

Specification For 3-level 3-CCT LED Driver

Model Name:

VEL40100MVHDA-10V-P-MD-AD-3CCT-101

VEL50125MVHDA-10V-P-MD-AD-3CCT-101

Revision: V3.0

Revision History:

No.	Revise Description	Rev.	Date
1	Draft type	V1.0	2021-09-06
2	Updated the dimensions	V2.0	2021-11-24
3	Added the surge level	V3.0	2022-2-22

Prepared By: _____ **Checked By:** _____ **Approved By:** _____

■ Features & benefits:

- Universal AC Input Voltage
- Linear form factor, Side feed, Metal sheet case
- Isolated 0-10V dimming
- Low standby power for dim to off version
- Economic Design
- Suitable for indoor use
- Class 2 output
- Operating temperature: -25°C~+50°C
- Surge (DM:1KV, CM:2KV), Ring wave 2.5KV
- Comply with UL8750

■ Optional Function

- Aux power (12V 100mA) & dim to off
- Build in 3-level and 3-CCT field-adjustable switch
- Flicker-free(Comply with IEEE1789)



■ Model List:

Model Name	Rated Input Voltage	Max. Output Power	Output Current	Rated Output Voltage	AUX Power & Dim to off (Optional)	
					Flicker free type (Y/N)	High ripple type (Y/N)
VEL40xxxMVHDA-10V-P-MD-AD-3CCT-101	120-277V _{AC}	40W max.	650-1000mA	30-42V _{DC}	Y/N	Y/N
VEL50xxxMVHDA-10V-P-MD-AD-3CCT-101	120-277V _{AC}	50W max.	750-1250mA	30-42V _{DC}	Y/N	Y/N

Note: Please see appendix for detailed model list.

Model name code:

	VEL40	xxx	MV	HDA	10V	P	MD	AD	3CCT	101
	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
①	VEL40/VEL50									
②	xxx									
③	MV									
④	HDA									
⑤	10V									
⑥	P									
⑦	MD									
⑧	AD									
⑨	3CCT									
⑩	101									

■ Specification:

Parameters	Symbols	Test Conditions / Comment	Min	Typ	Max	Units
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INPUT						
Input Voltage	V_{IN}		108		305	V_{AC}
Rated Input Voltage	$V_{IN\ RATED}$		120		277	V_{AC}
Input Frequency	f_{line}	Full Load, $V_{IN} = 120V_{AC}$	47	50/60	63	Hz
Max. Input Current	I_{IN_Max}	VEL40xxxMVHDA-10V-P-MD-AD-3CCT-101, Full Load, $V_{IN} = 120V_{AC}$			0.42	A
		VEL50xxxMVHDA-10V-P-MD-AD-3CCT-101, Full Load, $V_{IN} = 120V_{AC}$			0.54	A
Inrush Current	I_{INRUSH}	Cold Start, $V_{IN} = 277V_{AC}$			75	A
Leakage Current	$I_{Leakage}$	$V_{IN} = 277V_{AC}$, 60Hz			0.75	mA
General Characteristics						
Power Factor	PF	60-100% load, $V_{IN} = 120V_{AC}$	0.95			PF
		60-100% load, $V_{IN} = 277V_{AC}$	0.9			
Total Harmonic Distortion	THD	60-100% load, $V_{IN} = 120V_{AC}$			20	%
		60-100% load, $V_{IN} = 277V_{AC}$			20	
Efficiency	η_{120}	VEL40xxxMVHDA-10V-P-MD-AD-3CCT-101, Full load, $V_{IN} = 120V_{AC}$, High ripple type, Thermal balance	86	88		%
		VEL50xxxMVHDA-10V-P-MD-AD-3CCT-101, Full load, $V_{IN} = 120V_{AC}$, High ripple type, Thermal balance	86	88		%
	η_{277}	VEL40xxxMVHDA-10V-P-MD-AD-3CCT-101, Full load, $V_{IN} = 277V_{AC}$, High ripple type, Thermal balance	87	89		%
		VEL50xxxMVHDA-10V-P-MD-AD-3CCT-101, Full load, $V_{IN} = 277V_{AC}$, High ripple type, Thermal balance	87	89		%
	Flicker free type is around 2% lower than high ripple type.					
Turn On Delay Time	T_{on_delay}	Cold Start, without dimmer			0.75	S
OUTPUT						
Output Current	I_{OUT}	VEL40xxxMVHDA-10V-P-MD-AD-3CCT-101	650		1000	mA
		VEL50xxxMVHDA-10V-P-MD-AD-3CCT-101	750		1250	mA
Output current tolerance	t				5	%
Output Voltage	V_{OUT}		30		42	V
Output Power	P_{OUT}	VEL40xxxMVHDA-10V-P-MD-AD-3CCT-101			40	W
		VEL50xxxMVHDA-10V-P-MD-AD-3CCT-101			50	W
Line Regulation	$V_{OUT-LINE}$				5	%
Load Regulation	$I_{OUT-LOAD}$	V_{OUT} from MIN. to MAX.			5	%
Ripple Current	$I_{OUT-RIPPLE}$	Full Load, $(I_{max}-I_{min})/(I_{max}+I_{min})$, Flicker free			10	%
		Full Load, $(I_{max}-I_{min})/(I_{max}+I_{min})$, High ripple			30	%
Output Current Overshoot	$I_{OVERSHOOT}$	Turning Power ON			10	%
3-level (output current) selector(Optional)						
Built-in 3-level selector	3 positions					

3-CCT selector (Optional)						
Build in CCT selector	CCT1=CW on, WW off					
	CCT2=CW on, WW on					
	CCT3=CW off, WW on					
0~10V Dimming (Optional)						
The 0~10V or resistor dimming can be used to dim the output current via a standard commercial wall dimmer (0~10V _{DC}) or an external control voltage source (0~10V _{DC}) .						
Dimming Curve	Linear. See"Dimming curve"					
Absolute Maximum Voltage on 0~10V Pin	V _{DIM}		0		10	V
Source Current on 0~10V Dimming Pin	I _{DIM}		200		500	uA
Output Current Range	I _{OUT}	Non dim to off version	10		100	%
		Dim to off version, Dim to off at V _{DIM} =0	0		100	%
Auxiliary source 12V (Optional)						
Output Voltage	V _{AUX}			12		Vdc
Output Current	I _{AUX}				100	mA
Protection						
Over Voltage Protection	V _{OV} P	It will recover automatically after fault conditions is removed.			60	V
Short Circuit Protection	It will recover automatically after fault conditions is removed.					
Environment						
Storage Temperature	T _{Storage}	Humidity: 5% RH to 95% RH	-40	-	+85	°C
Ambient Operating Temperature	T _a		-25	-	+50	°C
Max. Case Temperature	T _c				90	°C
Operating Relative Humidity	H _a	Non-Condensing	10		90	%
Acoustic Noise		Measured from 1 m away w/o dimmer.			24	dBA
Cooling	Convection Cooling					
IP Rating	Dry and damp UL approved					
Others						
Life Time	T _{Life}	Full Load, 80°C T _c V _{IN} = 120V _{AC}	50			kHrs
MTBF	T _{MTBF}	Full Load, 25°C ambient temperature V _{IN} = 120V _{AC}	200			kHrs
Net Weight	W _{NET}			200		g
Warranty	50KHrs Warranty at T _c ≤80°C					
Flicker	Title 24					
Safety Compliance						
CUL/UL	UL8750, CAN/CSA-C22.2 No. 250.13					
Electromagnetic Compliance						
EMC Requirements	Standard		Conditions			

EMI Emissions	FCC Title 47 Part 15A	Class B at 120V _{AC} , Class A at 277V _{AC}
Voltage Fluctuations and Flicker	IEC61000-3-3	
Immunity Compliance	IEC 61000-4-2	±8kV air Discharge, ±6kV Contact Discharge
	IEC 61000-4-5 or ANSI/IEEE C62.41-2002	± 2kV Common and ± 1kV Differential Mode, test at 2 Ω, 5 strikes/1minute interval (40 total strikes)
	ANSI/IEEE C62.41.1-2002	2.5kV Ring Wave, test at 30Ω 7 Strikes/1 minute interval, Common and Differential mode, 56 total strikes
	IEC 61000-4-11	>95% dip, .5 period; 30% dip, 25 periods; 95% reduction, 250 periods
	IEC 61000-4-4	± 2kV Direct couple to Line input, 5kHz repetition rate, 15mS duration, 300mS period. 7 coupling paths, 1 minute per path (14 total combinations)

Note: Unless otherwise specified, all the above parameters are measured at ambient temperature of 25°C and rated voltage.

■ Typical Characteristics Curve:

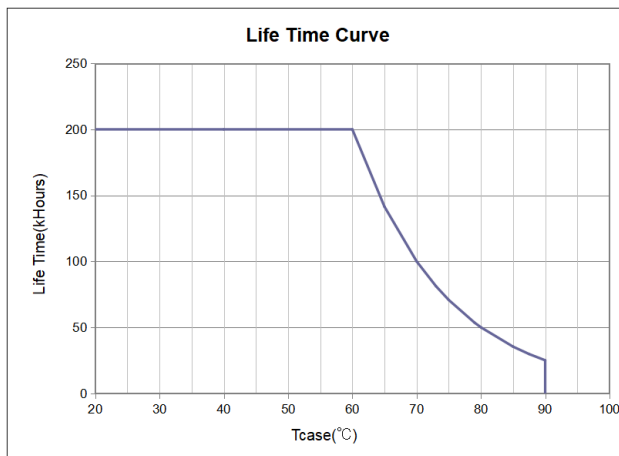


Fig.1 Life curve

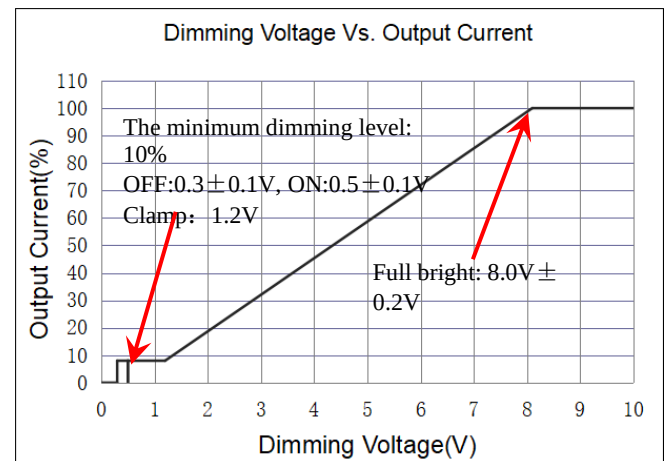


Fig.2 Dimming Curve (Dim to off type)

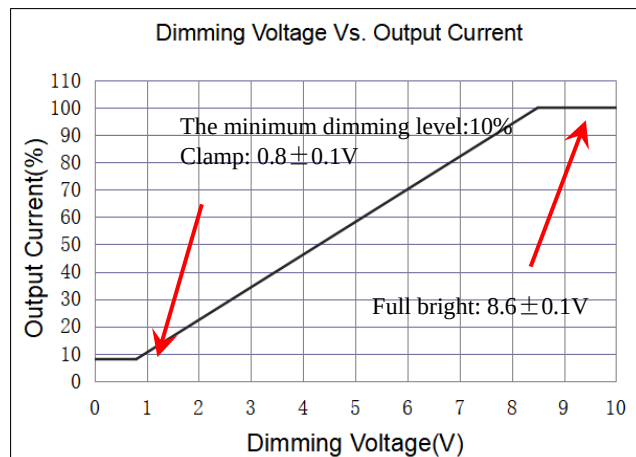


Fig.3 Dimming Curve (NON-Dim to off type)

■ Mechanical Drawing for troffer:

Dimensions(Unit:mm)

Default tolerance: $\pm 1\text{mm}$

