NewEnergy™

# Cree Performance XHP50 LED Module

Power of Cree XHP Series in Standard and Custom LED modules

# Data Sheet

## Illumination Accelerated

**Design Faster** – use standard modules to shorten development time
**Superior Performance & Cost** – top flux bin LEDs at competitive prices
**Thermal Interface Included** – pre-installed to simplify assembly
**Add Standard Optics** – configured for off-the-shelf optics

## Primary Applications

| | |
|---|---|
| High Mast | Canopy |
| Streetlight | Garage |
| Stadium | Portable |
| Architectural | High bay |

## Superior Performance in Standard & Custom Modules

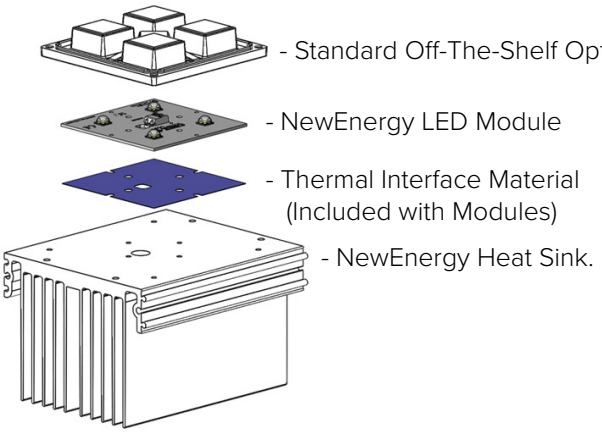
- Market leading L90 & L70 lifetimes, even in high stress conditions
- 70, 80, and 90 CRI LEDs available
- Metal core PCB for optimal thermal management
- Configurable with off the shelf optics, and heat sinks
- Private label or custom designs available

## Simplify Your Next Design

The Cree performance modules are an off-the-shelf platform to rapidly move from prototype to finished LED lighting fixture. These versatile building blocks include Cree XHP35, XHP50 & XHP70 LEDs in square, linear or rectangle formats. The thermal interface is already installed with easy to use connectors to help simplify the lighting design and get to market faster. These competitively priced modules come in a range of lumen outputs and can achieve both DLC Premium or DLC Standard lumens per watt specifications.

## Integrate Further

NewEnergy also offers standard heat sinks and fully assembled IP-rated modules.



- Standard Off-The-Shelf Optics Available
- NewEnergy LED Module
- Thermal Interface Material (Included with Modules)
- NewEnergy Heat Sink.

## About NewEnergy

NewEnergy accelerates the adoption of LED technology through simple, modular products and custom designs. Through 30 years of experience, state of the art manufacturing, full traceability and advanced quality controls, NewEnergy offers leading solid state lighting components, modules and custom solutions. NewEnergy customers get to market faster, with less resources, at lower costs. Visit New-EnergyLLC.com for more information.

CE

RoHS


Last Modified: 03/16/2021

# XHP50 Series Specifications

## Product Selection Table

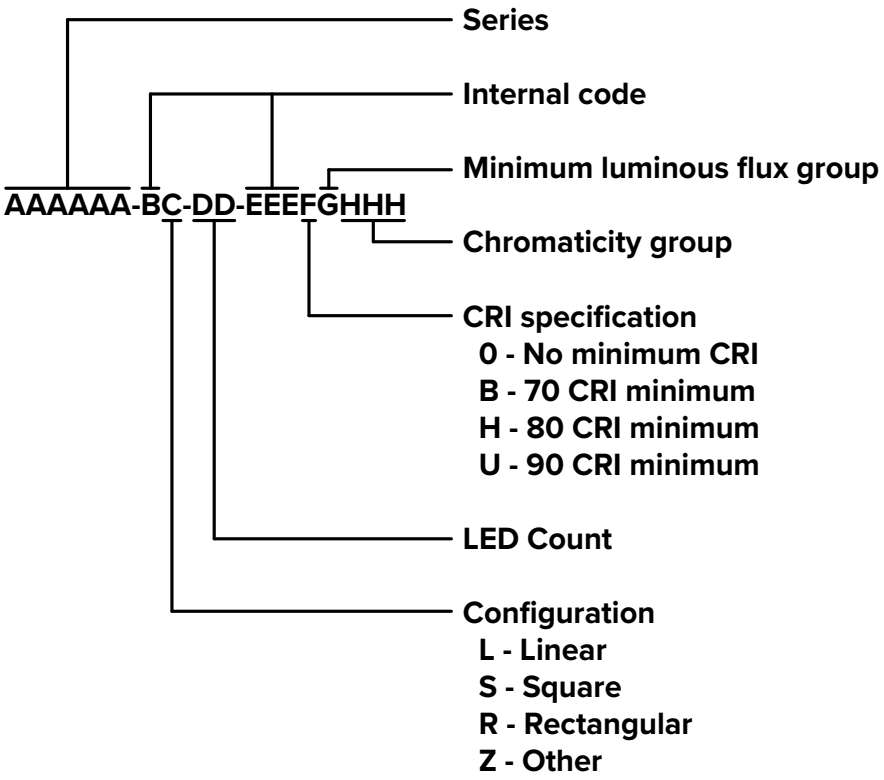
| Configuration | LED Layout | Part Number | CCT | CRI | Binning | Luminous Flux (lm) | | Efficacy Nominal (lm/W) | Watts (W) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Nominal | Max | | Nominal | Max |
| Square[1] | Single | XHP50A-0S-01-0D0HH227G | 2700K | 80 | 3-Step | 900 | 1665 | 112 | 8 | 18 |
| Square[1] | Single | XHP50A-0S-01-0D0BH430E | 3000K | 70 | 5-Step | 970 | 1795 | 121 | 8 | 18 |
| Square[1] | Single | XHP50A-0S-01-0D0BJ440E | 4000K | 70 | 5-Step | 1120 | 2072 | 139 | 8 | 18 |
| Square[1] | Single | XHP50A-0S-01-0D0BJ450E | 5000K | 70 | 5-Step | 1120 | 2072 | 139 | 8 | 18 |
| Square[1] | Single | XHP50A-0S-01-0D0BJ40E2 | 5700K | 70 | ANSI | 1120 | 2072 | 139 | 8 | 18 |
| | | | | | | | | | | |
| Linear[1] | 1x2 | XHP50A-0L-02-0D0HH227G | 2700K | 80 | 3-Step | 1800 | 3330 | 112 | 16 | 36 |
| Linear[1] | 1x2 | XHP50A-0L-02-0D0BH430E | 3000K | 70 | 5-Step | 1940 | 3589 | 121 | 16 | 36 |
| Linear[1] | 1x2 | XHP50A-0L-02-0D0BJ440E | 4000K | 70 | 5-Step | 2240 | 4145 | 139 | 16 | 36 |
| Linear[1] | 1x2 | XHP50A-0L-02-0D0BJ450E | 5000K | 70 | 5-Step | 2240 | 4145 | 139 | 16 | 36 |
| Linear[1] | 1x2 | XHP50A-0L-02-0D0BJ40E2 | 5700K | 70 | ANSI | 2240 | 4145 | 139 | 16 | 36 |
| | | | | | | | | | | |
| Linear[1] | 1x3 | XHP50A-0L-03-0D0HH227G | 2700K | 80 | 3-Step | 2700 | 4995 | 112 | 24 | 54 |
| Linear[1] | 1x3 | XHP50A-0L-03-0D0BH430E | 3000K | 70 | 5-Step | 2910 | 5384 | 121 | 24 | 54 |
| Linear[1] | 1x3 | XHP50A-0L-03-0D0BJ440E | 4000K | 70 | 5-Step | 3360 | 6217 | 139 | 24 | 54 |
| Linear[1] | 1x3 | XHP50A-0L-03-0D0BJ450E | 5000K | 70 | 5-Step | 3360 | 6217 | 139 | 24 | 54 |
| Linear[1] | 1x3 | XHP50A-0L-03-0D0BJ40E2 | 5700K | 70 | ANSI | 3360 | 6217 | 139 | 24 | 54 |
| | | | | | | | | | | |
| Linear[1] | 1x4 | XHP50A-0L-04-0D0HH227G | 2700K | 80 | 3-Step | 3600 | 6660 | 112 | 32 | 72 |
| Linear[1] | 1x4 | XHP50A-0L-04-0D0BH430E | 3000K | 70 | 5-Step | 3880 | 7178 | 121 | 32 | 72 |
| Linear[1] | 1x4 | XHP50A-0L-04-0D0BJ440E | 4000K | 70 | 5-Step | 4480 | 8290 | 139 | 32 | 72 |
| Linear[1] | 1x4 | XHP50A-0L-04-0D0BJ450E | 5000K | 70 | 5-Step | 4480 | 8290 | 139 | 32 | 72 |
| Linear[1] | 1x4 | XHP50A-0L-04-0D0BJ40E2 | 5700K | 70 | ANSI | 4480 | 8290 | 139 | 32 | 72 |
| | | | | | | | | | | |
| Square[1] | 2x2 | XHP50A-0S-04-0D0HH227G | 2700K | 80 | 3-Step | 3600 | 6660 | 112 | 32 | 72 |
| Square[1] | 2x2 | XHP50A-0S-04-0D0BH430E | 3000K | 70 | 5-Step | 3880 | 7178 | 121 | 32 | 72 |
| Square[1] | 2x2 | XHP50A-0S-04-0D0BJ440E | 4000K | 70 | 5-Step | 4480 | 8290 | 139 | 32 | 72 |
| Square[1] | 2x2 | XHP50A-0S-04-0D0BJ450E | 5000K | 70 | 5-Step | 4480 | 8290 | 139 | 32 | 72 |
| Square[1] | 2x2 | XHP50A-0S-04-0D0BJ40E2 | 5700K | 70 | ANSI | 4480 | 8290 | 139 | 32 | 72 |

[1] Product performance at 700mA Tj = 85°C.

[2] Cree XLamp XHP50 LED order codes specify only a minimum flux bin and not a maximum. NewEnergy may ship modules in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity bin restrictions specified by the order code.

# XHP50 Series Specifications

## Order Code Formatting



# XHP50 Series Specifications

## Electrical Characteristics

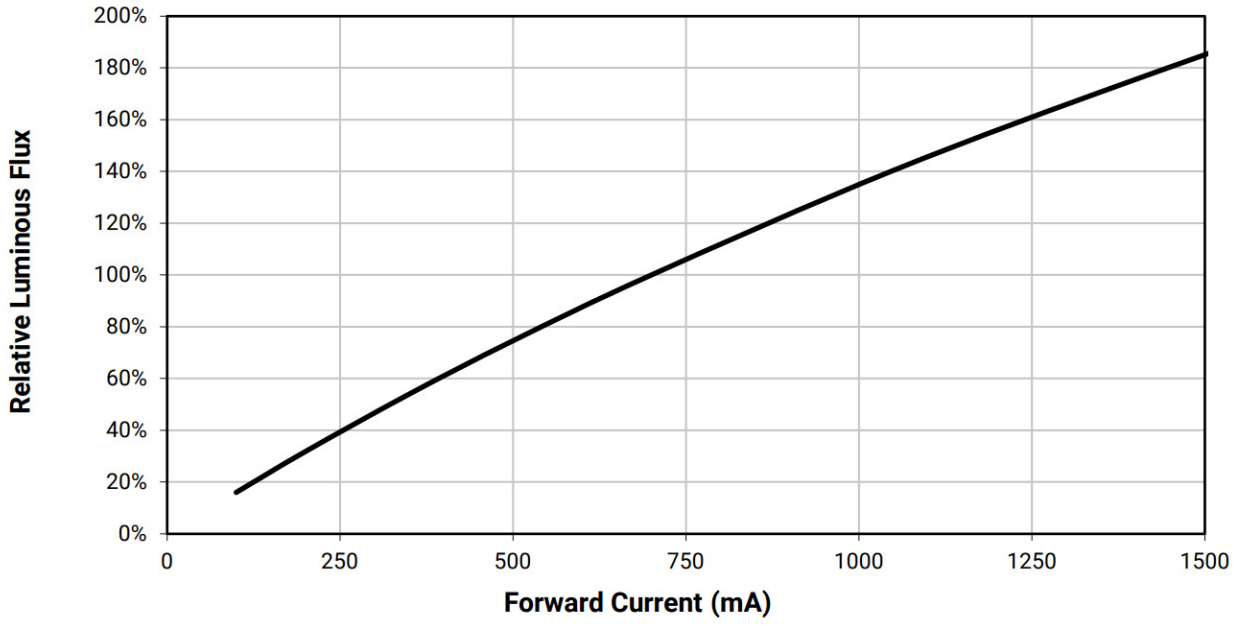
| Part Number | Forward Voltage (v) | | Typical Thermal Resistance - Juntion to Solder Point (°C/W) RTh J-HS |
|---|---|---|---|
| | Typical | Maximum | |
| XHP50A-0S-01-x | 11.5 | 12.6 | 1.2 |
| XHP50A-0L-02-x | 23 | 25.2 | 1.2 |
| XHP50A-0L-03-x | 34.5 | 37.8 | 1.2 |
| XHP50A-0L-04-x | 46 | 50.4 | 1.2 |
| XHP50A-0S-04-x | 46 | 50.4 | 1.2 |

Intended for connection to a class 2 power source with a maximum operating voltage of 50 Vdc

## Maximum Ratings

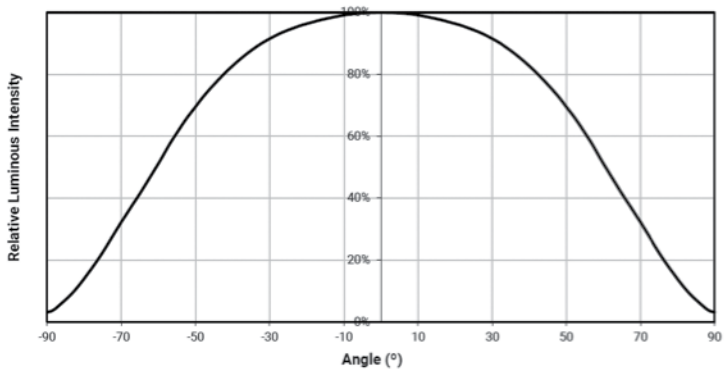
| Part Number | DC Current (A) | Tsp Temp (°C) | Power (W) |
|---|---|---|---|
| XHP50A-0S-01-x | 1.5 | 105 | 19 |
| XHP50A-0L-02-x | 1.5 | 105 | 38 |
| XHP50A-0L-03-x | 1.5 | 105 | 57 |
| XHP50A-0L-04-x | 1.5 | 105 | 76 |
| XHP50A-0S-04-x | 1.5 | 105 | 76 |

## Relative Flux Vs Board Current (TJ = 85°C)



# XHP50 Series Specifications

## Spatial Distribution



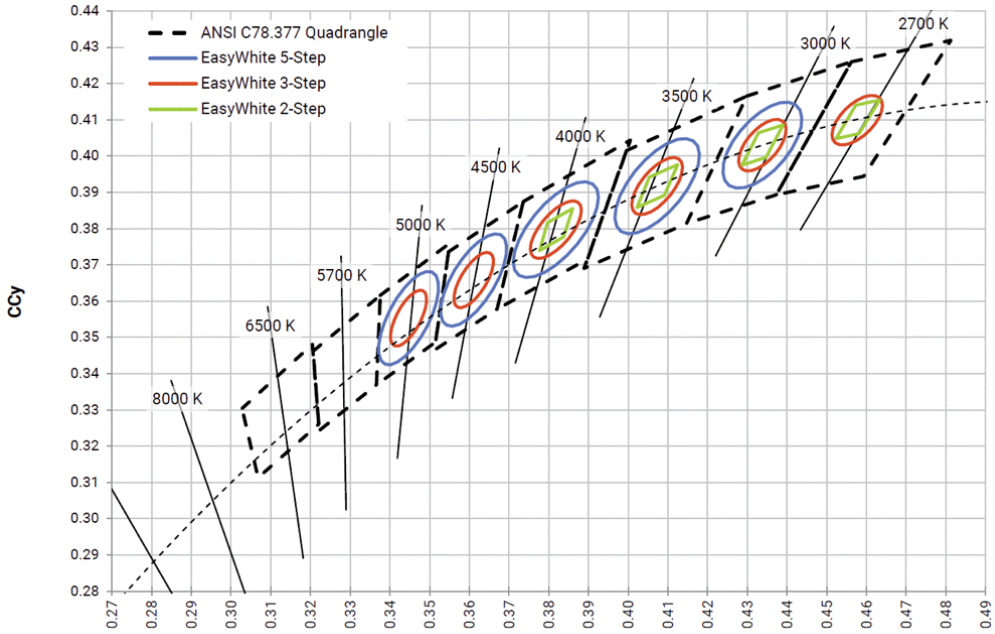

## Performance Groups – Chromaticity

| Binning | CCT | X | Y |
|---|---|---|---|
| ANSI | 5700K | 0.3207 | 0.3462 |
| | | 0.3376 | 0.3616 |
| | | 0.3366 | 0.3369 |
| | | 0.3222 | 0.3243 |

| Binning | CCT | Center Point | | Major Axis | | Rotation Angle (°) |
|---|---|---|---|---|---|---|
| | | X | Y | a | b | |
| 5-Step | 5000K | 0.3447 | 0.3553 | 0.01400 | 0.00520 | 65.0 |
| 5-Step | 4000K | 0.3818 | 0.3797 | 0.001420 | 0.00550 | 61.5 |
| 5-Step | 3000K | 0.4338 | 0.4030 | 0.01390 | 0.00680 | 53.2 |
| 3-Step | 2700K | 0.4577 | 0.4099 | 0.01350 | 0.00700 | 48.5 |

# XHP50 Series Specifications

## Standard White Chromaticity Regions Plotted On The CIE 1931 Curve



# XHP50 Series Specifications

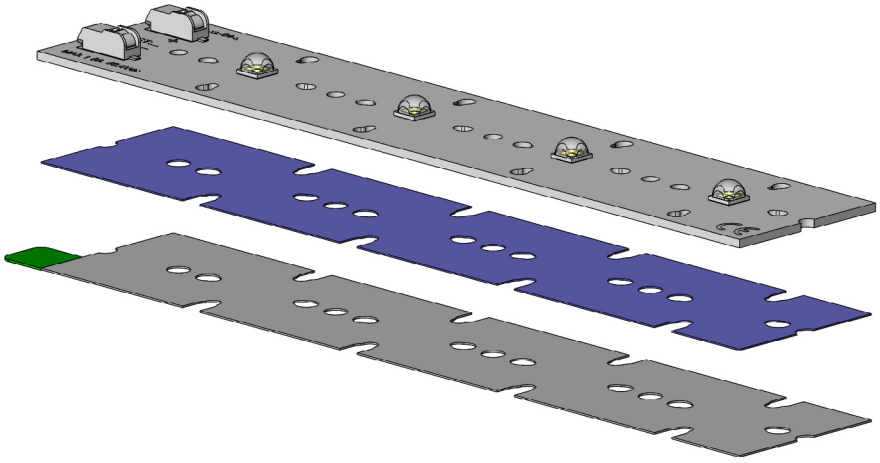
## Thermal Interface Properties

| Property | Test Method | Value | Unit |
|---|---|---|---|
| Color | - | Blue | - |
| Thickness | ASTM D374 | 0.3 | mm |
| Construction | - | Silicone / Ceramic | - |
| Temperature Range | EN344 | -50-200 | °C |
| Breakdown Voltage | ASTM D149 | >8.0 | Kv/mm |
| Flame Rating | UL94 | V-0 | - |
| Thermal Conductivity | ASTM D5470 | 3.0 | W/m-K |

Intended for connection to a class 2 power source with a maximum operating voltage of 50 Vdc
Note: Release liner must be removed for proper thermal performance. Do not remove thermal Interface Material.

## Board Material Properties

| Property | Value | Unit |
|---|---|---|
| Solder Mask Color | White | - |
| Thickness | .062 | in |
| Construction | AL | - |
| Temperature | 130 | °C |
| Flame Rating | V-0 | - |
| Copper Thickness | 2 | oz |



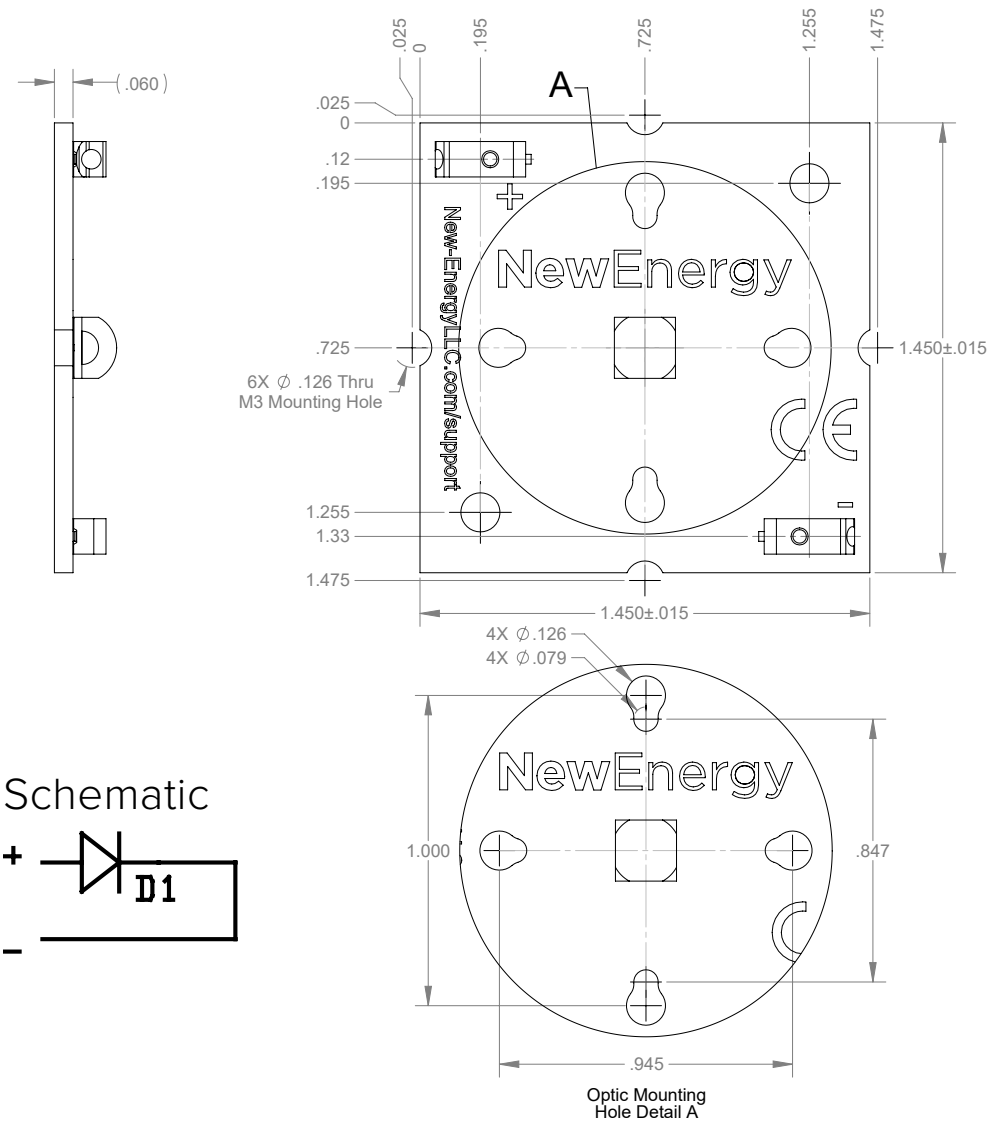
- XHP LED Module

- Thermal Interface Material

- Release Liner
(Always remove Release Liner
before mounting LED Modules)

# XHP50 Series Specifications

## NewEnergy Square 1 LED XHP50 Module



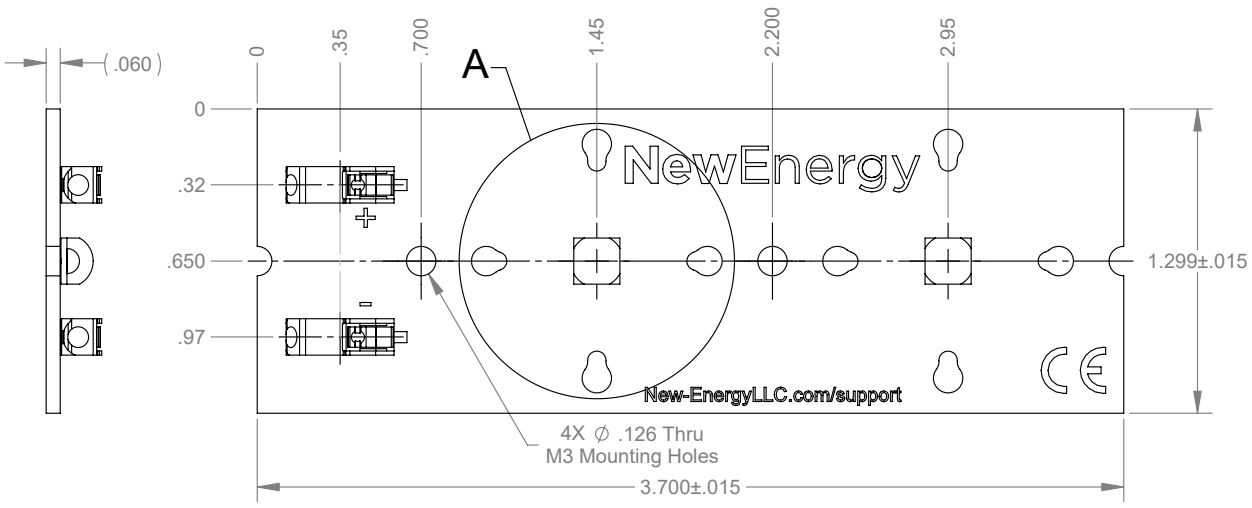

Schematic



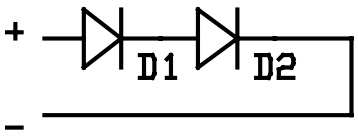

1. Single Poke-In Connectors accept 22-26 AWG solid or stranded wire
2. Recommended Mounting Hardware: 6x M3-.5 Socket Head Cap Screws

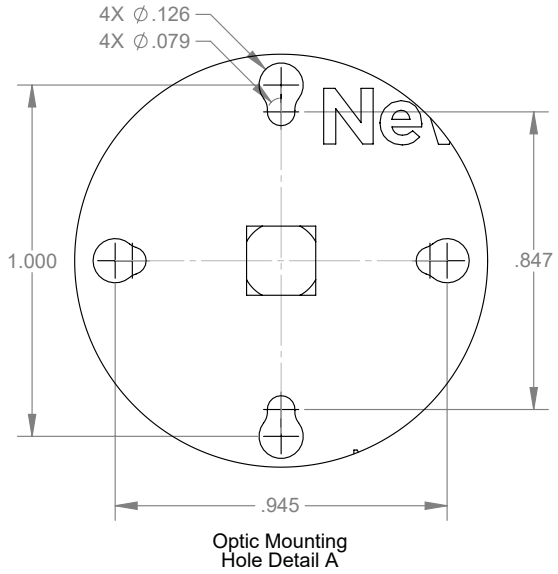
# XHP50 Series Specifications

## NewEnergy Linear 2 LED XHP50 Module




Schematic



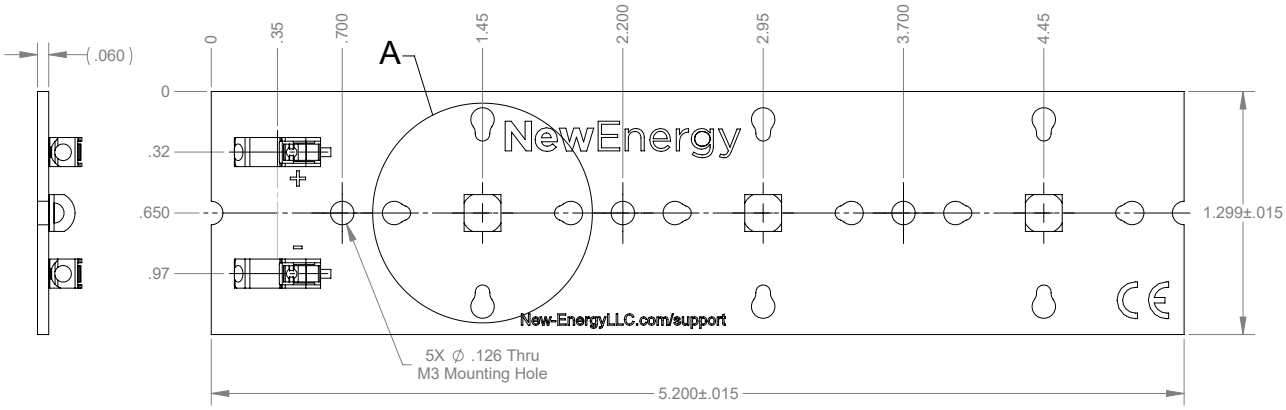




Optic Mounting
Hole Detail A

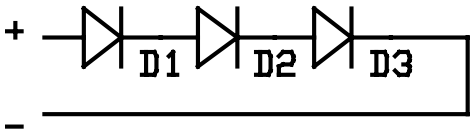
1. Single Poke-In Connectors accept 18-24 AWG solid or stranded wire
2. Recommended Mounting Hardware: 4x M3-.5 Socket Head Cap Screws

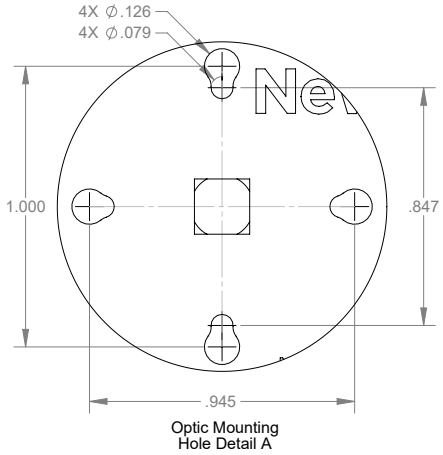
# XHP50 Series Specifications

## NewEnergy Linear 3 LED XHP50 Module




### Schematic

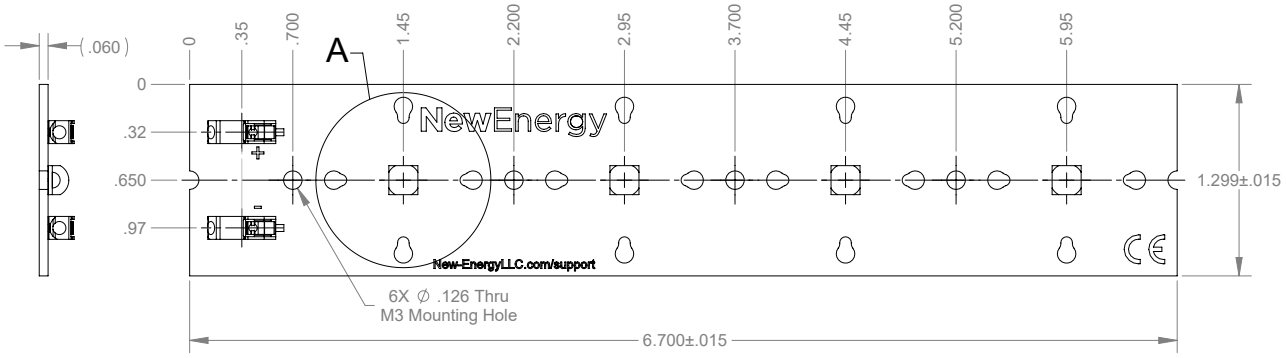


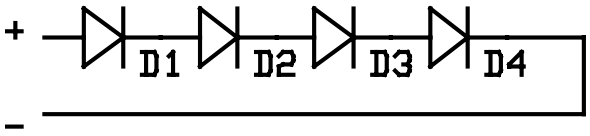

1. Single Poke-In Connectors accept 18-24 AWG solid or stranded wire
2. Recommended Mounting Hardware: 5x M3-.5 Socket Head Cap Screws

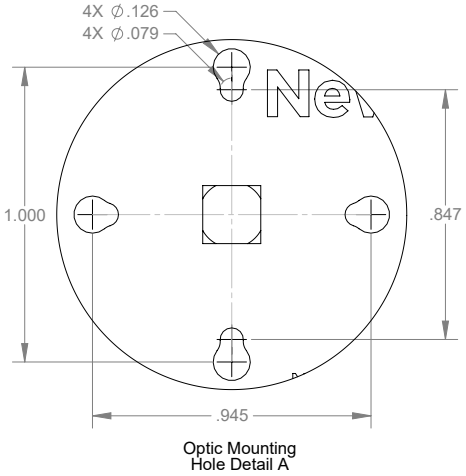
# XHP50 Series Specifications

## NewEnergy Linear 4 LED XHP50 Module




### Schematic

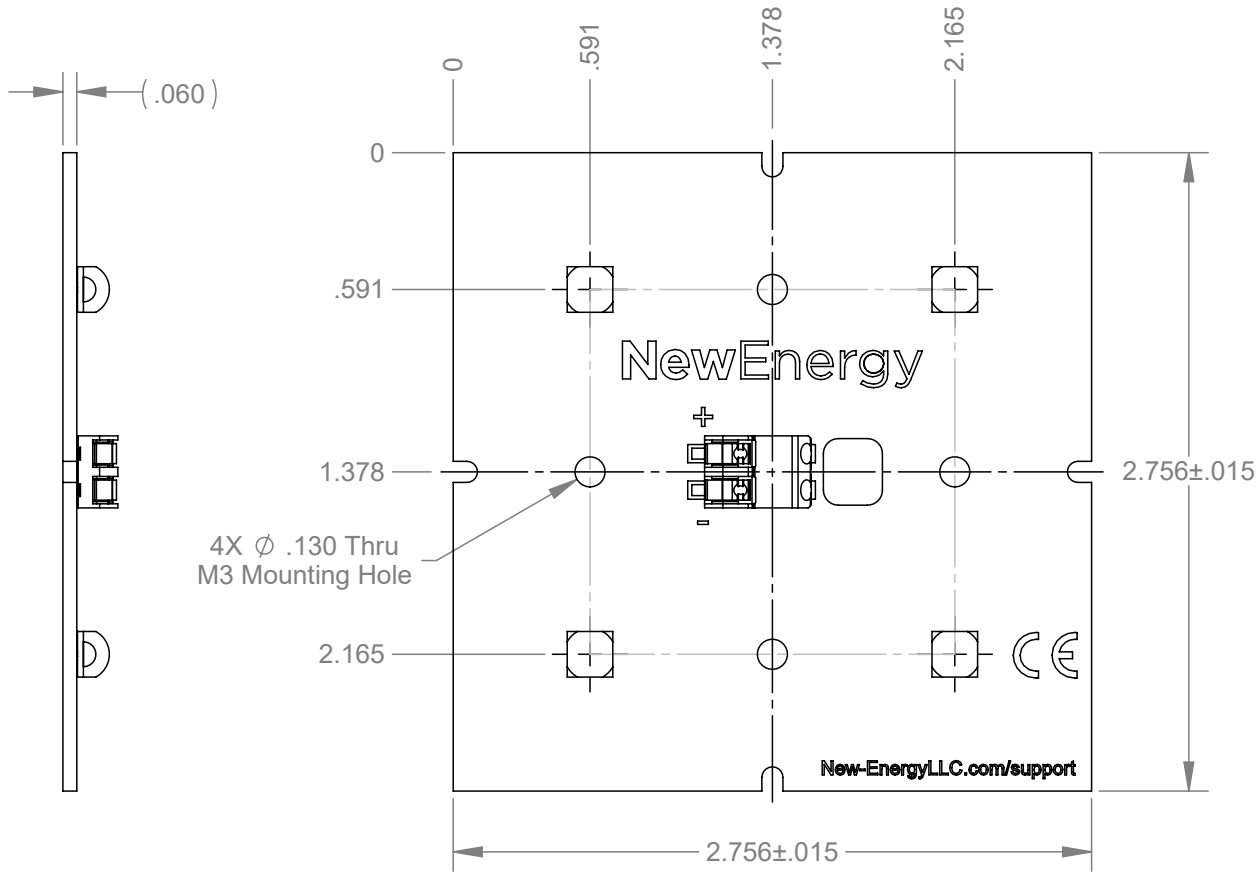


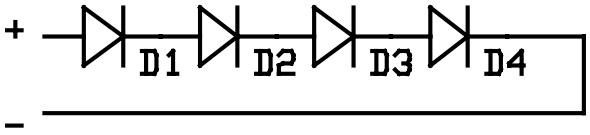

1. Single Poke-In Connectors accept 18-24 AWG solid or stranded wire
2. Recommended Mounting Hardware: 6x M3-.5 Socket Head Cap Screws

# XHP50 Series Specifications

## NewEnergy Square 4 LED XHP50 Module




## Schematic




1. Dual Poke-In Connectors accept 18-24 AWG solid or stranded wire
2. Recommended Mounting Hardware: 4x M3-.5 Socket Head Cap Screws

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