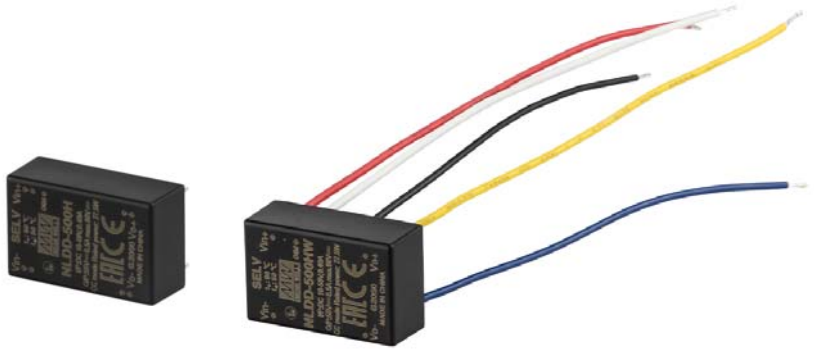
DC-DC Constant Current Step-Down LED driver

NLDD-H series



TPTC004

Features

- DC/DC step-down converter
- Constant current output: 350mA to 1400mA
- Wide input voltage: 10 ~ 56VDC(59VDC Max.)
- Wide output LED forward voltage: 6 ~ 52VDC
- High efficiency up to 96%
- Comply with BS EN/EN61347 and BS EN/EN55015 regulation
- Built-in PWM and remote ON/OFF control
- Protections: Short circuit / Over temperature
- Cooling by free air convection
- Fully encapsulated and compact site
- Suitable for driving illumination LED
- 3 years warranty

Applications

- DC battery source lighting
- Portable lighting
- Commercial lighting
- DC 48V Track lighting
- DC 24V landscape lighting
- For class Ⅲ application(SELV)

Description

NLDD-H series is a 60W DC/DC LED drive featuring constant current output. NLDD-H operates from 10~56VDC and offers models with different rated current ranging between 350mA and 1400mA. With the high efficiency up to 96%, The 94V-0 flame retardant plastic case the fully-potted silicone to enhance the heat dissipation allows this series to fit for class Ⅲ or DC bus lighting application.

Model Encoding

NLDD – 350 H W

- W: Wire style; Blank: Pin style for PCB mounting
- 350: Output current (350/500/700/1050/1200/1400mA)
- NLDD: Series name

SPECIFICATION

ORDER NO.			NLDD-350H □	NLDD-500H □	NLDD-700H □	NLDD-1050H □	NLDD-1200H □	NLDD-1400H □
OUTPUT	CURRENT RANGE		350mA	500mA	700mA	1050mA	1200mA	1400mA
	VOLTAGE RANGE Note.4		6 ~ 52VDC				6 ~ 46VDC	
	CURRENT ACCURACY (Typ.)		±5% at 48VDC input					
	RIPPLE & NOISE(max.) Note.2		150mVp-p	150mVp-p	200mVp-p	350mVp-p	350mVp-p	350mVp-p
	SWITCHING FREQENCY		200KHz					
INPUT	VOLTAGE RANGE		10 ~ 56VDC (59VDC Max.)					
	EFFICIENCY (max.)		96% at full load and 36VDC/48VDC input				95% at full load and 36VDC/48VDC input	
	DC CURRENT	Full load Note.3	350mA	490mA	700mA	1100mA	1200mA	1360mA
		No load	5mA					
PWM DIMMING & ON/OFF CONTROL	REMOTE ON/OFF		Leave open if not use					
			Power ON with dimming: DIM ~ -Vin >2.5 ~ 5VDC or open circuit					
			Power OFF : DIM ~ -Vin < 0.8VDC or short					
	PWM FREQUENCY		100 ~ 1KHz					
	QUIESCENT INPUT CURRENT IN SHUTDOWN MODE(max.)		2mA at PWM dimming OFF at 48VDC input					
PROTECTION	SHORT CIRCUIT		Regulated at rated current					
			Protection type: Can be continued, recovers automatically after fault condition is removed					
	OVER TEMPERATURE		Tj 165℃ typically(IC1) detect on main control IC					
			Protection type : Shut down, recovers automatically after temperature goes down					
ENVIRONMENT	WORKING TEMP.		-40 ~ + 50℃ (Refer to derating curve)					
	WORKING HUMIDITY		20% ~ 90% RH non-condensing					
	STORAGE TEMP., HUMIDITY		-40 ~ +85℃, 10 ~ 95% RH					
	TEMP. COEFFICIENT		±0.03% / ℃					
	VIBRATION		10 ~ 500Hz, 2G 10min./1 cycle, period for 60min. each along X, Y, Z axes					
	OPERATING CASE TEMP. (max.)		90℃					
EMC	SAFETY STANDARDS		IEC61347 and EAC TP TC004 approved					
	EMC EMISSION		Compliance to BS EN/EN55015, BS EN/EN61547					
	EMC IMMUNITY		Compliance to BS EN/EN61000-4-2,3,4,6,8, light industry level, criteria A, EAC TP TC 020					
OTHERS	MTBF		1000Khrs min. MIL-HDBK-217F (25℃)					
	DIMENSION		32.1*20.5*12.5mm or 1.26"*0.8"*0.49" inch (L*W*H)					
	WEIGHT		NLDD-H:15.6g ; NLDD-HW:18g					
	POTTING MATERIAL		Expoxy(UL94-V0)					

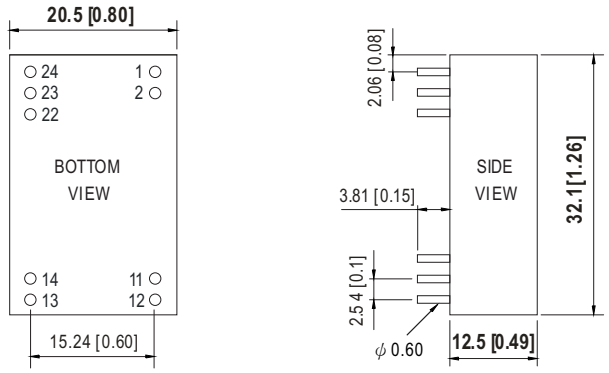
NOTE

1.All parameters are specified at normal input(48VDC), rated load, 25℃ 70% RH ambient.
2.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1μf capacitor.
3.Test condition: 48VDC input.
4.Output voltage will always step down by 4 volts from input DC voltage.
5.The output of NLDD-H should not be connected to the input of the same unit or output from other sources.
6.Need additional EMI filter to meet regulations of EMC conducted. Characteristics of EMI filter please refer to the table, Guidance of additional filter.
7.Please refer to the warranty statement on MEAN WELL's website at http://www.meanwell.com
※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx

■ Mechanical Specification

◎ Blank type(NLDD－350~1050H):

Unit: mm (inch)

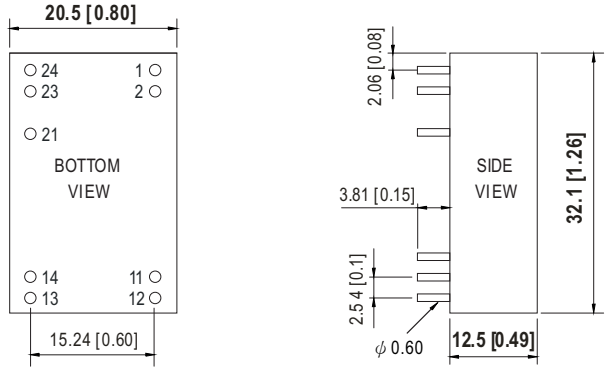


NOTE: Pin tolerance ±0.05mm

■ Pin Configuration

Pin No.		Comment
1,2	-Vin	Don't connect to -Vout
11,12	-Vout	LED - Connection
13,14	+Vout	LED + Connection
22	PWM DIM	ON/OFF and PWM Dimming (Leave open if not used)
23,24	+Vin	DC Supply
others	N.C	No connection

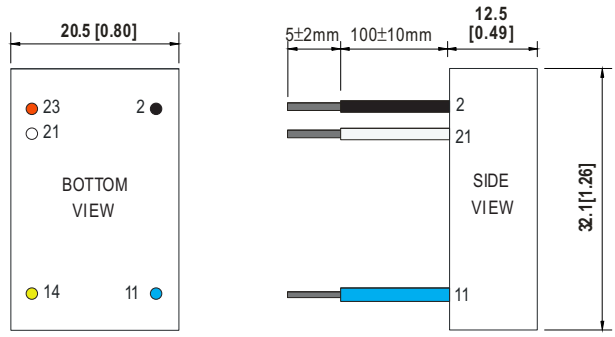
◎ Blank type(NLDD－1200~1400H):



Pin No.		Comment
1,2	-Vin	Don't connect to -Vout
11,12	-Vout	LED - Connection
13,14	+Vout	LED + Connection
21	PWM DIM	ON/OFF and PWM Dimming (Leave open if not used)
23,24	+Vin	DC Supply
others	N.C	No connection

NOTE: Pin tolerance ±0.05mm

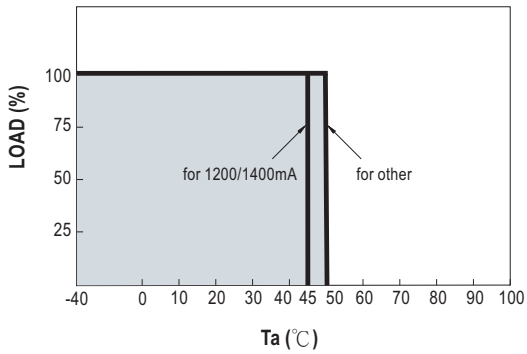
◎W type(NLDD－350~1400HW):



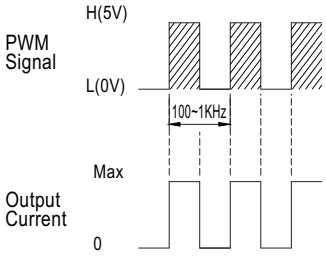
Pin No.		Comment
2	-Vin (Black)	Don't connect to -Vout
11	-Vout (Blue)	LED - Connection
14	+Vout (Yellow)	LED + Connection
21	PWM DIM (White)	ON/OFF and PWM Dimming (Leave open if not used)
23	+Vin (Red)	DC Supply
others	N.C	No connection

NOTE: All wires UL1569 22AWG

■ Derating Curve

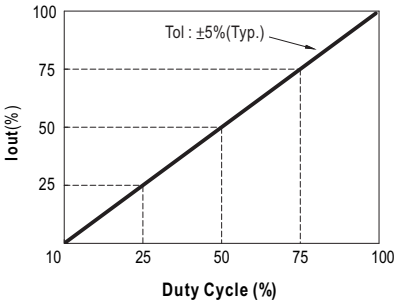


■ PWM Dimming Control

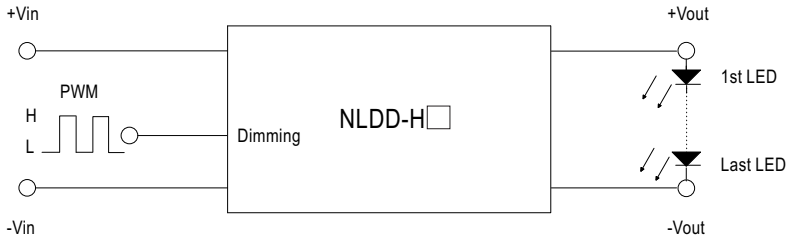


◎ Short circuit PWM PIN can realize dimming turn off.

◎ During PWM dimming operation, the output current will change to PWM style.



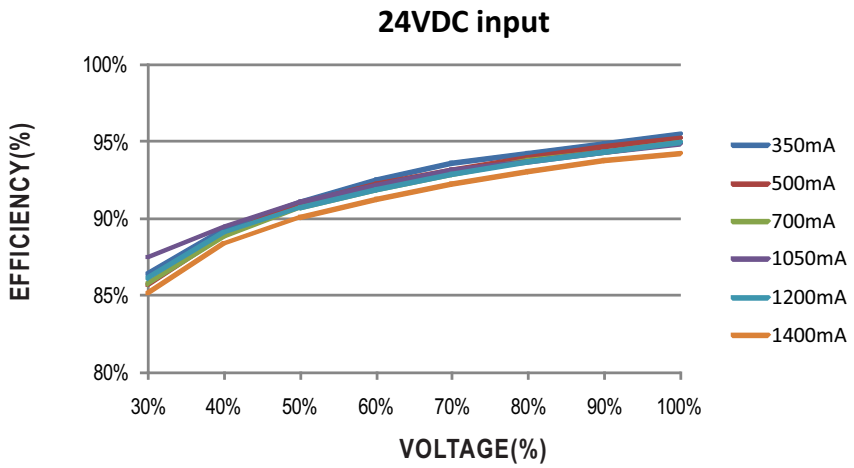
■ Standard Application

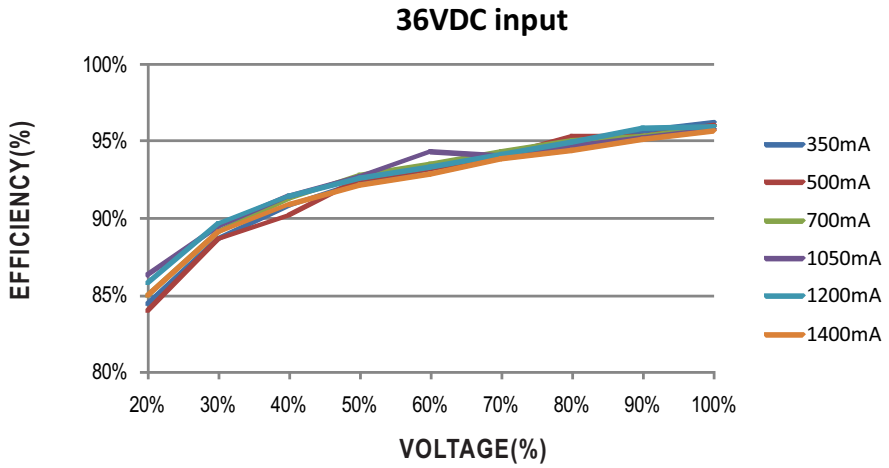


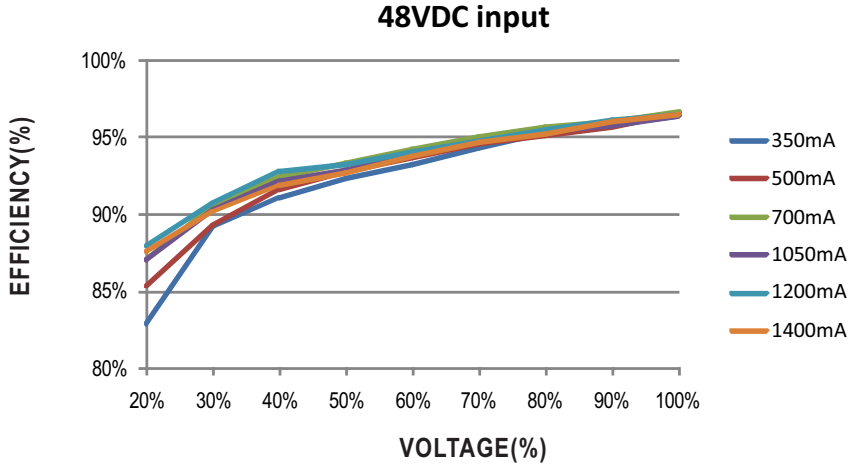
H: >2.5~5VDC or open circuit

L: <0.8VDC or short

■ Efficiency VS Output Voltage



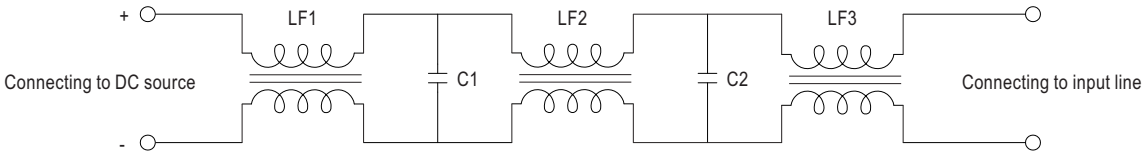




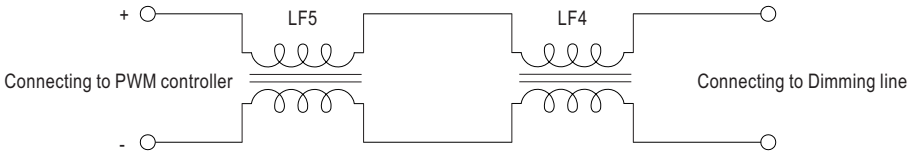
■ GUIDANCE OF ADDITIONAL FILTER

1.Schematic

EMI filter 1:



EMI filter 2:



2.Parameter description

Parameter description						
LF1	LF2	LF3	Lf4	Lf5	C1	C2
1.5mH	12mH	12mH	10mH	19mH	2.2uF	2.2uF

3.Configration