



Shineon Company Introduction



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Company Profile

LED Products

Customers and Partners

ODM/OEM and Laser Related



About ShineOn

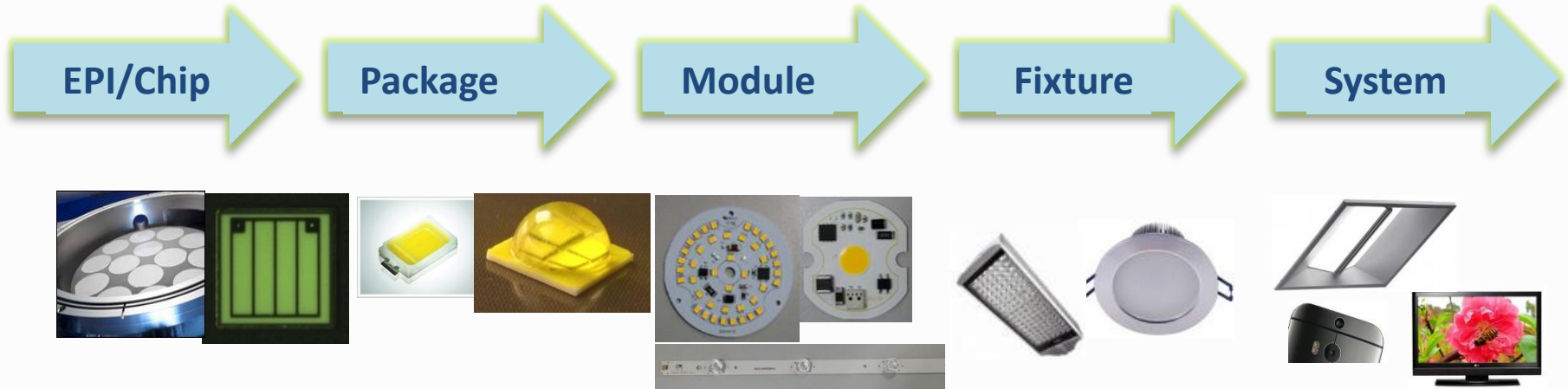
ShineOn, an innovative solution provider for Optoelectronic devices and LED lighting, was founded by a group of optoelectronics industry experts from US and supported by major global venture funds. Since it was founded, ShineOn has grown into a major optoelectronics company with over \$100M annual revenue, serving backlighting, cell phone flash and general lighting customers in China and globally, and has won numerous awards.



From China to Global Market



LED Value Chain



Epi/Chip

- Sapphire, SiC
- Silicon, GaN
- Lateral
- Vertical
- Flip chip

Packaging

- PLCC
- Ceramics
- CSP
- COB

Module

- DoB
- LED Engine
- Driver
- Optics
- Heat sink
- Connector

Fixture

- Housing
- Ballast
- Control

System

- Design
- External control
- Integration
- End-user solution

- Focus on packaging and module, with understanding of chips and applications
 - Chip: Vertical chip, Flip chip, UVA
 - Module: Integrated linear driver IC, Light engine
 - Lighting: Reference design, providing core value for downstream customers



Company Milestones

**2009 Shineon Holding Inc.
was founded in USA**

2010



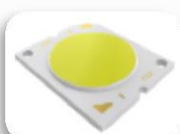
Jan2010
ShineOn
(Beijing)
founded



Aug2010
Moved to
BDA
factory

TCL

May2011
First TV BLU
customer



May2012
COB in mass
production

2012



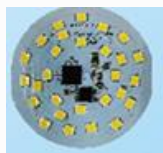
Mar2013
Move in to
7000sm
new facility

2014

Jan2014
QD for BLU



2015 EPA
recognized
LM-80 Lab



July2014
Light Engine
to market



2015
Manufacturing
Execution
System



Aug2014
Flash LED

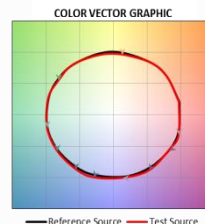


Dec2014
Lab
accredited

2016



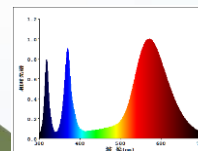
Jul2015 TG
IP license



May2016
Full-
Spectrum
LED



Dec.2017
Nanchang
Manufacturing
Facility



Oct2015
Horticulture
LED

2018



Competitiveness Highlight

- ShineOn focuses on innovative Level 2 to Level 3 solutions for high quality LED products for back lighting, cell phone flash and general lighting application.
 - The **First** independent vendor in China to supply **HIGH QUALITY LED** for **LARGE-SIZE TV-BLU** application.
 - Multi year suppliers to tier-1 customers such as LG, TPV (Philips), TCL, Skyworth etc for multi years.
 - One of the **BEST CoB LED-array lighting module providers** in the world
 - The **FIRST** company to announce a fully integrated LED light engine
 - Strong engineering knowhow in Optoelectronics industries: founder team has over 100+ man*year R&D and product experience in US for high power LED, VCSEL, DFB/DBR, Transceiver/Transponder
 - Robust high volume, low cost and high quality manufacturing solutions for both consumer and industry OE device and module products



Shineon Industrial Park under construction in Nanchang



Land Area : 67,000m² (Building >100,000m²)

Capability : 3,000KK/ Month



ShineOn Capacity Expansion Plan

PKG Capacity

KK/M

Location	Jan 2018	Jan 2019	July 2019	July 2020
Beijing	1,130	1,100	1,100	1,100
Nanchang	500	1,000	1,500	2,400
Total	1,630	2,100	2,600	3,500

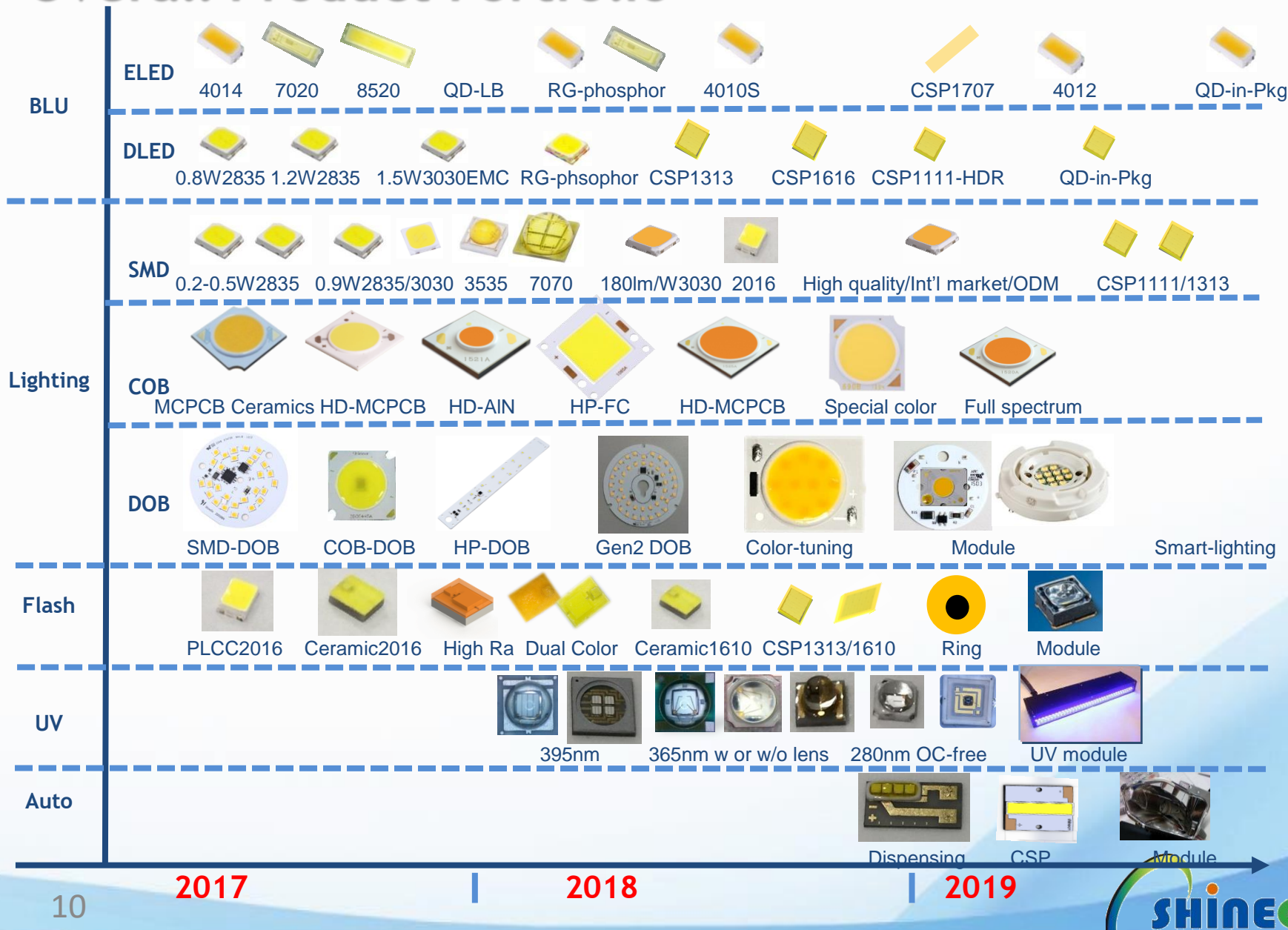
Module Capacity

Kpcs/M

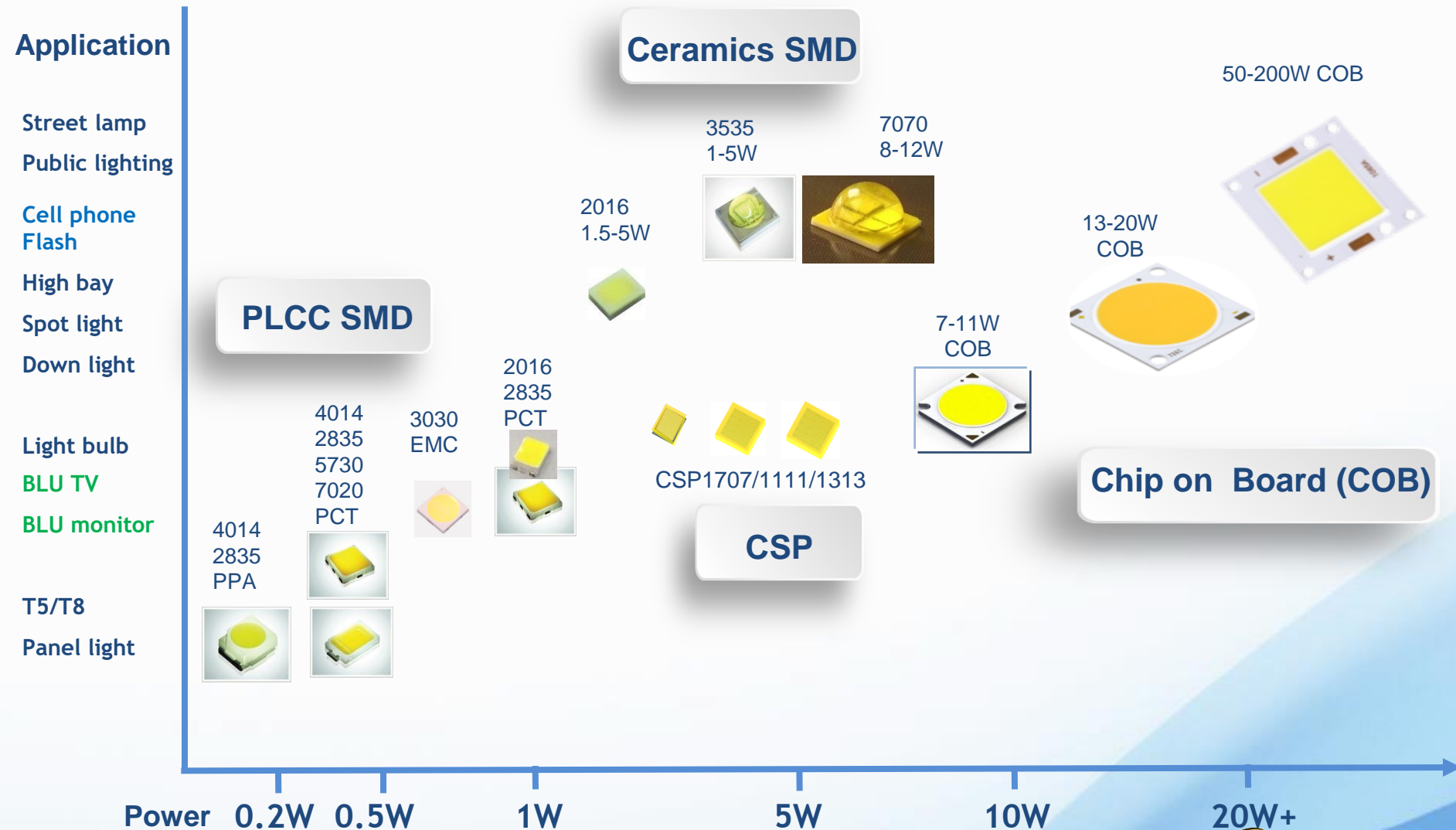
Type	Location	Jan 2018		Jan 2019		July 2019		July 2020	
		Line	Capacity	Line	Capacity	Line	Capacity	Line	Capacity
Lighting	Nanchang OEM	2	450	2	450	2	450	4	900
		2	450	6	1,350	6	1,300	8	1,800
		4	900	8	1,800	8	1,800	12	2,700
BLU	Nanchang OEM	1	360	2	720	3	1,080	4	1,440
		3	1,080	6	2,160	10	3,600	10	3,600
		4	1,440	8	2,880	12	4,320	14	5,040
CSP	Nanchang OEM	1	200	1	200	1	200	2	400
		1	200	1	200	2	400	3	600
		2	400	2	400	3	600	5	1,000
Nanchang subTotal		4	1,010	5	1,370	6	1,730	10	2,740
OEM subTotal		6	1,730	13	3,710	18	5,350	21	6,000
Total		10	2,740	18	5,080	24	7,080	31	8,740



Overall Product Portfolio



Packages

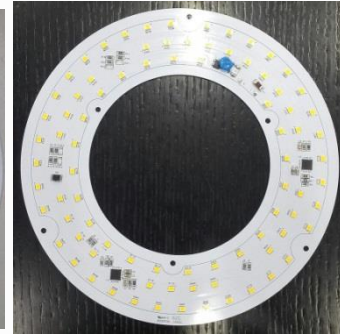


Modules

Application

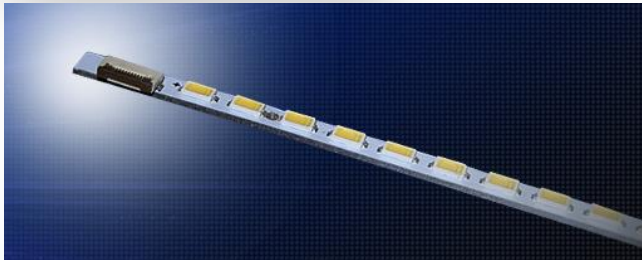
Lighting

Light Module

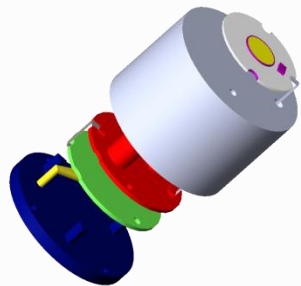


Light bar

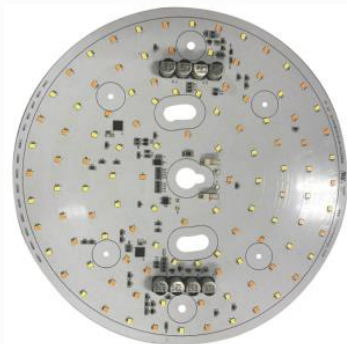
Backlighting



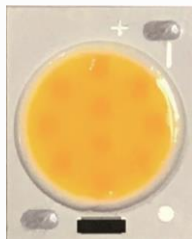
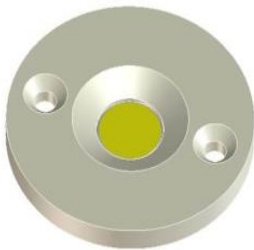
From Component to Module and Beyond



Dim to Warm Pendant and Ceiling Light



High Density COB



Dual color COB



Rigid or flexible high end linear board

Full Spectrum Panel Light

2X2 系列



Size (L×W) : 603×603×65mm

Power: 150W

CCT: 4000K

CRI: 98 with ShineOn Kaleidolite™ LED

Luminous Efficacy: 110lm/W

Panel Light

2X2 系列



Size (L×W) : 603×603×65mm

Power: 32W-50W

CCT: 3000K/4000K/5000K

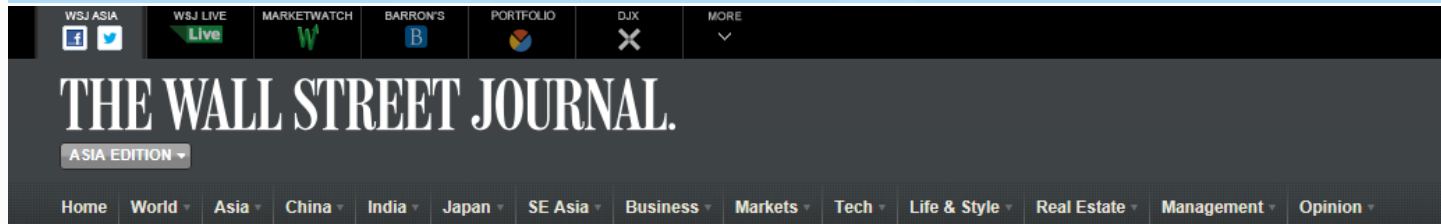
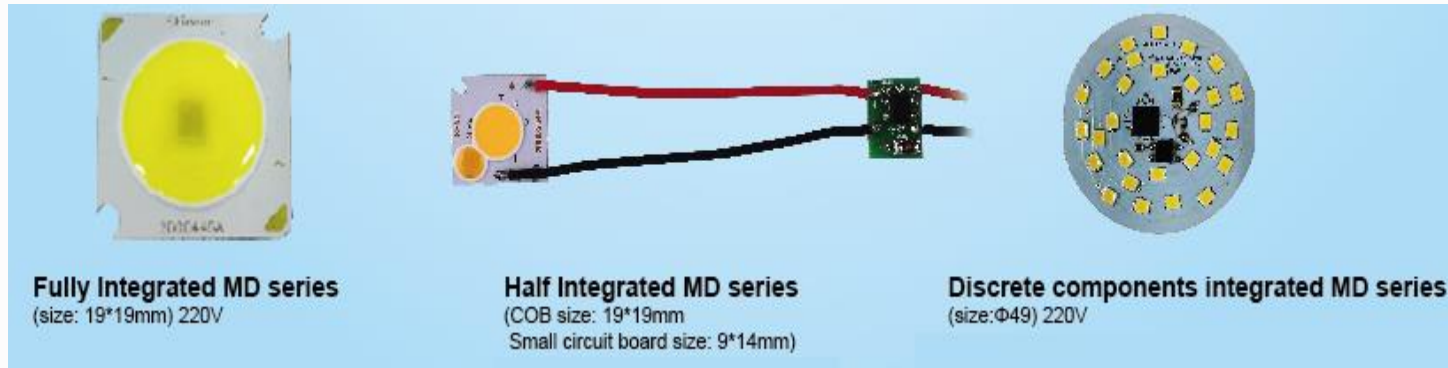
CRI: 80+

Luminous Efficacy: >140lm/W



Solution Provider: level-3 solutions

- Support BLU, TV and Lighting customers to solve subsystem issues of Mechanical, Electrical, Optics, Thermal and Color
- DiscLight™, **the world's first** fully integrated LED LightEngine



ShineOn Revolutionizes the LED Lighting Industry

Article

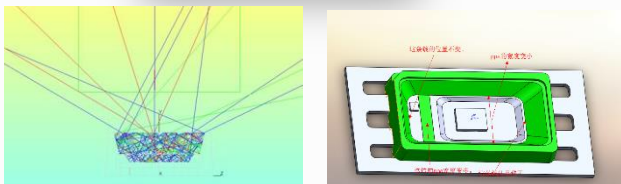
Comments

BEIJING---(Marketwired - Jun 18, 2013) - ShineOn Holding Inc., a global LED lighting solution provider, announced the successful demonstration of its DiscLight(TM) LED Light Engine, the world's first fully-integrated LED light engine without any external electronic components, at the Guangzhou International Lighting Exposition on June 9-12, 2013.



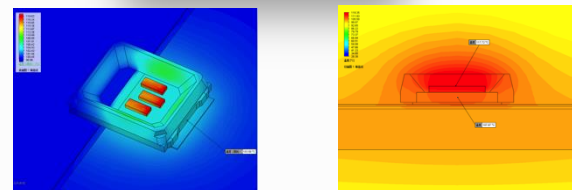
Design for performance and reliability

Optical



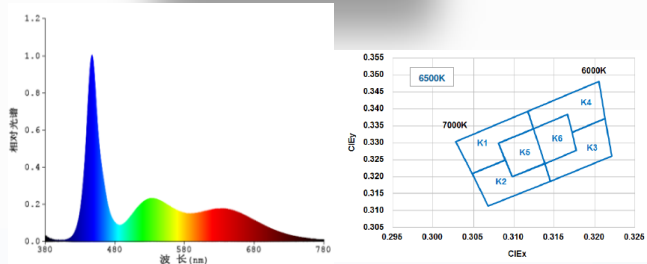
- Optimized design for better light extraction
- Spatial distribution control for secondary optics

Thermal



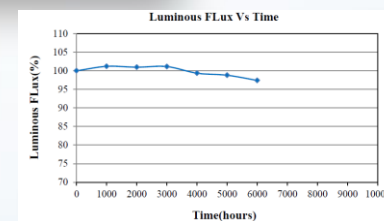
- Optimized chip layout for better heat dissipation
- Diebond thickness control to ensure low thermal
- FEA analysis to assist product design

Color

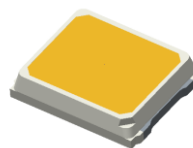


- Advance phosphor recipe and processes
- CIE color coordinators control to 3-step

Reliability



- CNAS&EPA recognized lab
- Complete reliability tests
- LM80 test reports



Systems for Modern Manufacturing

ERP

- BOM and process documentation control system
- ERP contains accurate BOM, scrap, yield, HPU for Labor and Machine that support cost information for all products

MES

- MES in full control of BOM usage, process steps and data collection
- No paper, only barcodes in manufacturing floor
- Laser marking to individual product
- Passed audits and serving Tier 1 brands in volume



Quality Management

Quality Process

Incoming inspection

Process control

**Finished goods
inspection**

ORT Testing

Quality System

ISO9001:2015

ISO14001:2015

**IES LM-80
6000hrs;9000hrs**



Testing Equipment

**CNAS and EPA
recognized**

LM80 LAB

Quality Policy

**Quality
Reliability**

**Scale
Cost**



Reliability Lab

Test Items	Test Conditions	Standards	Fail/P ass
High temperature operating life	100C, 150mA, 3000hr	JESD22 Method A108-C	0/60
Temperature cycle	-40C to +85C, 2hr/cyc, 400 cycles	MIL-STD-883 Method 1010	0/30
Thermal shock	-40C to +100C, 1hr/cyc, 30sec transfer, 50 cycles	MIL-STD-202G, Method 107G	0/30
High temperature storage	100C, 3000hr	JESD22 Method A103	0/20
Low temperature storage	-40C, 3000hr	JESD22 Method A119	0/20
Damp heat storage	60C/90%RH, 300hr	JESD22 Method A101	0/30
Moisture sensitivity level	85C/85%RH/168hr, 3 times, 260C reflow (MSL-1)	JEDEC J-STD-020C	0/15
ESD	HBM 5000V, 330Ohm, 150pF, 10 times	MIL-STD-883 3015.7	0/15



- Established Failure mode and test method of sulfur/VOC induced light decay in Lead-frame Pkg
- Recognized by CNAS (China) and EPA (USA) for LM-80 tests



Global Suppliers and Partners



Customer Recognition

TV Backlighting and Cell Phone Flash



Skyworth 创维



HEESUNG ELECTRONICS LTD.



Lenovo



TPV
TPV TECHNOLOGY LIMITED

CHANGHONG



HQ TELECOM

General Lighting



Honeywell

LUMENS
Leading the LED Revolution

TOPSTAR



LITEON®

FSL 佛山照明

TOSPO
得邦照明



Strong Technical and Management Team

- Founder team has >100 man*years of working experience in United States ranging from Optoelectronics device and module R&D, product development and manufacturing experience.
- Key members include:
 - Frank Fan, president and founder of Shineon. He co-founded AZNA, a startup for high speed optical communication laser and was acquired by Finisar in 2007. Before that Dr. Fan worked for Bell Labs and Nortel Networks after PhD degree from University of Maryland. His experience covers DFB, DBR, VCSEL, optical transceiver and transponder, etc.
 - Jay Liu, EVP and CTO of Shineon, PhD from UIUC. Prior co-founding Shineon, Dr. Liu was technical leader of several prestige organizations including Luminus, Lucent, Nortel Networks, Vicor, Delco, etc. He is recognized in many technical disciplines like optical communication, sensing, display, solid state lighting.
- Strong local china team with experience of managing >5000KK/month manufacturing capacity



Shineon ODM/OEM experience

- ShineOn started ODM/OEM volume business with several global brands on LED package products as early as 2015. Partner list includes LGIT/Samsung/Lumens from Korea, Toyoda Gosei of Japan, Liteon/Lextar/UnityOpto from Taiwan. Combined volume for these partners reaches ~200kk LED packages per month.
- We also work with new brands in emerging markets or new products. For example, ShineOn co-brands Everstar with Lumens Tech in India. Also our LED module is also branded as LTF in north America.
- ODM/OEM business now accounts for about half of ShineOn's lighting LED sales and one third of total sales.



ShineOn Highlights on Laser and Mobile Application

- ShineOn founding team had strong experience on various laser packaging:
 - Tunable VSCEL packaged with optical amplifier, 10Gbit/s modulator and wavelength locking;
 - Directly modulated distributed-feedback (DFB) semiconductor laser for long reach with proprietary chirp modulation technology;
- Shineon is one of the major suppliers for mobile phone camera flash LEDs in China. We have developed and maintain good business relationship with several mobile phone brands as well as independent design houses (IDH) in mobile phone supplier chain.
- ShineOn has also worked on SMT low profile packaging for VCSELs as proximity sensors in cell phone applications.



Summary of ShineOn Advantages

- Established brand for LEDs in lighting and backlighting. First Chinese supplier to tier-one TV manufactures with best vendor and quality awards from TCL, Skyworth, BOE etc.
- Qualified by GE, Philips, Feit, LGIT, Samsung, Lumens, Liteon, Lextar, Unity Opto, etc. as a supplier and/or ODM partner
- Strong team with technical and management experience in optoelectronic devices/modules
- Sufficient manufacturing capacity and ability to continue expansion with support of investor and local government
- Strong IP position, can export to all regions with global reach





Thank You!

ShineOn (Beijing) Technology Ltd.
ShineOn (Nanchang) Technology Ltd.
www.Shineon.cn

