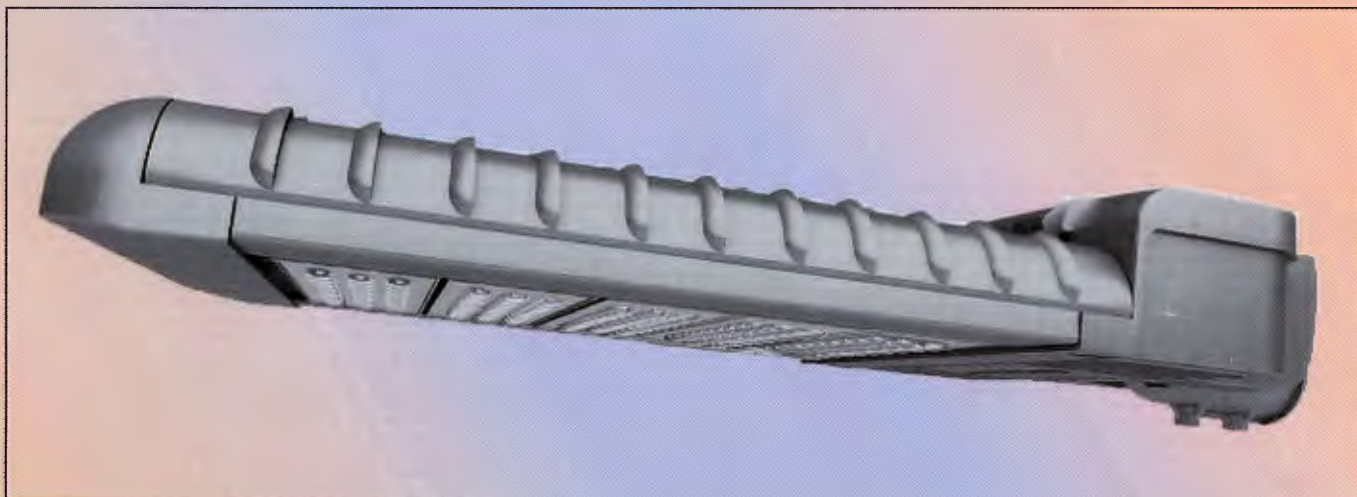


**LUMINAIRE OMEGA TYPE MAS - LED - 700**

**فانوس عميقة طراز MAS-LED 700**



**FEATURES/SPECIFICATIONS**

**المواصفات / الخصائص**

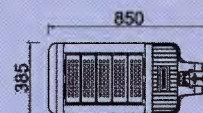
|               |                    |
|---------------|--------------------|
| MW-Module (1) | 150W / 200W / 240W |
| MW-Module (2) | 180W / 240W / 300W |

System Light Efficiency: > 100 lm/W AC90-277V

IP Grade: IP65

Color Temperature: : 3000K, 4000K, 5000K, 6000K

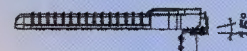
- High pressure die-casting aluminum casting, with the capability of impact resistant and corrosion resistant.
- Gear box separated from modules for independent heat release. optimal ventilation design provides higher efficiency of heat dissipation.
- Intended Use: Highway, country roads, mountain roads, resident areas, parks etc.



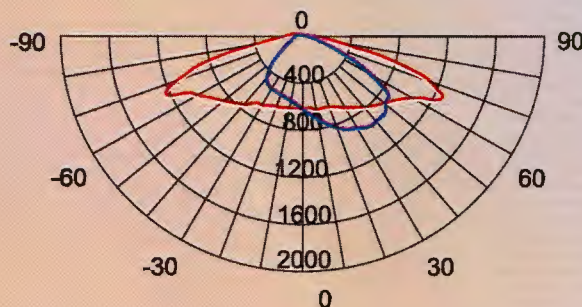
MW-Module (1)



MW-Module (2)



cd/1000lm





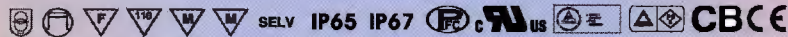
320W Single Output Switching Power Supply

**HLG-320H series**



■ Features :

- \* Universal AC Input / Full range (up to 305VAC)
- \* Built-in active PFC function
- \* High efficiency up to 95%
- \* Protections: Short circuit / Over current / Over voltage / Over temperature
- \* Cooling by free air convection
- \* OCP point adjustable through output cable or internal potentiometer
- \* IP67 / IP65 design for indoor or outdoor installations
- \* Type HL LED Driver for use in Class I, Division 2 hazardous location luminaires
- \* Three in one dimming function (1~10Vdc or PWM signal or resistance)
- \* Suitable for LED lighting and street lighting applications
- \* Compliance to worldwide safety regulations for lighting
- \* Suitable for dry / damp / wet location
- \* 5 years warranty (Note.10)

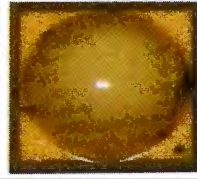


HLG-320H-12 [A] Blank : IP67 rated. Cable for I/O connection.  
 A : IP65 rated. Output voltage and constant current level can be adjusted through internal potentiometer.  
 B : IP67 rated. Constant current level adjustable through output cable with 1~10Vdc or PWM signal or resistance.  
 C : Terminal block for I/O connection. Output voltage and constant current level can be adjusted through internal potentiometer.  
 D (option) : IP67 rated. Timer dimming function, contact MEAN WELL for details.

**SPECIFICATION**

| MODEL                          | HLG-320H-12   | HLG-320H-15 | HLG-320H-20 | HLG-320H-24 | HLG-320H-30 | HLG-320H-36 | HLG-320H-42 | HLG-320H-48 | HLG-320H-54 |  |
|--------------------------------|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
| DC VOLTAGE                     | 12V   | 15V         | 20V         | 24V         | 30V         | 36V         | 42V         | 48V         | 54V         |  |
| CONSTANT CURRENT REGION Note.1 | 6~12V   | 7.5~15V     | 10~20V      | 12~24V      | 15~30V      | 18~36V      | 21~42V      | 24~48V      | 27~54V      |  |
| RATED CURRENT                  | 22A   | 18A         | 15A         | 13.34A      | 10.7A       | 8.9A        | 7.65A       | 6.7A        | 5.95A       |  |
| RATED POWER                    | 264W  | 265W        | 300W        | 320.16W     | 321W        | 320.4W      | 321.3W      | 321.8W      | 321.3W      |  |
| RIPPLE & NOISE (max.) Note.2   | 150mVp-p  | 150mVp-p    | 150mVp-p    | 150mVp-p    | 200mVp-p    | 250mVp-p    | 250mVp-p    | 250mVp-p    | 350mVp-p    |  |
| VOLTAGE ADJ. RANGE Note.5      | 10.8~13.5V  | 13.5~17V    | 17~22V      | 21~26V      | 26~32V      | 32~39V      | 38~45V      | 43~52V      | 48~58V      |  |
| CURRENT ADJ. RANGE             | Can be adjusted by internal potentiometer A type and C type only  |             |             |             |             |             |             |             |             |  |
|                                | 11~22A  | 9.5~19A     | 7.5~15A     | 6.67~13.34A | 5.35~10.7A  | 4.45~8.9A   | 3.8~7.65A   | 3.35~6.7A   | 2.97~5.95A  |  |
| VOLTAGE TOLERANCE Note.3       | ±3.0%   | ±2.0%       | ±1.5%       | ±1.0%       | ±1.0%       | ±1.0%       | ±1.0%       | ±1.0%       | ±1.0%       |  |
| LINE REGULATION                | ±0.5%   | ±0.5%       | ±0.5%       | ±0.5%       | ±0.5%       | ±0.5%       | ±0.5%       | ±0.5%       | ±0.5%       |  |
| LOAD REGULATION                | ±2.0%   | ±1.5%       | ±1.0%       | ±0.5%       | ±0.5%       | ±0.5%       | ±0.5%       | ±0.5%       | ±0.5%       |  |
| SETUP, RISE TIME Note.8        | 250ms, 80ms/115VAC 500ms, 80ms/230VAC at full load  |             |             |             |             |             |             |             |             |  |
| HOLD UP TIME (Typ.)            | 15ms at full load 230VAC/115VAC   |             |             |             |             |             |             |             |             |  |
| VOLTAGE RANGE Note.5           | 90~305VAC 127~431VDC  |             |             |             |             |             |             |             |             |  |
| FREQUENCY RANGE                | 47~63Hz   |             |             |             |             |             |             |             |             |  |
| POWER FACTOR (Typ.)            | PF>0.98/115VAC, PF>0.95/230VAC, PF>0.94/277VAC at full load (Please refer to "Power Factor Characteristic" curve)   |             |             |             |             |             |             |             |             |  |
| TOTAL HARMONIC DISTORTION      | THD<20% when output loading ≥50% at 115VAC/230VAC input and output loading ≥75% at 277VAC input   |             |             |             |             |             |             |             |             |  |
| EFFICIENCY (Typ.) (230VAC)     | 91%   | 92.5%       | 93.5%       | 94%         | 94%         | 94.5%       | 95%         | 95%         | 95%         |  |
| EFFICIENCY (Typ.) (277VAC)     | 91.5%   | 93%         | 94%         | 94.5%       | 94.5%       | 95%         | 95%         | 95%         | 95%         |  |
| AC CURRENT (Typ.)              | 3.5A/115VAC 1.65A/230VAC 1.45A/277VAC   |             |             |             |             |             |             |             |             |  |
| INRUSH CURRENT (Typ.)          | COLD START 70A (peak)=101µs measured at 50% (peak) at 230VAC  |             |             |             |             |             |             |             |             |  |
| LEAKAGE CURRENT                | <0.75mA/277VAC  |             |             |             |             |             |             |             |             |  |
| OVER CURRENT Note.4            | 95~108%<br>Protection type : Constant current limiting, recovers automatically after fault condition is removed   |             |             |             |             |             |             |             |             |  |
| SHORT CIRCUIT                  | Hiccup mode, recovers automatically after fault condition is removed.   |             |             |             |             |             |             |             |             |  |
| OVER VOLTAGE                   | 14~17V 17.5~21V 22.5~27V 27~33V 33~37V 40~48V 46.5~53V 53.5~60V 58~65V<br>Protection type : Shut down and latch off of p voltage, re-power on to recover  |             |             |             |             |             |             |             |             |  |
| OVER TEMPERATURE               | Shut down and latch off of p voltage, re-power on to recover  |             |             |             |             |             |             |             |             |  |
| WORKING TEMP.                  | -40~+70°C (Refer to "Derating Curve")   |             |             |             |             |             |             |             |             |  |
| WORKING HUMIDITY               | 20~95% RH non-condensing  |             |             |             |             |             |             |             |             |  |
| STORAGE TEMP., HUMIDITY        | -40~+80°C, 10~95% RH  |             |             |             |             |             |             |             |             |  |
| TEMP. COEFFICIENT              | ±0.03%/°C (0~50°C)  |             |             |             |             |             |             |             |             |  |
| VIBRATION                      | 10~500Hz, 5G 12min./cycle, period for 72min. each along X, Y, Z axis  |             |             |             |             |             |             |             |             |  |
| SAFETY STANDARDS Note.7        | UL8750, CSA C22.2 No. 250.0-08, EN61347-1, EN61347-2-13 independent, IP65 or IP67 (except for HLG-320H C type), J61347-1, J61347-2-13 (except for HLG-320H C type) approved   |             |             |             |             |             |             |             |             |  |
| WITHSTAND VOLTAGE              | I/P-O/P: 3.75KVAC I/P-FG: 2KVAC O/P-FG: 1.5KVAC   |             |             |             |             |             |             |             |             |  |
| ISOLATION RESISTANCE           | I/P-O/P, I/P-FG, O/P-FG: 100M Ohms / 500VDC / 25°C / 70% RH   |             |             |             |             |             |             |             |             |  |
| EMC EMISSION                   | Compliance to EN55015, EN55022 (CISPR22) Class B, EN61000-3-2 Class C (≥50% load); EN61000-3-3  |             |             |             |             |             |             |             |             |  |
| EMC IMMUNITY                   | Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11, EN61547, EN55024, light industry level (surge 4KV), criteria B  |             |             |             |             |             |             |             |             |  |
| MTBF                           | 157.1K hrs min. MIL-HDBK-217F (25°C)  |             |             |             |             |             |             |             |             |  |
| DIMENSION                      | 252*90*43.8mm (L*W*H)   |             |             |             |             |             |             |             |             |  |
| PACKING                        | 1.88Kg; 6pcs/16kg/0.92CUFT  |             |             |             |             |             |             |             |             |  |
| NOTE                           | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1µf & 47µf parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation.<br>4. Please refer to "DRIVING METHODS OF LED MODULE".<br>5. Derating may be needed under low input voltages. Please check the static characteristics for more details.<br>6. A type and C type only.<br>7. Safety and EMC design refer to EN60959-1, subject CNS16233, GB7000.1, FCC part1B.<br>8. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.<br>9. The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.<br>10. Refer to warranty statement.<br>11. To fulfill requirements of the latest ErP regulation for lighting fixtures, this LED power supply can only be used behind a switch without permanently connected to the mains. |             |             |             |             |             |             |             |             |  |

## NLW 3232M1



### Product Features

- High efficacy for cost effective solutions
- Optimized for optical design, and provide high quality lighting solution
- Industry-leading thermal resistance
- Reflow solder able-JEDEC J-STD-020C standard compatible

### Product Applications

- Outdoor lighting
- Indoor lighting
- Down Light
- Spot Light
- Automotive lighting
- Street lighting

### Product Specification

| CCT   | CRI<br>Typ.<br>@350mA | Flux           |                | Forward Voltage |                | Viewing Angle<br>Typ.<br>@350mA | Thermal Resistance<br>Typ.<br>@350mA |
|-------|-----------------------|----------------|----------------|-----------------|----------------|---------------------------------|--------------------------------------|
|       |                       | Typ.<br>@350mA | Typ.<br>@700mA | Typ.<br>@350mA  | Max.<br>@350mA |                                 |                                      |
| 2700K | 80                    | 114lm          | 205lm          | 2.85V           | 3.25V          | 120°                            | 3.5°C/W                              |
| 3000K | 70                    | 139lm          | 260lm          | 2.85V           | 3.25V          | 120°                            | 3.5°C/W                              |
| 4000K | 70                    | 148lm          | 270lm          | 2.85V           | 3.25V          | 120°                            | 3.5°C/W                              |
| 5700K | 70                    | 156lm          | 286lm          | 2.85V           | 3.25V          | 120°                            | 3.5°C/W                              |
| 6500K | 70                    | 156lm          | 295lm          | 2.85V           | 3.25V          | 120°                            | 3.5°C/W                              |

#### Notes:

1. Photoelectric parameters tested by CA5140-151 Spectrometer of I.S. Inc (German) and 2601 Source meter of Keithley Inc (US), at Forward Current = 350mA, Test Time = 20ms, Ambient Temperature = 25°C.
2. Viewing angle ( the angle of 50% central luminous intensity) tested by SIG-400 Source Imaging Goniometer of R.I. Inc (US), Optical simulation software light source data of ProSource\Lighttools\TracePro\ASAP\Zemax etc is available upon request.
3. The devices thermal resistance was tested by T3Ster of MicRed company (Hungary)
4. ETI maintains a testing tolerance of  $\pm 7\%$  on flux and power measurements,  $\pm 0.005$  on chromaticity (CCx, CCy),  $\pm 2$  on CRI measurements

### Absolute Maximum Ratings

| Item                       | Symbol    | Absolute Maximum Rating     |
|----------------------------|-----------|-----------------------------|
| Junction Temperature (°C)  | $T_j$     | 135°C                       |
| Operating Temperature (°C) | $T_{op}$  | -40°C - 120°C               |
| Storage Temperature (°C)   | $T_{stg}$ | -40°C - 135°C               |
| Forward Current            | $I_f$     | 100~1250mA                  |
| Pulse Forward Current      | $I_{FM}$  | 1500mA                      |
| Reverse Voltage            | $V_R$     | No Reverse Operation Design |
| Electrostatic Discharge    | ESD (HBM) | 8000V                       |

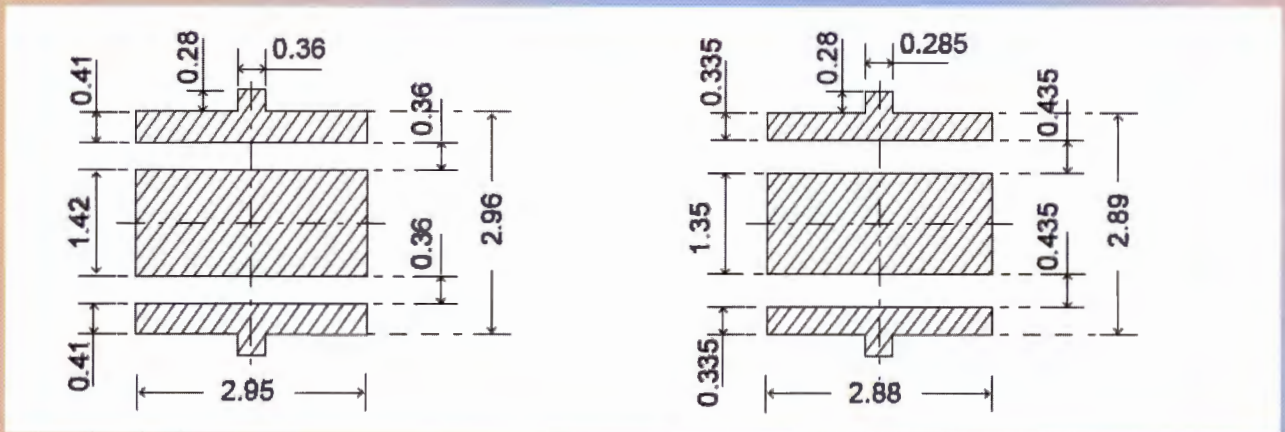
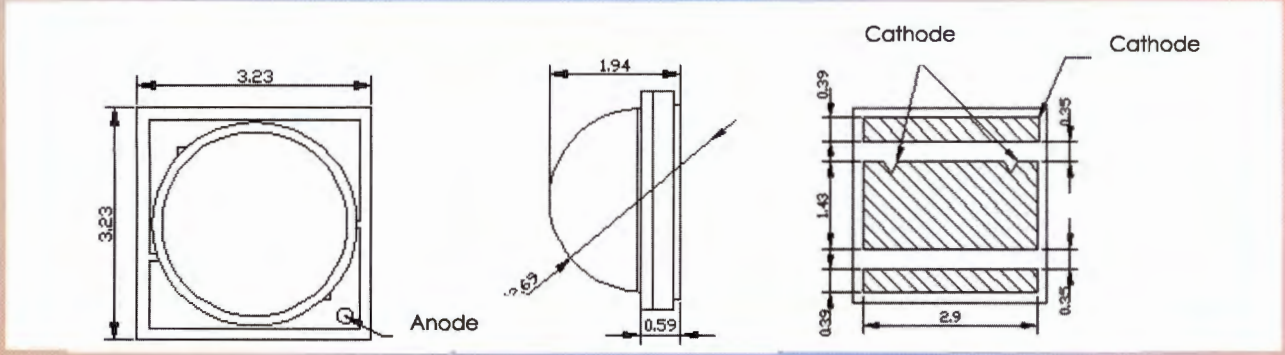
#### Notes:

1. Maximum Forward Current and Maximum Pulse Current require the junction temperature to be lower than the rated junction temperature;
2. IFM condition Pulse width at 50ms and duty cycle at 0.016;
3. Built-in ESD protection diode.

**NLW 3232M1**

**Mechanical Dimensions:**

Unit: mm Tolerance:  $\pm 0.1$



Recommended PCB Solder PAD

Recommended Stencil Pattern