

Electrical and Optical Specifications*

| LED Module Part Number | Color Temperature | Max Input Current | Forward Voltage | Rated Power | Luminous Flux Nominal $\pm 1\%$ | Efficiency | Beam Angle | CRI | Dimmable |
|------------------------|-------------------|-------------------|-----------------|-------------|---------------------------------|------------|------------|-----|----------|
| TM02LN4027-001 | 2700K | 350 mA | 20 VDC | 7 W | 475 lumens | 67 lm/W | 120° | >80 | ✓ |
| TM02LN4030-001 | 3000K | 350 mA | 20 VDC | 7 W | 500 lumens | 71 lm/W | 120° | >80 | ✓ |
| TM02LN4035-001 | 3500K | 350 mA | 20 VDC | 7 W | 500 lumens | 71 lm/W | 120° | >80 | ✓ |
| TM02LN4040-001 | 4000K | 350 mA | 20 VDC | 7 W | 550 lumens | 78 lm/W | 120° | >80 | ✓ |
| TM02LN4050-001 | 5000K | 350 mA | 20 VDC | 7 W | 550 lumens | 78 lm/W | 120° | >80 | ✓ |
| TM02LN4065-001 | 6500K | 350 mA | 20 VDC | 7 W | 550 lumens | 78 lm/W | 120° | >80 | ✓ |

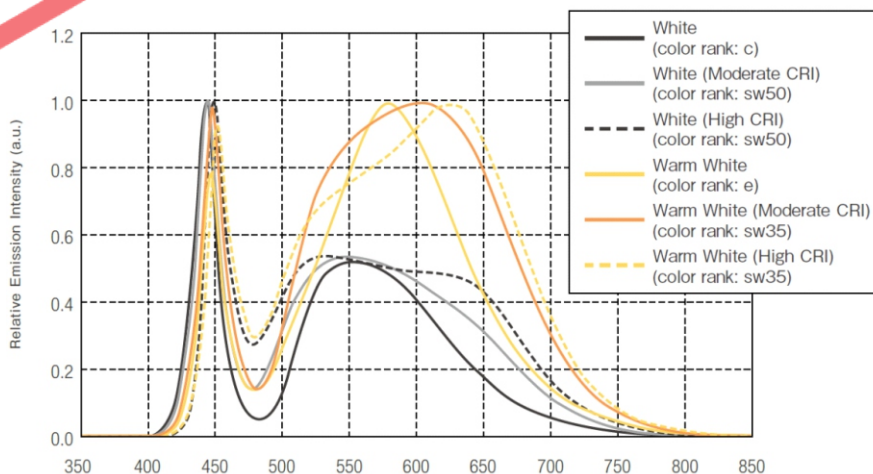
* Performance based on 25°C ambient temperature.
Note: Specifications are subject to change without notice.

Color and Binning



Ref. Nichia
Chromaticity Diagram for ANSI bins

Optical Spectrum **



Ref. Nichia
LED Catalogue 2013

** Value varies depending on product type and color rank

Fulham extends a limited warranty only to the original purchaser or to the first user for a period of **3 years** from the date of manufacture when properly installed and operated under normal conditions of use. For complete terms and conditions, please reference the Fulham product catalog (www.fulham.com)
Due to a program of continuous improvement, Fulham reserves the right to make modifications or variations in design or construction to the equipment described.

Mechanical Specifications

| Part Number * ** | Board Material & Dimensions | Module Weight | Connection | Attachment | Conformal Coating | Standard | Optional |
|------------------|---|---------------|------------------------------------|----------------------------|---|----------|----------|
| TM02LN40xx-001 | Aluminum Clad 39x24x1.6mm 1.53x0.94x0.063" (+/- 10%) | 8 g | Stranded Wire Leads / 22 AWG | #6 or M3 Pan Head screw | - | ✓ | |
| TM02LN40xx-101 | Aluminum Clad 39x24x1.6mm 1.53x0.94x0.063" (+/- 10%) | | Single Wire Connector | #6 or M3 Pan Head screw | - | | ✓ |
| TM02LN40xx-201 | Aluminum Clad 39x24x1.6mm 1.53x0.94x0.063" (+/- 10%) | | Dual Wire Connector | #6 or M3 Pan Head screw | - | | ✓ |
| TM02LN40xx-y01T | Aluminum Clad 39x24x1.6mm 1.53x0.94x0.063" (+/- 10%) | | Leads or Connectors | 3M Double-Sided Tape | - | | ✓ |
| TM02LN40xx-y01C | Aluminum Clad 39x24x1.6mm 1.53x0.94x0.063" (+/- 10%) | | Leads or Connectors | #6 or M3 Pan Head screw | Environment and Moisture Protection per IPC-CC-830 | | ✓ |
| TM02LN40xx-y01B | Aluminum Clad 39x24x1.6mm 1.53x0.94x0.063" (+/- 10%) | | Leads or Connectors | 3M Double-Sided Tape | Environment and Moisture Protection per IPC-CC-830 | | ✓ |

* xx = 27, 30, 35, 40, 50, or 65 for respective color temperature

** y = 0, 1, or 2 for respective connection method

Mounting Methods

1. If mounting by screw hole, use any screw with diameter less than 4.17mm. Use all available screw holes to ensure good contact between back side of module and mounting surface.
2. If mounting using double-sided tape, peel backing and place LED module on mounting surface. Firmly press down on the module to ensure good adherence. Follow the double-side tape manufacturer's installation instructions.
3. If connectors are used, use solid wire size 24 – 18 AWG, rated at a minimum 50V, minimum 105°C, and stripped to length between 6-7 mm (0.24-0.28 inches). Push button for insertion of conductor and for easy removal of wires.

Mechanical Drawings

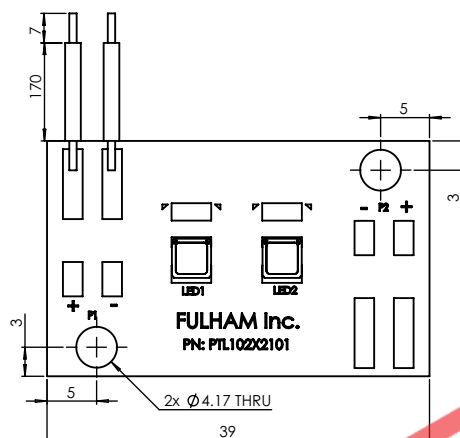


Figure 1: TM02LN40xx-001 with Wire Leads

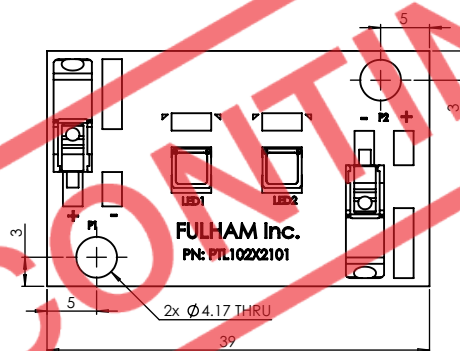


Figure 2: TM02LN40xx-101 with 2 Single Wire Connectors

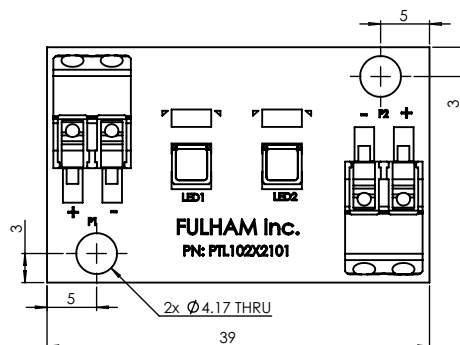


Figure 3: TM02LN40xx-201 with 2 Double Wire Connectors

NOTE:

Modules are polarity sensitive.
Ensure that "positive" from LED driver is connected to "positive" of LED modules and that "negative" from LED driver is connected to "negative" of LED modules.
Polarities of modules are marked with "+" for positive and "-" for negative.

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Reliability and Life Specifications

| | |
|--------------------------------------|--|
| Lumen Maintenance | L70 > 36,000 Hrs based on LM80 Data at Case Temperature of 55°C and 400mA Driver Current |
| Color Consistency | Binning per ANSI C78.377-2008; 7 SDCM |
| Energy Star for Luminaires Compliant | Indoor Fixture types for $T_s \leq 105^\circ\text{C}$; Outdoor Fixtures for $T_s \leq 85^\circ\text{C}$ |
| DLC Compliant | Categories 11-16 for $T_s \leq 85^\circ\text{C}$ |
| Certifications | cURus, Class 2 Lighting Systems, RoHS |
| UL Part Number | PTL102X2101 (File # E351548) |
| Fulham Warranty | 3 Years |

Environmental Rating

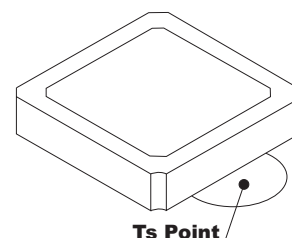
Modules are rated for dry locations, unless option for conformal coating is requested.

Electrostatic Sensitive Product (ESD)

Fulham LED products should be handled with proper measures to protect against any potential ESD damage. When servicing, personnel should be ground and direct contact with LED should be avoided.

Thermal Specifications

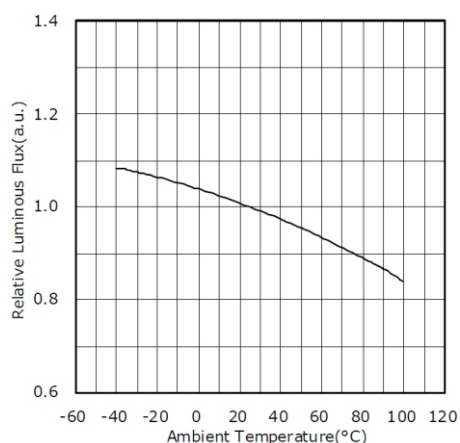
| | With Connectors | Without Connectors |
|---------------------------------------|-----------------|--------------------|
| Maximum Storage Temperature | -35 to 100°C | -40 to 100°C |
| Maximum Operating Ambient Temperature | -35 to 100°C | -40 to 100°C |
| Maximum Solder Pad Temperature | 94°C | 94°C |
| Thermal Pad Recommended | Yes | Yes |



Thermal Management

Proper thermal management should be employed to ensure life and reliability of product. Use thermal grease, paste, pad, or other material interface is highly recommended.

Thermal De-Rating



Ref. Nichia
NS9L(W)153AM-H3 Spec Sheet
I = 120 mA