Specification For 36W & 55 W LED Driver

Model Name:

VPL40xxxMHDA-10V-P-NFC-AD,

VPL60xxxMHDA-10V-P-NFC-AD,

Revision: V3.0

Revision History:

No.	Revise Description	Rev.	Date
1	First draft version	V1.0	2021-06-22
2	Engineering Sample Verification	V2.0	2021-10-16
3	Specify 120-277V input	V3.0	2022-8-26

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

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■ Features & benefits:

- Universal AC Input Voltage
- Linear form factor, Metal sheet case
- Isolated 0-10V dimming
- NFC control
- Suitable for indoor use
- Flicker free, excellent camera compatibility
- Class2, Class P
- Operating temperature: -25℃~+50℃
- Meet IEEE1789, UL8750

■ Optional Function

- Input voltage: 120-277V_{AC} or 120-277V_{AC}
- Minimum dimming level: 1%
- Aux power: 12V/200mA
- Programmable (NFC interface)
  - ➢ Output current for each position of 3-level selection switch (1mA step)
  - ➢ Enable/disable soft start function
  - ➢ Enable/disable for dim-to-off
  - ➢ Dimming curve (Linear)

■ Model List:

Model Name	Rated Input Voltage	Max Output Power	Default Output Current	Programmable current	Rated Output Voltage	Note
VPL60xxxMVHDA-10V-P-NFC-AD	120-277V_{AC}	55W max.	1300mA	130-1300mA	20-48V_{DC}	NFC control
VPL40xxxMVHDA-10V-P-NFC-AD	120-277V_{AC}	36W max.	1000mA	100-1000mA	20-48V_{DC}	NFC control

Model name code:

VPL60 ① xxx ② MV ③ HDA ④ 10V ⑤ P ⑥ NFC ⑦ AD ⑧

①	Series	40/60W programmable series driver
②	Output current	Maximum output current: 100 = 1000mA; 130 = 1300mA
③	Input voltage	MV: 120-277V_{AC}
④	HDA	H: High Power Factor D: Dimmable A: Class 2 Output
⑤	10V	0-10V dimming
⑥	P	Class P
⑦	NFC	N：NFC control
⑧	AD	Programmable: Aux Power Programmable: Dim-to-off

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■ Specification:

Parameters	Symbols	Test Conditions / Comment	Min	Typ	Max	Units
INPUT						
Input Voltage	V_{IN}	VPL60xxxMVHDA-10V-P-NFC, VPL40xxxMVHDA-10V-P-NFC	108		305	V_{AC}
Rated Input Voltage	$V_{IN\ RATED}$	VPL60xxxMVHDA-10V-P-NFC, VPL40xxxMVHDA-10V-P-NFC	120		277	V_{AC}
Input Frequency	f_{line}		47	50/60	63	Hz
Input Current	I_{IN}	Full Load, V_{IN} = 120V_{AC}, VPL40xxxMVHDA-10V-P-NFC			0.36	A
		Full Load, V_{IN} = 120V_{AC}, VPL60xxxMVHDA-10V-P-NFC			0.65	A
Inrush Current	I_{INRUSH}	VPL60xxxMVHDA-10V-P-NFC, VPL40xxxMVHDA -10V-P-NFC Cold Start, V_{IN} = 277V_{AC}			75	A
Leakage Current	$I_{Leakage}$	V_{IN} = 277V_{AC} for VPL60xxxMVHDA-10V-P-NFC, VPL40xxxMVHDA-10V-P-NFC, 60Hz			0.75	mA
General Characteristics						
Power Factor	PF	Full load, V_{IN} = 120V_{AC}	0.95			PF
		Full load, V_{IN} = 277V_{AC}	0.9			
Total Harmonic Distortion	THD	VPL40xxxMVHDA-10V-P-NFC, Full Load, V_{IN} = 120-277V_{AC}			20	%
		VPL60xxxMVHDA-10V-P-NFC, Full Load, V_{IN} = 120-277V_{AC}			20	%
Efficiency	η_{120}	VPL40xxxMVHDA-10V-P-NFC, 20-40W load,V_{IN} =120V_{AC}, After thermal balance	84	85		%
		VPL60xxxMVHDA-10V-P-NFC, 30-60W load,V_{IN} =120V_{AC}, After thermal balance	85	86		%
	η_{277}	VPL40xxxMVHDA-10V-P-NFC, 20-40W load,V_{IN} =277V_{AC}, After thermal balance	84	85		%
		VPL60xxxMVHDA-10V-P-NFC, 30-60W load,V_{IN} =277V_{AC}, After thermal balance	85	86		%
Turn On Delay Time	T_{on_delay}	Cold Start, without dimmer, 700-1300mA for VPL60xxxMVHDA-10V-P-NFC, 500-1000mA for VPL40xxxMVHDA-10V-P-NFC			0.5	S
OUTPUT						
Programmable Output Current	I_{OUT}	VPL40xxxMVHDA-10V-P-NFC, Set via NFC	100		1000	mA
		VPL60xxxMVHDA-10V-P-NFC, Set via NFC	130		1300	mA
Output current tolerance	t	I_{OUT}=700-1300mA for VPL60xxxMVHDA-10V-P-NFC; I_{OUT}=500-1000mA for VPL40xxxMVHDA-10V-P-NFC;			5	%
Output Voltage	V_{OUT}	See “Operating window”	20		48	V
Output Power	P_{OUT}	VPL40xxxMVHDA-10V-P-NFC, Set by GUI			40	W
		VPL60xxxMVHDA-10V-P-NFC, Set by GUI			55	W
Line Regulation	$V_{OUT-LINE}$				3	%
Load Regulation	$I_{OUT-LOAD}$	V_{OUT} from MIN. to MAX.			5	%
Ripple Current	$I_{OUT-RIPPLE}$	Full Load, (I_{omax}-I_{omin})/(I_{omax}+I_{omin})			10	%

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Output Current Overshoot	$I_{OVERSHOOT}$	Turning Power ON			10	%
0~10V or Resistor Dimming						
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}) or external resistor.						
Absolute Maximum Voltage on 0~10V Pin	V_{DIM}		0		10	V
Source Current on 0~10V Dimming Pin	I_{DIM}		200		500	uA
Light On	V_{DIM-on}	Programmable, default		0.8		V
Light Off	$V_{DIM-off}$	Programmable, default		0.7		V
Dimming Voltage for Full Bright	$V_{DIM-MAX}$	Programmable, default		9.1		V
Output Current range	I_{OUT}	Programmable, default	1		100	%
External Resistor Value at Full Bright	$R_{External}$			45		kΩ
Auxiliary source 12V (Optional)						
Voltage range	V_{AUX}			12		Vdc
Current range	I_{AUX}				0.2	A
Protection						
Over Voltage Protection	V_{OVP}				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	℃
Ambient Operating Temperature	T_a		-30	-	+50	℃
Max. Case Temperature	T_c	Hot spot on case			90	℃
Operating Relative Humidity	H_a	Non-Condensing	10		90	%
Acoustic Noise		Measured from 1 m w/o dimmer.			24	dBA
Cooling	Convection Cooling					
IP Rating	Dry and damp UL approved					
Others						
Life Time	T_{Life}	Full Load, 90℃ case temperature, V_{IN} = 120/277V_{AC}	50			kHrs
MTBF	T_{MTBF}	Full Load, 25℃ ambient temperature V_{IN} = 120/277V_{AC}	200			kHrs
Net Weight	W_{NET}			400		g
Warranty	5 Years Warranty at T_c ≤80°C					
Flicker	IEEE 1789					
Safety Compliance						
CUL/UL	UL8750, CAN/CSA-C22.2 No. 250.13					
Electromagnetic Compliance						

EMC Requirements	**Standard**	**Conditions**
EMI Emissions	FCC Title 47 Part 15B	Class B at 120V_{AC}, Class A at 277V_{AC}

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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 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℃ and rated voltage.		

■ Typical Characteristics Curve:

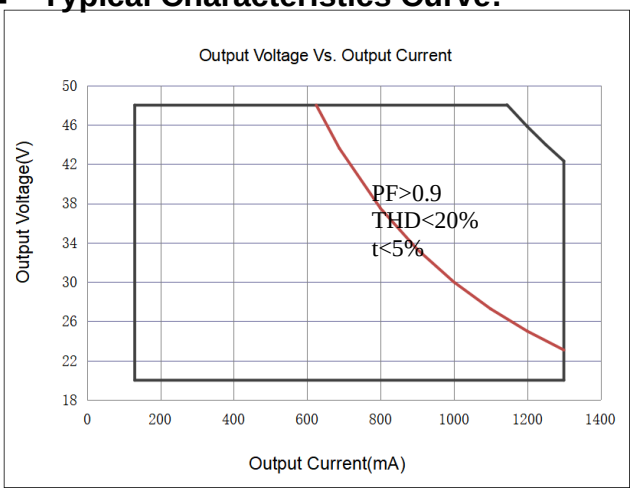

Fig.1 Operating window (VPL60xxxMVHDA)

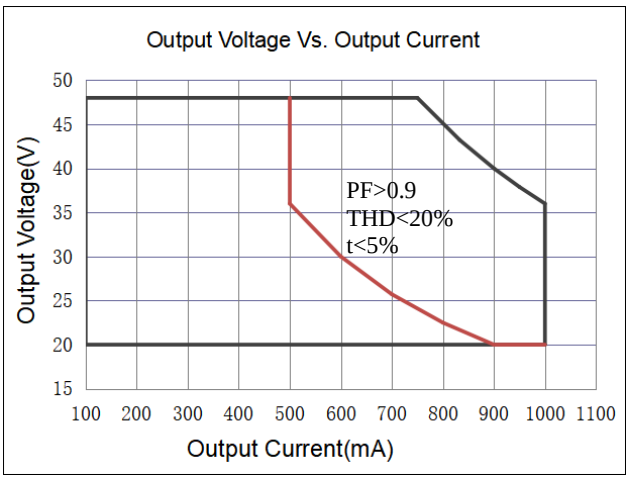

Fig.2 Operating window (VPL40xxxMVHDA)

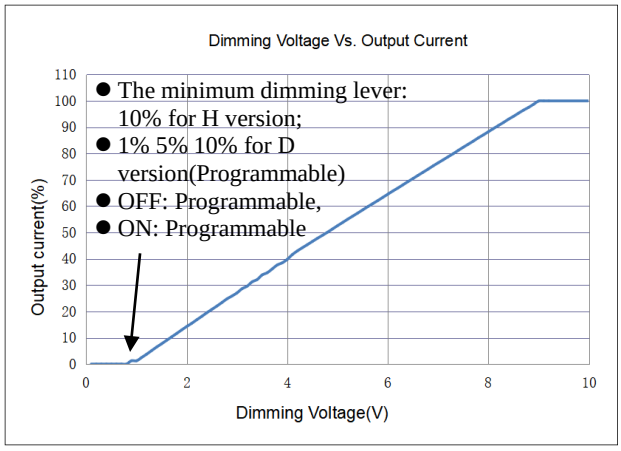

Fig.3 Dimming Curve(1%, dim-off version)

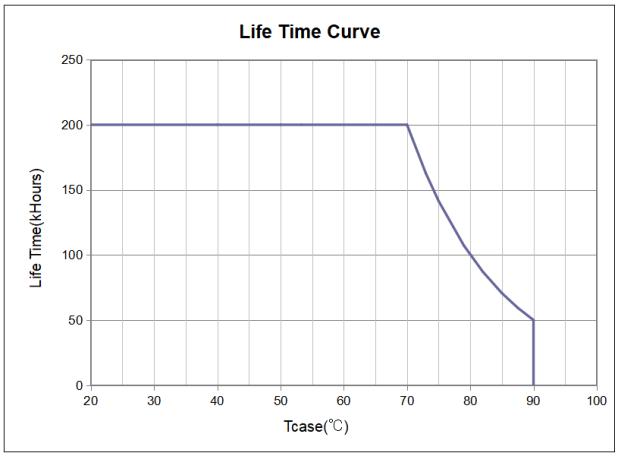

Fig.4 Life curve

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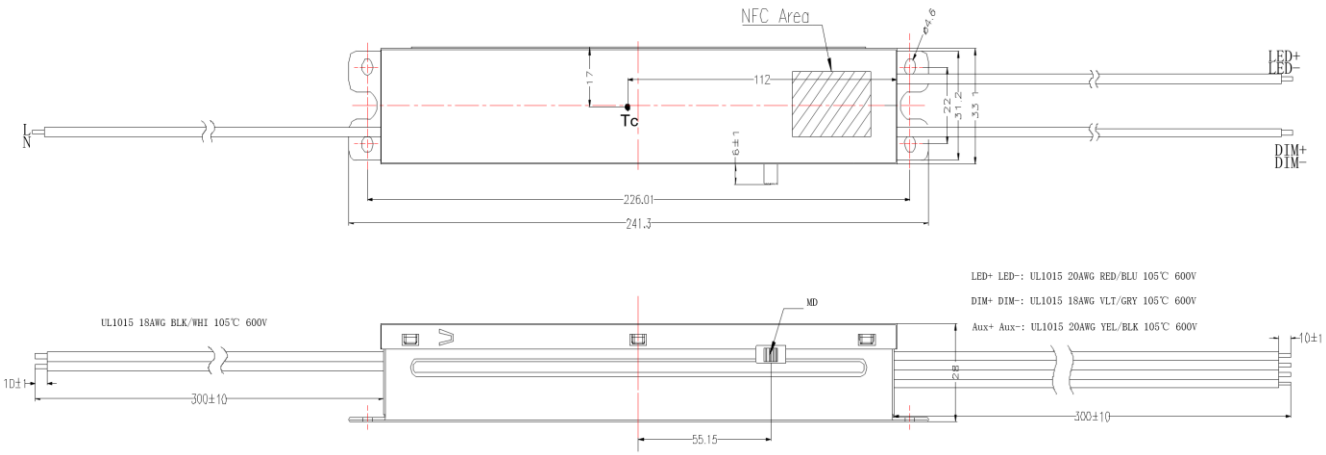
■ Mechanical Drawing:

Dimensions (Unit: mm)

Default tolerance: ±1mm



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