



VMU160070CT8xxA-46

46" CUTTABLE DC MODULE, 1600mA MAX CURRENT

- For use in UL Class 2 lighting systems
- Constant current for maximum efficacy
- 46" length, cuttable at half 23"
- High lumen, high efficacy
- Suitable for DLC applications: L70>60,000hrs / L90=40,000hrs
- Meets UL8750 recognized
- RoHS compliant
- Ideal for linear architectural applications

General Specifications

	46"	23"
LED Quantity	140 (14s10p)	70 (14s5p)
Input Voltage ^①	41.4VDC	41.4VDC
Input Current ^①	1600mA Max.	800mA Max.
Input Power ^①	66.2W	33.1W
Initial Lumens @4000K / 80CRI ^①	10122 lumens	5061 lumens
Initial Lm/W @4000K / 80CRI ^①	153 lm/W	153 lm/W
Initial Lumens per foot @Max. Current ^①	2641 lm/ft	
Initial Lumens per string @Max. Current ^①	1012 lm/string (14 LEDs)	
Beam Angle	120°	
CRI	80CRI (standard), 90CRI available	
Storage Temperature Range	-40°C to 100°C / -40°F to 212°F	
Operating Temperature Range (ta)	-40°C to 55°C / -40°F to 131°F	
Maximum Case Temperature (Tc)	L70: Tc max 105°C / L90: Tc max 105°C	
Estimated Lumen Maintenance ^②	L70: >60,000Hrs / L90: 40,000Hrs	
Color Consistency	Binning per ANSI C78.377-2015 @ 25°C; 3 SDCM	
Overall Size	46" L x 0.72" W x 0.22" H (1168.4mm x 18.29mm x 5.6mm)	
PCB Material / Thermal Conductivity	FR-4, 1.6mm thickness, 2oz copper, 0.3W/mK	
Module Weight	73g / 0.16lb.	
PCB Part Number	PTL052C01F4	
Maximum Screw Installation Torque	25 inch - ounces	
Connector Type	BJB #46.131.1001.50 (single pole connector)	
Packaging: Master Carton	100pcs	
Thermal Feedback	Not Available	
Safety/Compliance	cURus (File # E351548) Suitable for UL Class 2 Lighting Systems RoHS Compliant Dry and Damp Location	
Warranty	5 years @ Max. Tc from the date of manufacture	

^①Nominal ratings. Performance based on Tc mod = 25°C. See thermal de-rating chart (pg. 3) for higher temperature operation

^②TM-21 Reported Numbers



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Electrical and Optical Specification

Full length - 46"

LED Module Part Number	Number of LED	Input Current	Nom. Forward Voltage	Nom. Rated Power	Max. Fwd. Voltage	Max. Rated Power	Nom. Lum. Flux @4000K/80 CRI	Nom. Efficacy @4000K/80 CRI	Nom. Lum. Flux per foot @4000K/80CRI	Nom. Lum. Flux per string @4000K/80CRI
VMU160070CTxxxA-46 (46")	140	200 mA	37.0 VDC	7.4 W	41 VDC	8 W	1507 lm	204 lm/W	393 lm/ft	151 lm/string
		300 mA	37.5 VDC	11.2 W	41 VDC	12 W	2230 lm	198 lm/W	582 lm/ft	223 lm/string
		400 mA	37.9 VDC	15.2 W	42 VDC	17 W	2933 lm	193 lm/W	765 lm/ft	293 lm/string
		500 mA	38.3 VDC	19.1 W	42 VDC	21 W	3617 lm	189 lm/W	944 lm/ft	362 lm/string
		600 mA	38.6 VDC	23.2 W	42 VDC	25 W	4283 lm	185 lm/W	1117 lm/ft	428 lm/string
		700 mA	38.9 VDC	27.3 W	43 VDC	30 W	4932 lm	181 lm/W	1287 lm/ft	493 lm/string
		800 mA	39.2 VDC	31.4 W	43 VDC	34 W	5564 lm	177 lm/W	1451 lm/ft	556 lm/string
		900 mA	39.5 VDC	35.6 W	43 VDC	39 W	6181 lm	174 lm/W	1612 lm/ft	618 lm/string
		1000 mA	39.8 VDC	39.8 W	44 VDC	44 W	6782 lm	170 lm/W	1769 lm/ft	678 lm/string
		1100 mA	40.1 VDC	44.1 W	44 VDC	48 W	7370 lm	167 lm/W	1923 lm/ft	737 lm/string
		1200 mA	40.4 VDC	48.4 W	44 VDC	53 W	7944 lm	164 lm/W	2072 lm/ft	794 lm/string
		1300 mA	40.6 VDC	52.8 W	45 VDC	59 W	8505 lm	161 lm/W	2219 lm/ft	851 lm/string
		1400 mA	40.9 VDC	57.2 W	45 VDC	63 W	9055 lm	158 lm/W	2362 lm/ft	906 lm/string
		1500 mA	41.1 VDC	61.7 W	45 VDC	68 W	9594 lm	156 lm/W	2503 lm/ft	959 lm/string
		1600 mA*	41.4 VDC	66.2 W	45 VDC	72 W	10122 lm	153 lm/W	2641 lm/ft	1012 lm/string

Half length - 23"

LED Module Part Number	Number of LED	Input Current	Nom. Forward Voltage	Nom. Rated Power	Max. Fwd. Voltage	Max. Rated Power	Nom. Lum. Flux @4000K/80 CRI	Nom. Efficacy @4000K/80 CRI	Nom. Lum. Flux per foot @4000K/80CRI	Nom. Lum. Flux per string @4000K/80CRI
VMU160070CTxxxA-46 (23")	70	100 mA	37.0 VDC	3.7 W	41 VDC	4 W	754 lm	204 lm/W	393 lm/ft	151 lm/string
		200 mA	37.9 VDC	7.6 W	42 VDC	8 W	1467 lm	193 lm/W	765 lm/ft	293 lm/string
		300 mA	38.6 VDC	11.6 W	42 VDC	13 W	2142 lm	185 lm/W	1117 lm/ft	428 lm/string
		400 mA	39.2 VDC	15.7 W	43 VDC	17 W	2782 lm	177 lm/W	1451 lm/ft	556 lm/string
		500 mA	39.8 VDC	19.9 W	44 VDC	22 W	3391 lm	170 lm/W	1769 lm/ft	678 lm/string
		600 mA	40.4 VDC	24.2 W	44 VDC	26 W	3972 lm	164 lm/W	2072 lm/ft	794 lm/string
		700 mA	40.9 VDC	28.6 W	45 VDC	32 W	4528 lm	158 lm/W	2362 lm/ft	906 lm/string
		800 mA*	41.4 VDC	33.1 W	45 VDC	36 W	5061 lm	153 lm/W	2641 lm/ft	1012 lm/string

Luminous Flux De-Rating: CCT and CRI Multipliers

	2700K	3000K	3500K	4000K	5000K	5700K	6500K
CRI 80(R9>0)	0.921	0.950	0.965	1.000	1.015	1.007	1.000
CRI 90(R9>50)	0.780	0.800	0.815	0.844	0.857	0.850	0.844

NOTES:

- 1) Performance based on Tc mod = 25°C. See thermal de-rating chart (pg. 3) for higher temperature operation.
- 2) Standard lumen output and efficacy is calculated for standard options. Reference CCT & CRI vs Luminous Flux chart for lumen ratio calculation. Lumen tolerance +/- 8%.
- 3) Specifications are subject to change without notice.
- 4) The LED DC Module can be configure with different LED chip quantities, series and parallel design configurations to meet a specific design requirement. Contact Fulham for further assistance.
- 5) * Indicates maximum rated current. Modules may be operated at a current less than or equal to this value, below the Tc rating.
- 6) 70CRI is NOT available.

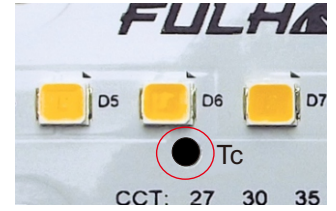


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Thermal Specifications

DC Module

Storage Temperature Range	-40 to 100°C / -40 to 212°F
Operating Ambient Temperature Range (ta)	-40 to 55°C / -40 to 131°F
Maximum Case Temperature (Tc)	L70 = 105°C (221°F) / L90 = 105°C (221°F)



Thermal De-Rating:

Tc vs. Luminous Flux vs. Forward Voltage

Module Case Temperature (Tc)	Total Vf Multiplier	Luminous Flux Multiplier
25°C	1.000	1.000
30°C	0.998	0.991
35°C	0.996	0.981
40°C	0.994	0.972
45°C	0.991	0.962
50°C	0.989	0.953
55°C	0.987	0.943
60°C	0.985	0.934
65°C	0.983	0.924
70°C	0.981	0.915
75°C	0.978	0.905
80°C	0.976	0.896
85°C	0.974	0.886
90°C	0.972	0.877
95°C	0.970	0.867
100°C	0.967	0.858
105°C	0.965	0.848

NOTES:

- 1) Thermal Derating may vary depending on the heat sink and the thermal interface.
- 2) Maximum case temperature is base on the LED LM80 values.



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Certification Chart

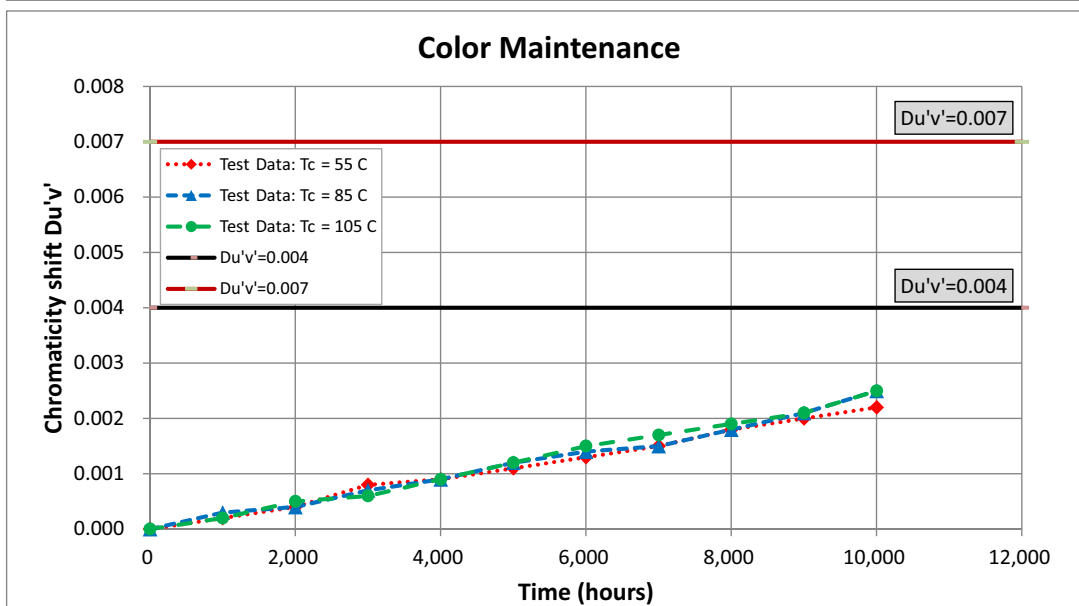
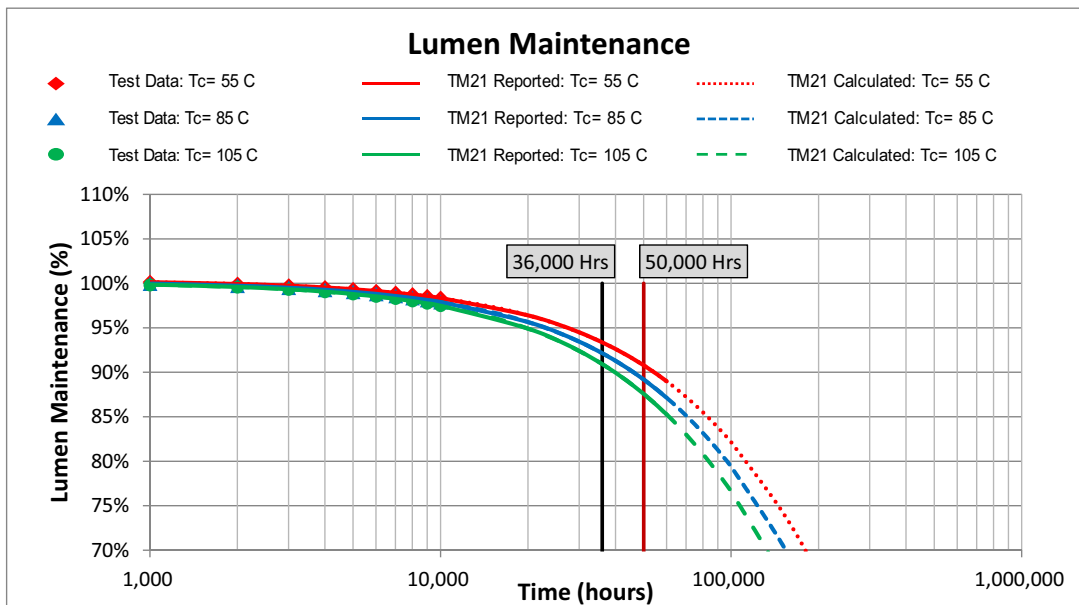
Model	Classification
VMU160070CT8xxA-46	RoHS COMPLIANT
	cRU US
	Suitable for UL Class 2 Lighting System

Energy Star™ TM-21 Calculator Data

Tc Module	Reported L70	Reported L90
55°C	>60,000 Hrs	54,000 Hrs
85°C	>60,000 Hrs	46,000 Hrs
105°C	>60,000 Hrs	40,000 Hrs

Tc Module	Calculated L70	Calculated L90
55°C	180,000 Hrs	54,000 Hrs
85°C	154,000 Hrs	46,000 Hrs
105°C	133,000 Hrs	40,000 Hrs

LED Lumen & Color Maintenance Data per LM-80 report and TM-21 Calculator





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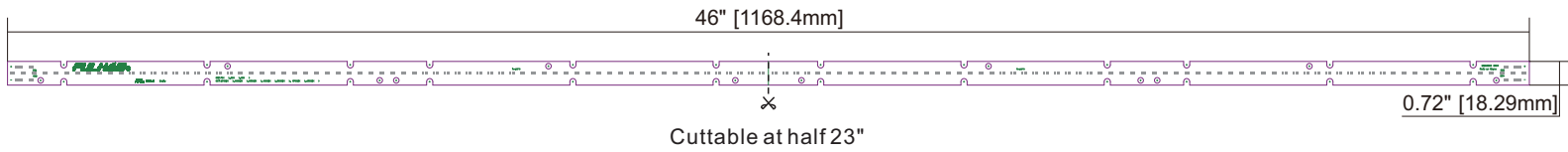
Mechanical Drawings

46"

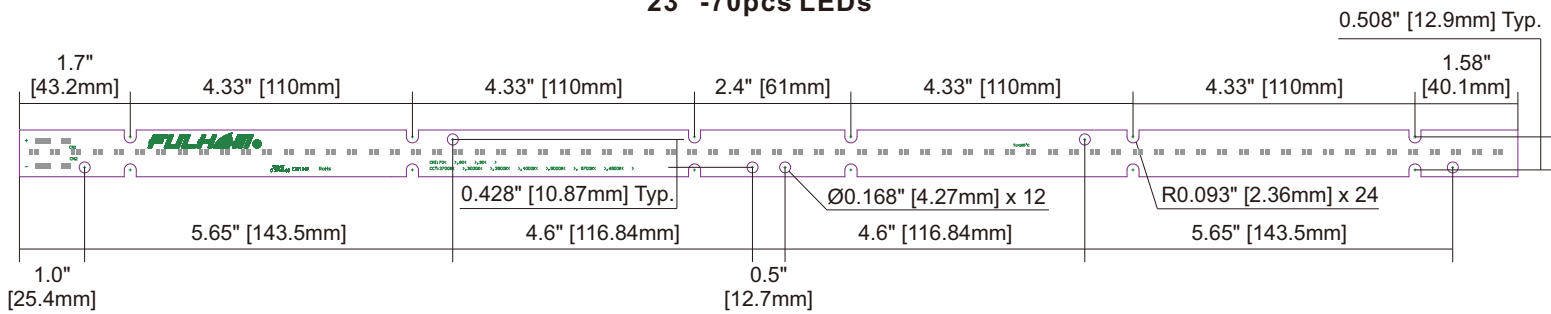
[1168.4mm]

Overall Dimensions	
Length	46" [1168.4mm]
Width	0.72" [18.29mm]
Height (with Connector)	0.22" [5.6mm]
PCB Thickness	0.063" [1.6mm]

46" -140pcs LEDs



23" -70pcs LEDs



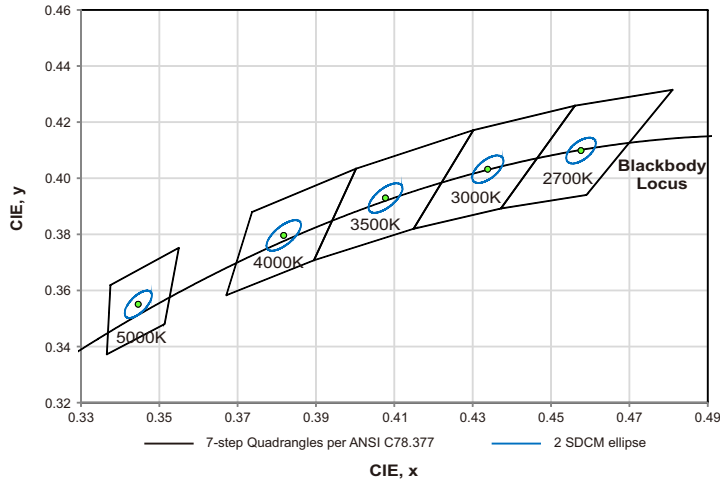
LED Pitch = 0.329" [8.35mm]

TOP VIEW

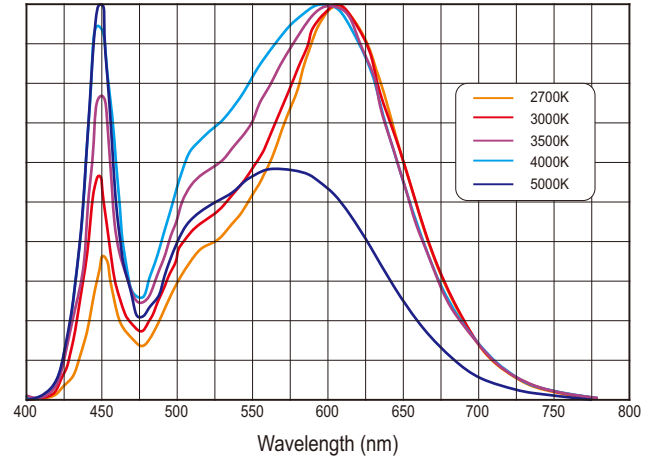


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Color and Binning



Optical Spectrum



Compatible Fulham Drivers

(Please use the links below for a complete list of compatible Fulham drivers and wiring diagrams)

- System Combination:
- Fulham's Wiring Diagrams: <https://cdn.fulham.com/PDFs/SpecSheets/DC-Modules-Wiring-Diagrams.pdf>
- Compatible with Fulham Hotspot EM Systems.

NOTES:

- 1) The Color and Binning and Optical Spectrum charts are for reference only. For more detailed info, contact factory.
- 2) Reference Samsung Chromaticity Diagram for Color and Binning. Binning per ANSI C78.377-2015 @ 25°C; 3 SDCM.
- 3) The Optical Spectrum values vary depending on product type and color rank.
- 4) Driver not included.
- 5) Do not connect DC Modules in parallel (end to end) if the current exceeds the maximum module rated current. This type of wiring would cause the pass-through current on the first module to exceed the rated current. This setup is in reference to wiring diagram #2 per Fulham's wiring diagram (see the link above). If the current is higher than the rated max, it is recommended to use wiring diagram #3.



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Guidelines

Termination Notes

- Connector Type: BJB Single Pole SMD Terminal Block, Part #: 46.131.1001.50
- cURus, ENEC Rating: 9A/320V
- Use solid wire size 18 - 24 AWG, rated at a minimum 50V, minimum 105°C, and stripped to length 8 mm (0.315 inches).



Fastening Notes

- If fastening by screw hole a recommended screw size: 4-40 x 5/8" flat head drilling screws. Use all available screw holes to ensure good contact between back side of module and mounting surface. Refer to max specified torque for installation.
- If fastening using double-sided tape, start with clean, oil-free and 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.
- BJB P2F (Push-to-Fix) fixing elements for PCBs can be used to fasten LED modules to mounting surface. Reference BJB's website for ordering information and specific model to use: <http://www.bjb.com/index.php?pid=376706&lid=10>.
- HEYCO HEYClip Snap Rivets 19003 is recommended for fast and easy installation with clean and finish look.



Heyco Rivet 19003

For more detail information, please visit Heyco website: https://www.heyco.com/Nylon_PVC_Hardware/product.cfm?product=Snap-Rivets

Environmental Rating / Conformal Coating

- The DC Modules have been evaluated for use in dry or damp locations only. If used in wet locations, acceptability and the need for additional evaluation shall be determined in the end product.
- Fulham's DC modules are available with conformal coating; made to order with MOQ and lead time will apply. The conformal coating is a silicone based material which is double sprayed on the module only (LEDs and PCB). Conformal coating is recommended for the following applications: near ocean where salt is present, constant moisture, refrigeration, continuously high humidity, or outdoor applications. An IP rating of IP64 or IP65 is achieved when the conformal coating is used, but other factors should be considered. Fulham still recommends the luminaire also meet an IP64/65 rating.

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. Max Tc of module should not be exceeded.
- Use of thermal grease, paste, pad, or other material interface is highly recommended.

Polarity Notes

- DC 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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Part Number Matrix

V M U 160070 CT 8 X X A -46

Product Line	Type	Control Type	Input Current	Max. Power	Design	CRI	Color Temperature	Option	Length
V = Vizion	M = Module (UL Class 2)	U = None	160 = 1600mA Max.	070 = 70W	CT=Cutttable	8 = 80CRI 9 = 90CRI	27 = 2700K 30 = 3000K 35 = 3500K 40 = 4000K 50 = 5000K 57 = 5700K 65 = 6500K	A = Standard	46 = 46"

All CCT and CRI options are made to order with MOQ and lead time.

Product Image:



Full Length

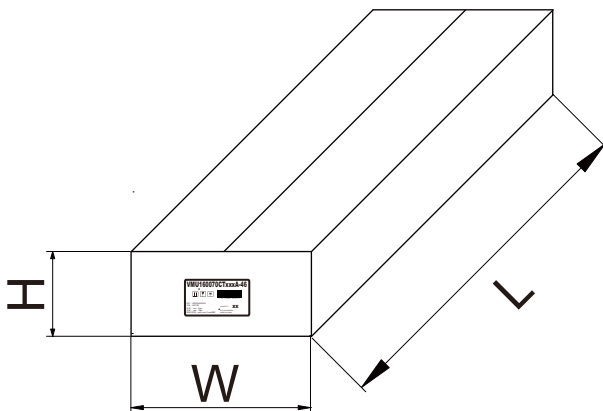


Half Length

TOP VIEW

Packaging

Master Carton



OUTER DIMENSION		
L	W	H
47.5"(1205mm)	8.66"(220mm)	6.50"(165mm)
Net Weight	Gross Weight	QUANTITY
15.4 lbs. (7.0kg)	19.4 lbs. (8.8kg)	100pc.