



# VMU260095CT8xxA-46

## 46" CUTTABLE DC MODULE, 2600mA 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 high output applications

### General Specifications

	46"	23"
LED Quantity	192 (12s16p)	96 (12s8p)
Input Voltage <sup>①</sup>	35.6VDC	35.6VDC
Input Current <sup>①</sup>	2600mA Max.	1300mA
Input Power <sup>①</sup>	92.4W	46.2W
Initial Lumens @4000K / 80CRI <sup>①</sup>	16,126 lumens	8,063 lumens
Initial Lm/W @4000K / 80CRI <sup>①</sup>	174 lm/W	174 lm/W
Initial Lumens per foot @Max. Current <sup>①</sup>	4207 lm/ft	
Initial Lumens per string @Max. Current <sup>①</sup>	1008 lm/string	
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 <sup>②</sup>	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	
LED Quantity	192pcs.	
Module Weight	80g / 0.176lb	
PCB Part Number	PTL058C01F4	
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	

<sup>①</sup>Nominal ratings. Performance based on Tc mod = 25°C. See thermal de-rating chart (pg. 4) for higher temperature operation

<sup>②</sup>TM-21 Reported Numbers



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## Electrical and Optical Specifications

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
VMU260095CTxxxA-46 (46")	192	300 mA	31.7 V	9.5 W	34 V	10 W	1954 lm	205 lm/W	510 lm/ft	122 lm/string
		400 mA	32.0 V	12.8 W	34 V	14 W	2620 lm	205 lm/W	684 lm/ft	164 lm/string
		500 mA	32.2 V	16.1 W	34 V	17 W	3281 lm	204 lm/W	856 lm/ft	205 lm/string
		600 mA	32.4 V	19.5 W	35 V	21 W	3937 lm	202 lm/W	1027 lm/ft	246 lm/string
		700 mA	32.6 V	22.8 W	35 V	25 W	4588 lm	201 lm/W	1197 lm/ft	287 lm/string
		800 mA	32.8 V	26.3 W	35 V	28 W	5234 lm	199 lm/W	1365 lm/ft	327 lm/string
		900 mA	33.0 V	29.7 W	35 V	32 W	5875 lm	198 lm/W	1533 lm/ft	367 lm/string
		1000 mA	33.2 V	33.2 W	36 V	36 W	6511 lm	196 lm/W	1699 lm/ft	407 lm/string
		1100 mA	33.4 V	36.7 W	36 V	40 W	7143 lm	195 lm/W	1863 lm/ft	446 lm/string
		1200 mA	33.6 V	40.3 W	36 V	43 W	7770 lm	193 lm/W	2027 lm/ft	486 lm/string
		1300 mA	33.7 V	43.8 W	36 V	47 W	8393 lm	191 lm/W	2189 lm/ft	525 lm/string
		1400 mA	33.9 V	47.4 W	36 V	50 W	9011 lm	190 lm/W	2351 lm/ft	563 lm/string
		1500 mA	34.0 V	51.0 W	36 V	54 W	9625 lm	189 lm/W	2511 lm/ft	602 lm/string
		1600 mA	34.2 V	54.7 W	37 V	59 W	10235 lm	187 lm/W	2670 lm/ft	640 lm/string
		1700 mA	34.3 V	58.4 W	37 V	63 W	10841 lm	186 lm/W	2828 lm/ft	678 lm/string
		1800 mA	34.5 V	62.0 W	37 V	67 W	11443 lm	184 lm/W	2985 lm/ft	715 lm/string
		1900 mA	34.6 V	65.8 W	37 V	70 W	12041 lm	183 lm/W	3141 lm/ft	753 lm/string
		2000 mA	34.7 V	69.5 W	37 V	74 W	12635 lm	182 lm/W	3296 lm/ft	790 lm/string
		2100 mA	34.9 V	73.2 W	37 V	78 W	13225 lm	181 lm/W	3450 lm/ft	827 lm/string
2200 mA	35.0 V	77.0 W	37 V	81 W	13812 lm	179 lm/W	3603 lm/ft	863 lm/string		
2300 mA	35.1 V	80.8 W	38 V	87 W	14396 lm	178 lm/W	3755 lm/ft	900 lm/string		
2400 mA	35.3 V	84.7 W	38 V	91 W	14976 lm	177 lm/W	3907 lm/ft	936 lm/string		
2500 mA	35.4 V	88.5 W	38 V	95 W	15553 lm	176 lm/W	4057 lm/ft	972 lm/string		
2600 mA*	35.6 V	92.4 W	38 V	99 W	16126 lm	174 lm/W	4207 lm/ft	1008 lm/string		

### Luminous Flux De-Rating: CCT and CRI Multipliers

	2700K	3000K	3500K	4000K	5000K	5700K	6500K
CRI 80(R9> 0)	0.929	0.955	0.968	1.000	1.013	1.006	1.000
CRI 90(R9>50)	0.776	0.801	0.821	0.863	0.869	0.865	0.863

#### NOTES:

- 1) Performance based on Tc mod = 25°C. See thermal de-rating chart (pg. 4) 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.
- 3) Specifications are subject to change without notice.
- 4) The LED DC Module can be configured 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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## Electrical and Optical Specifications

### 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
VMU260095CTxxxA-46 (23")	96	200 mA	32.0 V	6.4 W	34 V	7 W	1310 lm	205 lm/W	684 lm/ft	164 lm/string
		300 mA	32.4 V	9.7 W	35 V	11 W	1969 lm	202 lm/W	1027 lm/ft	246 lm/string
		400 mA	32.8 V	13.1 W	35 V	14 W	2617 lm	199 lm/W	1365 lm/ft	327 lm/string
		500 mA	33.2 V	16.6 W	36 V	18 W	3256 lm	196 lm/W	1699 lm/ft	407 lm/string
		600 mA	33.6 V	20.1 W	36 V	22 W	3885 lm	193 lm/W	2027 lm/ft	486 lm/string
		700 mA	33.9 V	23.7 W	36 V	25 W	4506 lm	190 lm/W	2351 lm/ft	563 lm/string
		800 mA	34.2 V	27.3 W	37 V	30 W	5118 lm	187 lm/W	2670 lm/ft	640 lm/string
		900 mA	34.5 V	31.0 W	37 V	33 W	5721 lm	184 lm/W	2985 lm/ft	715 lm/string
		1000 mA	34.7 V	34.7 W	37 V	37 W	6317 lm	182 lm/W	3296 lm/ft	790 lm/string
		1100 mA	35.0 V	38.5 W	37 V	41 W	6906 lm	179 lm/W	3603 lm/ft	863 lm/string
		1200 mA	35.3 V	42.3 W	38 V	46 W	7488 lm	177 lm/W	3907 lm/ft	936 lm/string
1300 mA*	35.6 V	46.2 W	38 V	49 W	8063 lm	174 lm/W	4207 lm/ft	1008 lm/string		

## Luminous Flux De-Rating: CCT and CRI Multipliers

	2700K	3000K	3500K	4000K	5000K	5700K	6500K
CRI 80(R9> 0)	0.929	0.955	0.968	1.000	1.013	1.006	1.000
CRI 90(R9>50)	0.776	0.801	0.821	0.863	0.869	0.865	0.863

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## Thermal Specifications

### Linear 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	0.997	0.983
40°C	0.995	0.974
45°C	0.993	0.966
50°C	0.991	0.957
55°C	0.990	0.949
60°C	0.988	0.940
65°C	0.986	0.932
70°C	0.985	0.923
75°C	0.983	0.915
80°C	0.981	0.906
85°C	0.980	0.898
90°C	0.978	0.890
95°C	0.976	0.881
100°C	0.974	0.873
105°C	0.973	0.864

### 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
VMU260095CT8xxA-46	RoHS COMPLIANT
	UL US
	Suitable for UL Class 2 Lighting System

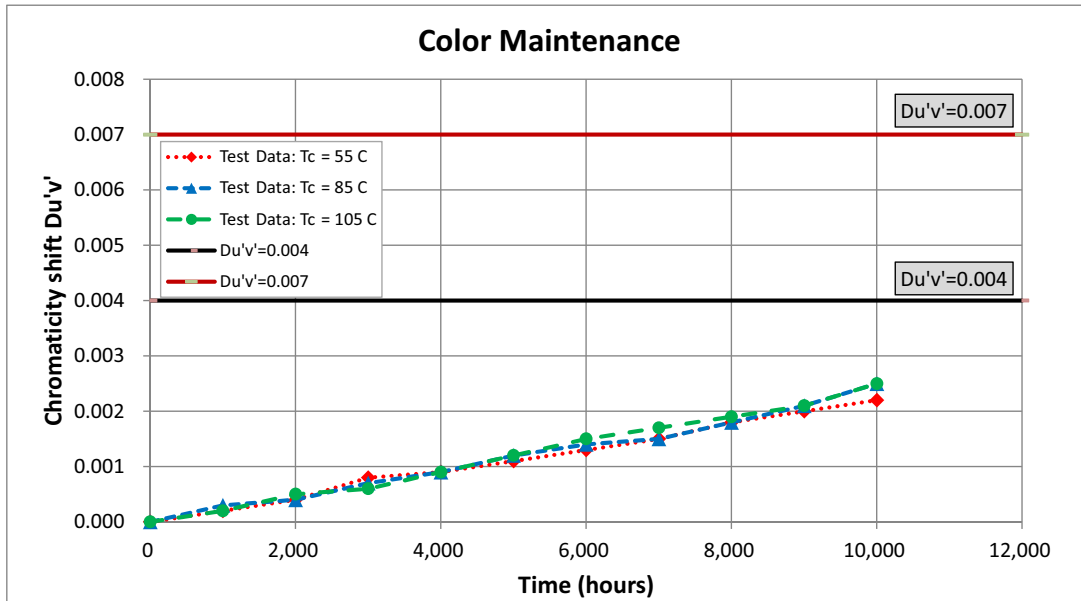
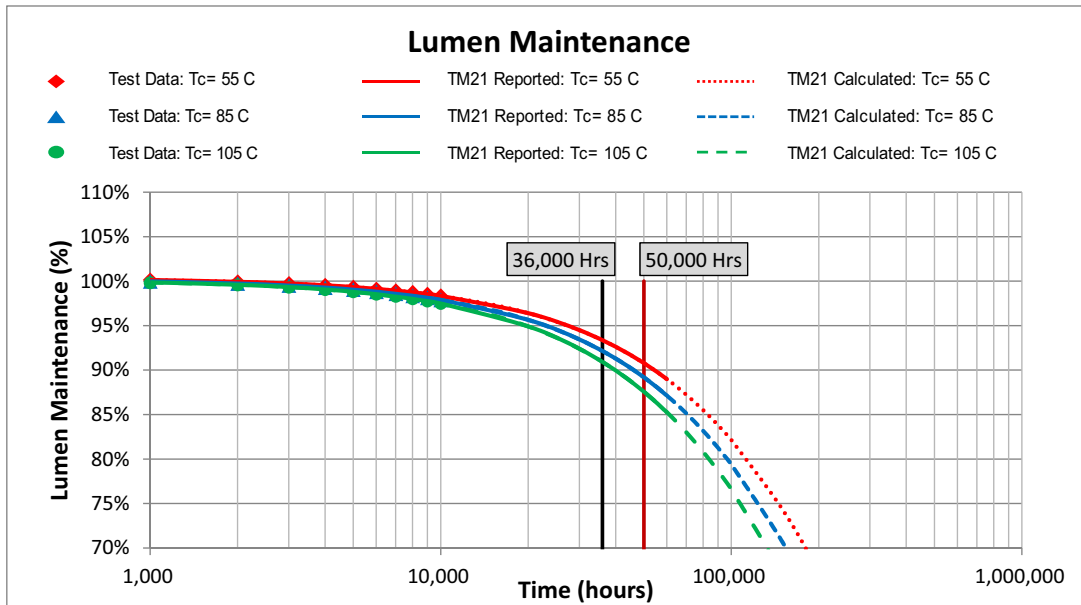
## Energy Star™ TM-21 Calculator Data

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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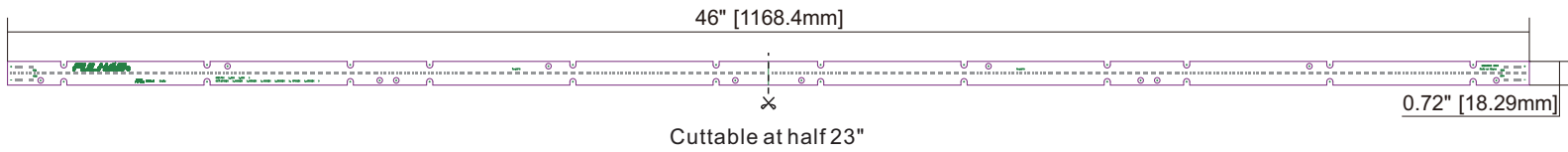
## Mechanical Drawings

**46"**

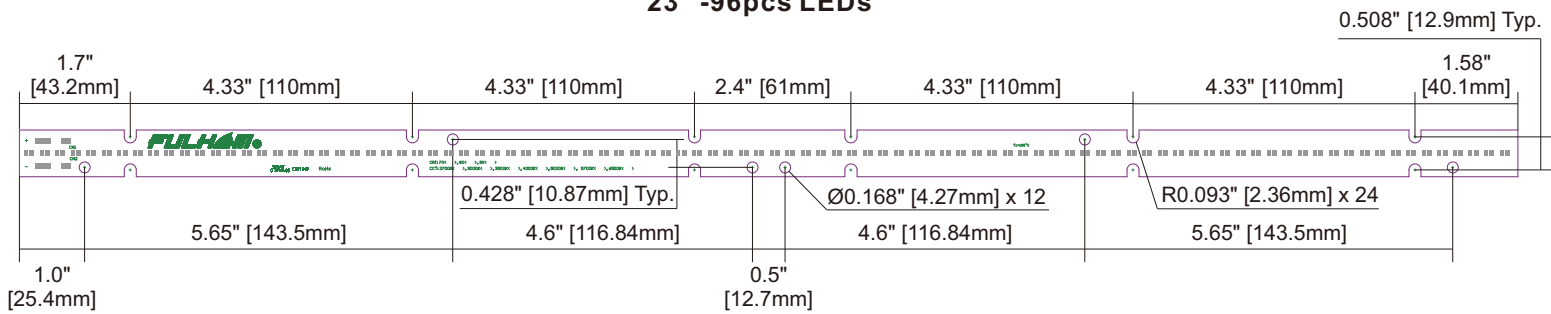
[1168.4mm]

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" -192pcs LEDs



### 23" -96pcs LEDs



LED Pitch = 0.24" [6.08mm]

### TOP VIEW

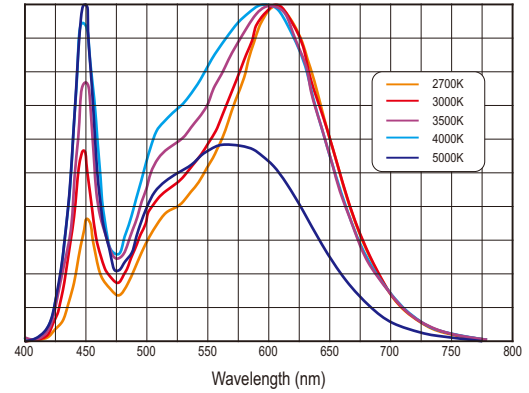
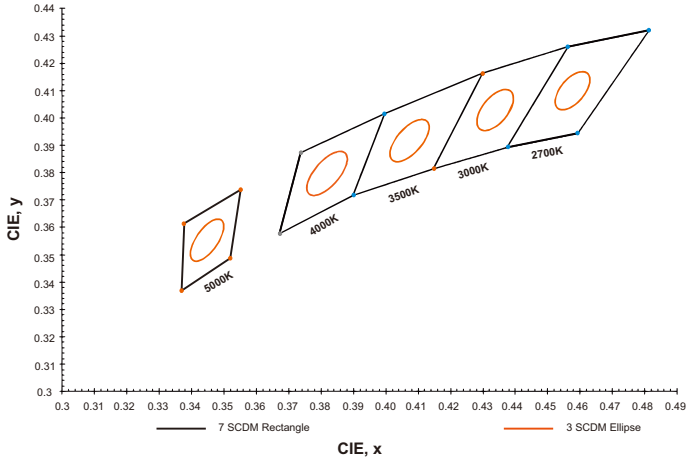


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## Color and Binning

## Optical Spectrum



## Compatible Fulham Drivers

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

- Linear DC 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](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 260 095 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	U = None	260 = 2600mA Max. (UL Class 2)	095 = 95W	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:



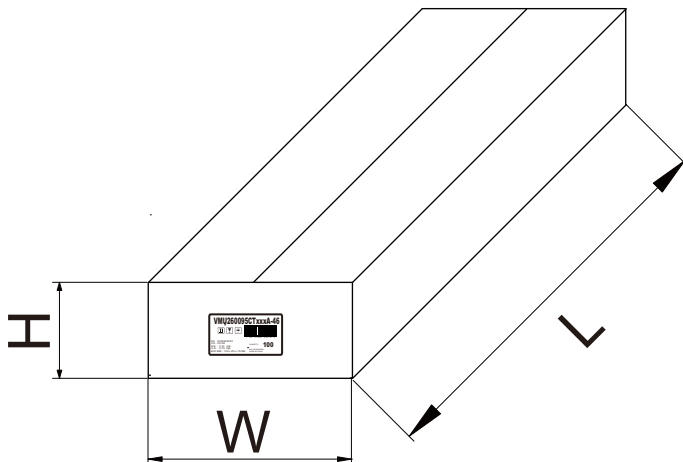
TOP VIEW



CUTTING AREA

## 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.