

TM42SQ12XX-2X2

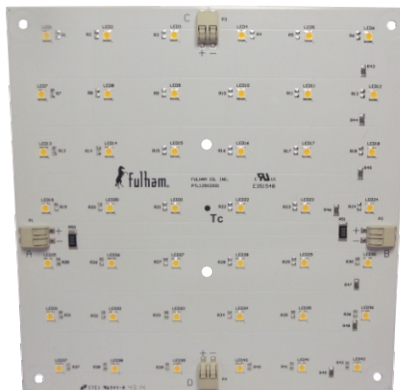
Constant Current LED Square Module

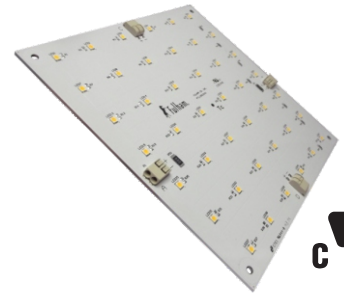
- High Density, high brightness chip array for use in Class 2 square applications
- Constant current for maximum efficacy
- Available in standard CCT's
- Dimmable when used with a dimmable driver
- Suitable for DLC and Energy Star compliant luminaires
- 80 CRI standard and 90 CRI available
- On-board connectors for ease of assembly

General Ratings

Max Lumen Output @ Max Current	4600 lumens @ 4000K / 80 CRI
Max Current Input	1050 mA
Nominal DC Power Consumption @ Max Current	39W
Nominal Operating Voltage @ Max Current	37VDC
Beam Angle	120°
CRI	80, 90
Operating Ambient Temperature Range (Ta)	-35 to +40°C / -31 to +104°F
Maximum Module Case Temperature (Tc)	+85°C
Estimated Lumen Maintenance (L70)	>50,000 hours at max Tc
Color Consistency	Binning per ANSI C78.377-2008; 7 SDCM
Overall Size	6" x 6" x 0.22" H
Material / Weight	FR4 / 89g
Maximum Screw Installation Torque	35 inch - lbs
Safety/Compliance	cURus (File # E351548, PTL129X20www**) Class 2 Lighting System RoHS Compliant
Warranty	5 years with suitable Fulham LED Drivers

* At Tc mod = 25°C
** www = PCB Rev #





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Part Numbering Matrix

TM 42 SQ 12 40 - 2 0 2 C

Color Temperature

27 = 2700K
 30* = 3000K
 35 = 3500K
 40* = 4000K
 50 = 5000K

CRI

0* = 80
 1 = 90

Module Options

Blank* = Standard
 C = Conformal Coating

* Indicates standard module options. All others are built to order.

Electrical Specifications

LED Module Part Number	Number of LED	Module Input Current	Abs. Max Forward Voltage	Nom. Forward Voltage	Nom. Rated Power
TM42SQ12xx-2x2	42	350mA	40 VDC***	34.3 VDC	12W
		700mA	42 VDC***	35.7 VDC	25W
		1050mA**	44 VDC***	37.1 VDC	39W

** Indicates maximum rated current. Modules may be operated at a current less than or equal to this value.

*** Absolute maximum forward voltage was not used in calculating nominal rated power. Data is provided to assist in selecting proper LED driver.

Optical Specifications

LED Module Part Number	Color Temperature	Module Drive Current	Nominal Luminous Flux @ 90 CRI	Nominal Luminous Flux @ 80 CRI	Efficacy @ 80 CRI
TM42SQ1230-2x2	3000K	350mA	1250 lumens	1650 lumens	137 lm/W
		700mA	2275 lumens	3000 lumens	120 lm/W
		1050mA	3250 lumens	4275 lumens	109 lm/W
TM42SQ1240-2x2	4000K	350mA	1350 lumens	1775 lumens	147 lm/W
		700mA	2450 lumens	3225 lumens	129 lm/W
		1050mA	3500 lumens	4600 lumens	117 lm/W

1) Electrical and optical specifications are based on Tc mod = 25°C. Reference Amb. Temp. vs Rel. Lum. Flux for other temperatures.

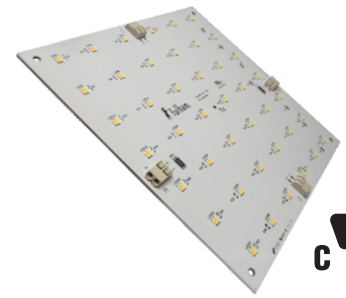
2) Standard lumen output and efficacy is calculated for standard options. Reference CCT vs Rel. Lum. Flux chart for lumen ratio calculation.

3) Specifications are subject to change without notice.

Thermal Specifications

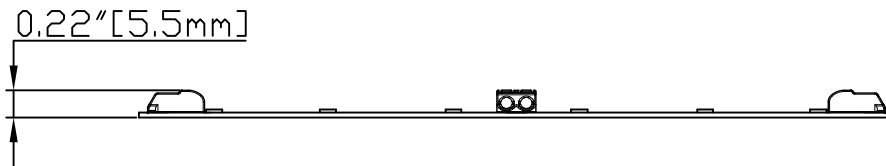
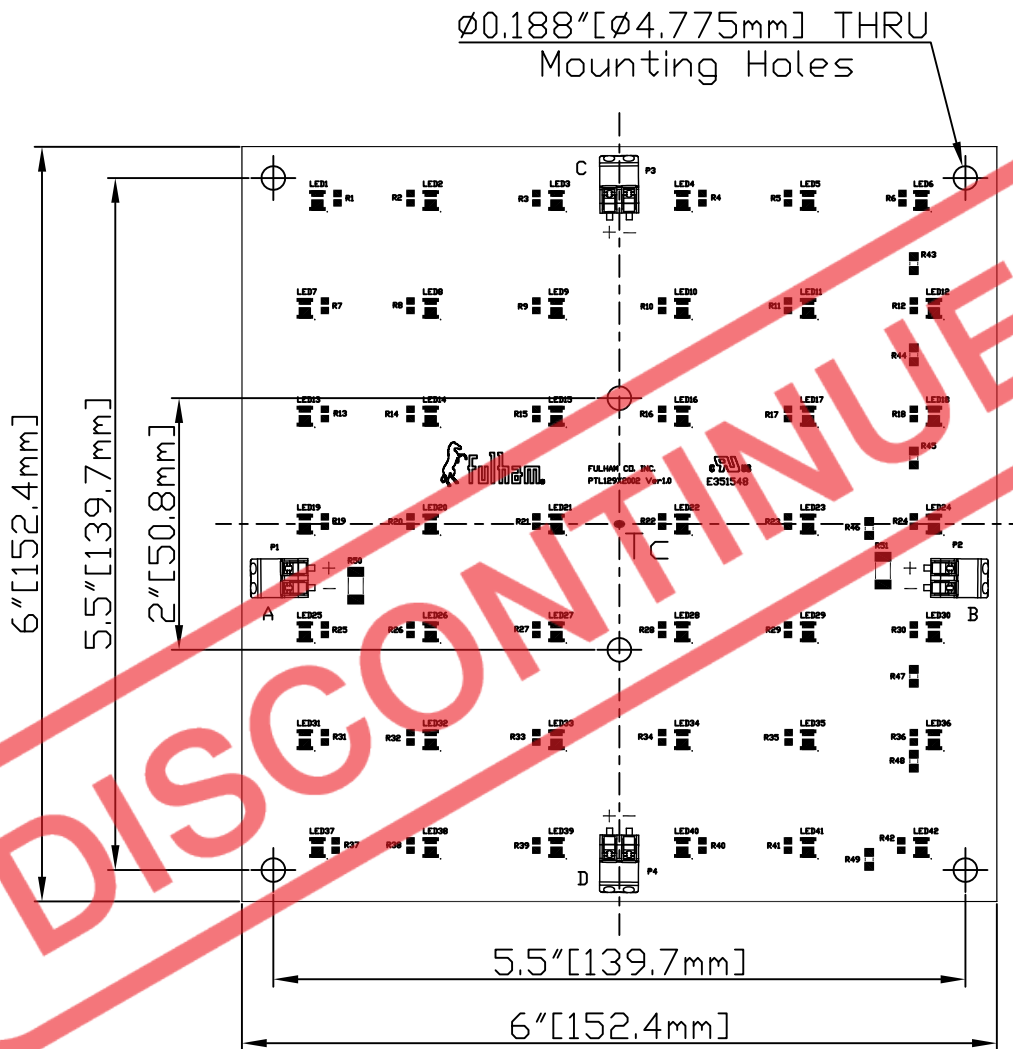
	LED Module
Storage Temperature Range	-35 to 100°C
Operating Ambient Temperature Range	-35 to 40°C
Maximum Case Temperature (Tc mod)	85°C

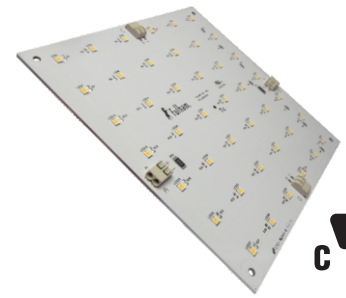




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Mechanical Drawings

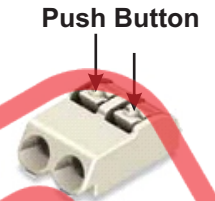




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Termination Notes

- 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.



Fastening Notes

- If fastening by screw hole, use any screw with diameter less than 0.185 in (4.7mm). Use all available screw holes to ensure good contact between back side of module and mounting surface. Refer to max specified torque for installation. Suggested screw sizes: #6 or M4 Pan Head screw.
- If fastening using double-sided tape, start with clean, dust-free surface. 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.

Environmental Rating

- Modules are rated for dry locations, unless option for conformal coating is requested.
- Conformal coating is acrylic based and rated for Environment and Moisture Protection per IPC-CC-830.

Electrostatic Sensitive Product (ESD)

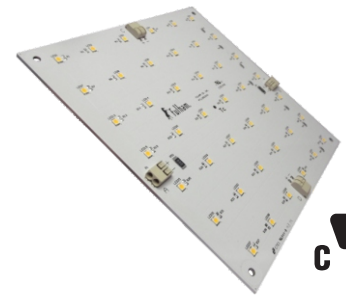
- Fulham LED products should be handled with proper measures to protect against any potential ESD damage.
- When servicing, personnel should be ground and direct contact with LED should be avoided.

Thermal Management

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

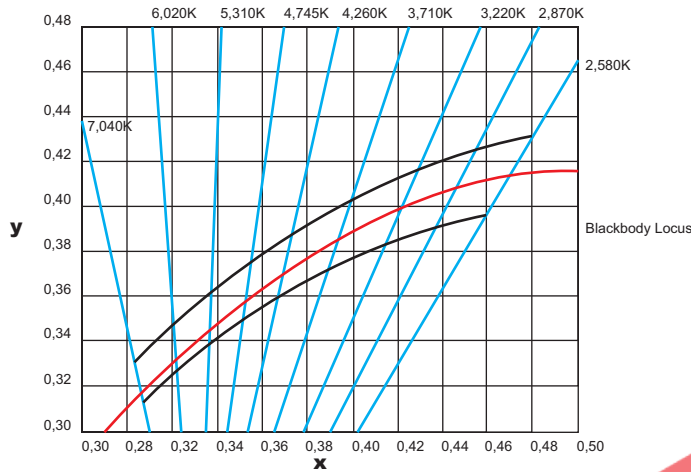
Polarity Notes

- 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.



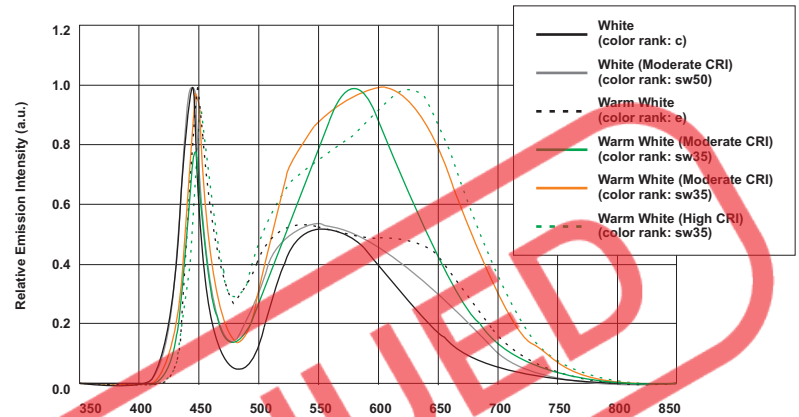
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Color and Binning



Ref. Nichia
Chromaticity Diagram for ANSI bins
For reference only. For more detailed info, contact factory.

Optical Spectrum***



*** Value varies depending on product type and color rank
Ref. Nichia
LED Catalogue 2013
For reference only. For more detailed info, contact factory.

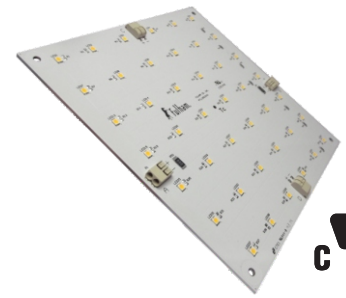
Thermal De-Rating

Ambient Temperature (Ta)	Relative Luminous Flux
25°C	1
30°C	0.991
35°C	0.989
40°C	0.980
45°C	0.975
50°C	0.970
55°C	0.960
60°C	0.950

Ref. Nichia
LED757 Spec Sheet
For reference only. For more detailed info, contact factory.

CCT vs Luminous Flux

CCT	Relative Luminous Flux
2700K	0.87
3000K	0.93
3500K	0.96
4000K	1.00
5000K	1.07



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Compatible Fulham LED Drivers

Fulham Part Number	Driver Description	# of Modules/Driver, Wiring Diagram
TC11200350-15C	350 mA, 15W CC Driver, 120V AC Input	1, A
T1(M1)UNV0700-28C	700 mA, 28W CC Driver, Universal Input (0-10V Dimmable)	1, A
T1M13470700-28C	700 mA, 28W CC Driver, 347V Input, 0-10V Dimmable	1, A
T1(M1)UNV0700-40C	700 mA, 40W CC Driver, Universal Input (0-10V Dimmable)	1, A
T1M13470700-40C	700 mA, 40W CC Driver, 347V Input, 0-10V Dimmable	1, A
T1(M1)UNV1050-42C	1050 mA, 42W CC Driver, Universal Input (0-10V Dimmable)	1, A
FHS2-UNV-36L	HotSpot2 at 350 - 700 mA output.	

NOTE:

1. Subject to rated loading conditions.
2. 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.
3. List is subject to change without notice.

Wiring Diagram

