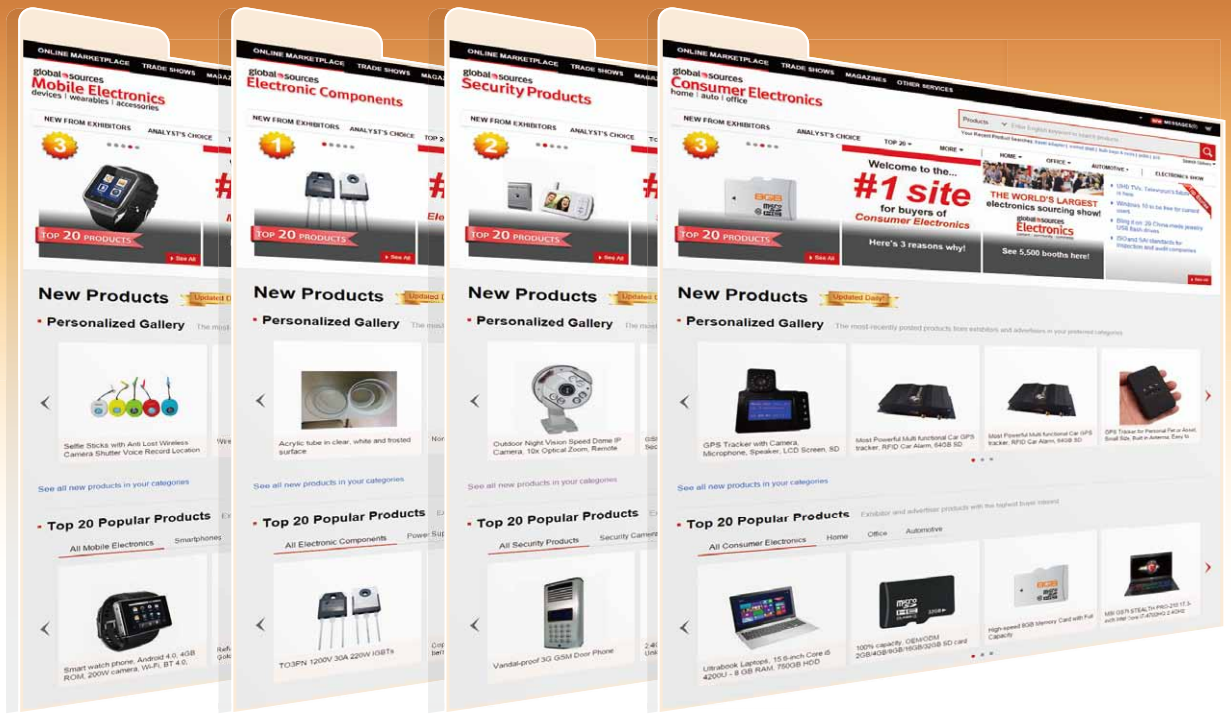

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