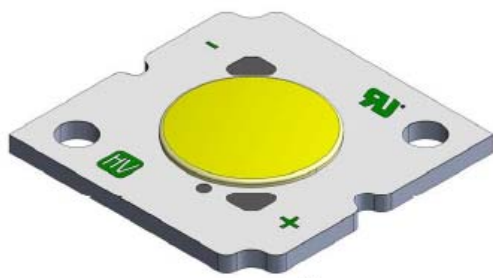*HELIO Optoelectronics Corp.*

High Voltage Series -- HVMA-15009

HELIO high voltage series LED delivers superior color performance and reliability in a high voltage architecture that minimizes driver requirements making it an ideal solution for space constrained and cost sensitive retrofit bulbs and luminaires. With exceptional color stability over temperature and current, HELIO high voltage series LED simplifies design while providing superior quality of light.

Features

- Compact high flux density light source
- Energy Star / ANSI compliant bin
- Instant light
- Long operating life
- Superior thermal performance
- RoHS compliant and Pb free

Application

- Down light
- Spot light
- Par light
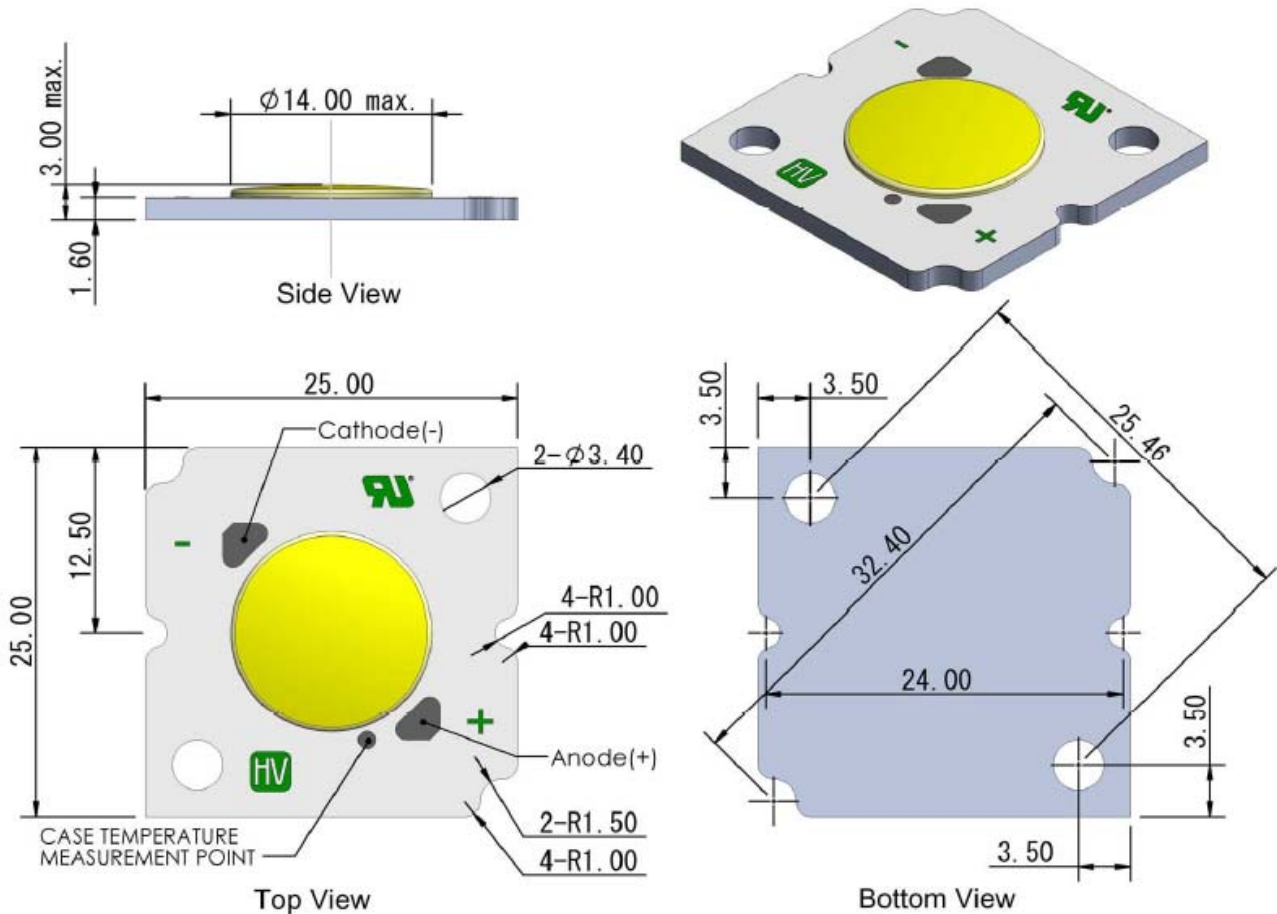- General lighting
- Architectural lighting

Product Nomenclature

HV **MA** - **150** **09**

X1 **X2** **X3** **X4**

X1		X2		X3		X4	
Item		Mode		Voltage		Internal code	
Code	Type	Code	Type	Code	Type	Code	Type
HV	High Voltage Series	MA	MCPCB	150	150V	09	9 chips

Mechanical Dimensions

Side View

Top View

Bottom View

Note:

1. Mounting holes are for M2.5 or #3 screws.
2. Solder pads are labeled "+" and "-" to denote positive and negative, respectively.
3. Drawings are not to scale.
4. All dimensions are all in millimeter.
5. All dimensions without tolerance are for reference only.
6. Specifications are subject to change without notice

Luminous Flux Characteristics

Luminous Flux Characteristics at Test Current, Junction Temperature at 25℃

Color	Luminous Flux[1] (lm)			Remark
	Min	Type	Max	
White	1000	1100	--	(60mA)

Note:

1. Minimum luminous flux performance guaranteed within published operating conditions. HELIO maintains a tolerance of ±10% on luminous flux measurements.

Electrical Characteristics

Electrical Characteristics at Test Current, Junction Temperature at 25℃

Color	Forward Voltage $V_F^{(1)}$ (V)		
	Min	Type	Max
White	150	160	--

Note:

1. HELIO maintains a tolerance of ±0.1V on forward voltage measurements.

Optical Characteristics

Optical Characteristics at Test Current, Junction Temperature at 25℃

Color	Color Temperature[1]			Color Rendering Index
	Min	Type	Max	CRI
White	4745	5700	7040	70

Note:

1. The tester tolerance of CCT is ±5%.

Absolute Maximum Ratings

Parameters	HVMA-15009
Advised DC Forward Current (mA)	90mA
LED Junction Temperature (℃)	< 120
Thermal Resistance (℃/W)	< 1.5
Operating Temperature (℃)	-20℃ ~+85℃
Storage Temperature (℃)	-20℃ ~+105℃

Note:
1. Strongly recommend the case temperature shall not exceed 70℃

Wavelength Characteristics

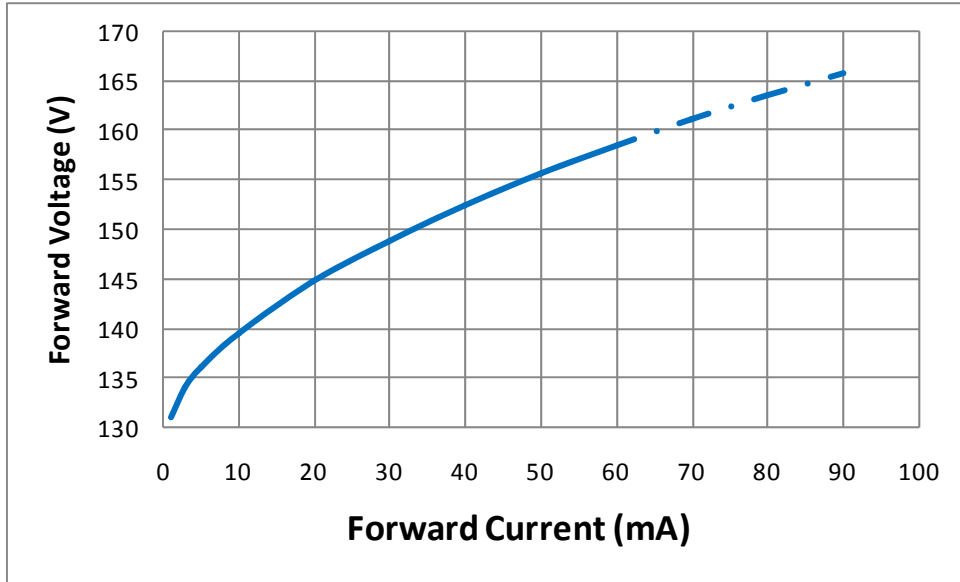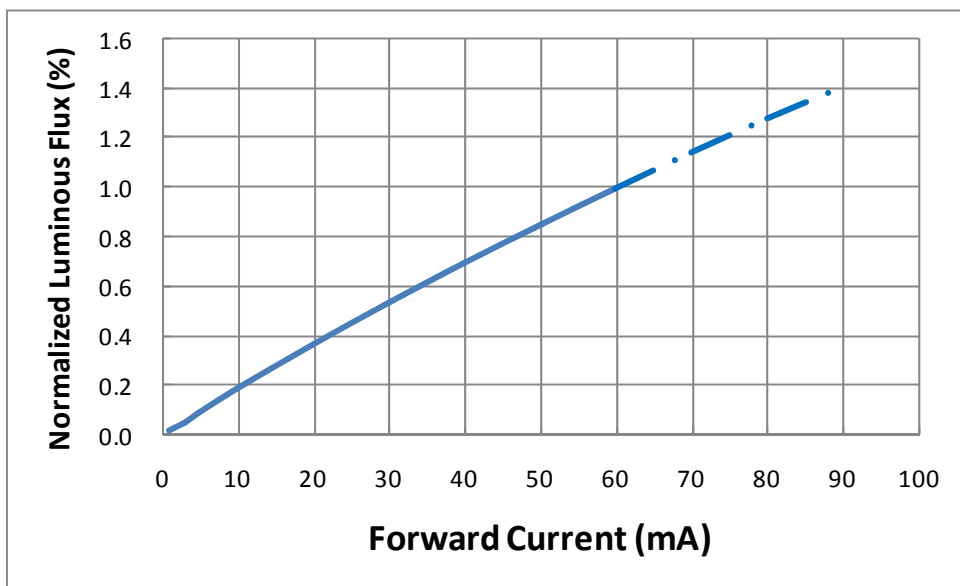**White Color Spectrum, Junction Temperature at 25℃**

Typical Forward Current Characteristics

White, Junction Temperature at 25℃

Typical Light Output Characteristics over Forward Current

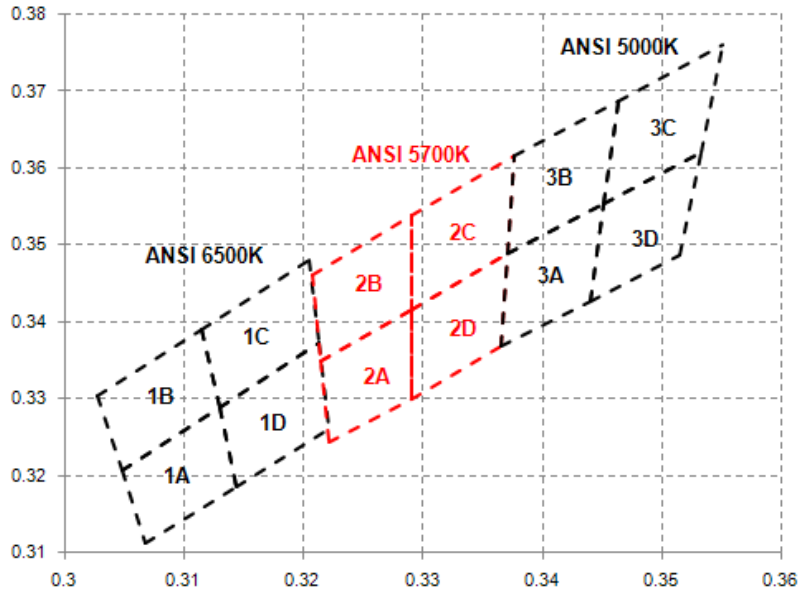## White, Junction Temperature at 25℃

ANSI Bin Structure (Code: CD)

Bin Code		x	y	Bin Code	x	y	Bin Code		x	y
H1	1A	0.3048	0.3207	2A	0.3215	0.335	H3	3A	0.3371	0.349
		0.313	0.329		0.329	0.3417			0.3451	0.3554
		0.3144	0.3186		0.329	0.33			0.344	0.3427
		0.3068	0.3113		0.3222	0.3243			0.3366	0.3369
	1B	0.3028	0.3304	2B	0.3207	0.3462		3B	0.3376	0.3616
		0.3115	0.3391		0.329	0.3538			0.3463	0.3687
		0.313	0.329		0.329	0.3417			0.3451	0.3554
		0.3048	0.3207		0.3215	0.335			0.3371	0.349
	1C	0.3115	0.3391	2C	0.329	0.3538		3C	0.3463	0.3687
		0.3205	0.3481		0.3376	0.3616			0.3551	0.376
		0.3213	0.3373		0.3371	0.349			0.3533	0.362
		0.313	0.329		0.329	0.3417			0.3451	0.3554
	1D	0.313	0.329	2D	0.329	0.3417		3D	0.3451	0.3554
		0.3213	0.3373		0.3371	0.349			0.3533	0.362
		0.3221	0.3261		0.3366	0.3369			0.3515	0.3487
		0.3144	0.3186		0.329	0.33			0.344	0.3427

Note: H2 spans the 2A–2D bin codes column.

HELIO Optoelectronics Corp.

Reliability Test List

Test Item	Standard Test Method	Test Description	Failure Criteria	Result
Room Temperature Operating Life (RTOL)	JESD22-A108	Case temperature= 55℃, I_F = 60mA DC[1], 1000hr	Failure criteria[2][3]	0 failures
High Temperature Storage Life (HTSL)	JEITA ED-4701 100 201	100℃, non-operating, 1000hr	Failure criteria[2] [3]	0 failures
Low Temperature Storage Life (LTSL)	JEITA ED-4701 100 202	-40℃, non-operating, 1000hr	Failure criteria[2] [3]	0 failures
Wet High Temperature Storage Life (WHTSL)	JEITA ED-4701 100 103	85℃ / 85%RH, non-operating, 500hr	Failure criteria[2] [3]	0 failures
Non-Operating Temperature Cycle Life (TMCL)	JEITA ED-4701 100 105	-40℃ to 100℃, 30 min dwell, 5 min transfer, non-operating, 100 cycles	Failure criteria[2] [3]	0 failures

Note.

1. Depending on the maximum derating curve.
2. Failure Criteria:
   - Forward voltage shift > 10%
   - Forward or reverse leakage above maximum values specified in product data sheet.
   - Luminous flux or radiometric power degradation > 30%
   - Warm White color point shift, Δx, Δy ,> ±0.01
3. Catastrophic failures causing the emitter to become non-functional