

## ■ 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 EN61347 and EN55015 regulation
- Built-in PWM and remote ON/OFF control
- Protections: Short circuit / Over temperature
- Cooling by free air convection
- Fully encapsulated and compact size
- Suitable for driving illumination LED
- 3 years warranty

## ■ Applications

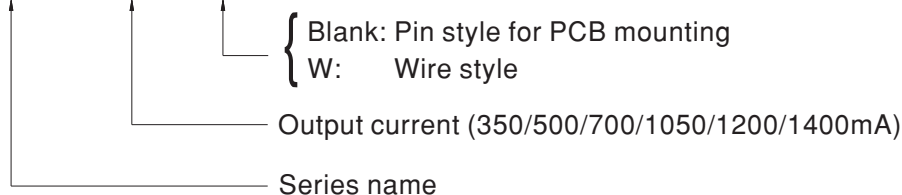
- DC battery source lighting
- Portable lighting
- Commercial lighting
- DC 48V Track lighting
- DC 24V landscape lighting
- For class III application
- For  $\diamond$  III > c class III application (SELV)

## ■ 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



File Name: NLDD-H-SPEC 2021-02-09

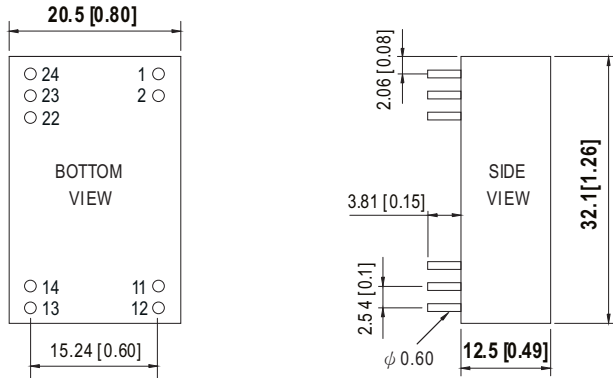
**SPECIFICATION**

ORDER NO.		NLDD-350H <input type="checkbox"/>	NLDD-500H <input type="checkbox"/>	NLDD-700H <input type="checkbox"/>	NLDD-1050H <input type="checkbox"/>	NLDD-1200H <input type="checkbox"/>	NLDD-1400H <input type="checkbox"/>	
OUTPUT	CURRENT RANGE	350mA	500mA	700mA	1050mA	1200mA	1400mA	
	VOLTAGE RANGE <small>Note.4</small>	6 ~ 52VDC				6 ~ 46VDC		
	CURRENT ACCURACY (Typ.)	±5% at 48VDC input						
	RIPPLE & NOISE(max.) <small>Note.2</small>	150mVp-p	150mVp-p	200mVp-p	350mVp-p	350mVp-p	350mVp-p	
	SWITCHING FREQUENCY	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 <small>Note.3</small>	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°C typically(IC1) detect on main control IC						
		Protection type : Shut down, recovers automatically after temperature goes down						
ENVIRONMENT	WORKING TEMP.	-40 ~ + 50°C (Refer to derating curve)						
	WORKING HUMIDITY	20% ~ 90% RH non-condensing						
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH						
	TEMP. COEFFICIENT	±0.03% / °C						
	VIBRATION	10 ~ 500Hz, 2G 10min./1 cycle, period for 60min. each along X, Y, Z axes						
	OPERATING CASE TEMP. (max.)	90°C						
EMC	SAFETY STANDARDS	IEC61347 and EAC TP TC004 approved						
	EMC EMISSION	Compliance to EN55015, EN61547						
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,6,8, light industry level, criteria A, EAC TP TC 020						
OTHERS	MTBF	1000Khrs min. MIL-HDBK-217F (25°C)						
	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	Epoxy(UL94-V0)						
NOTE	<p>1.All parameters are specified at normal input(48VDC), rated load, 25°C 70% RH ambient.                  2.Ripple &amp; 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.</p>							

### Mechanical Specification

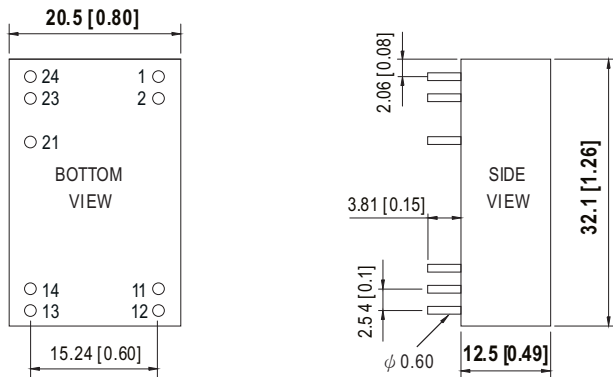
#### Blank type(NLDD- 350~1050H):

Unit: mm (inch)



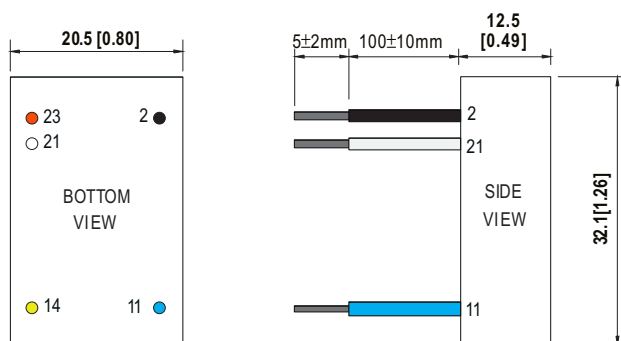
NOTE: Pin tolerance  $\pm 0.05$ mm

#### Blank type(NLDD- 1200~1400H):



NOTE: Pin tolerance  $\pm 0.05$ mm

#### W type(NLDD- 350~1400HW):



NOTE: All wires UL1569 22AWG

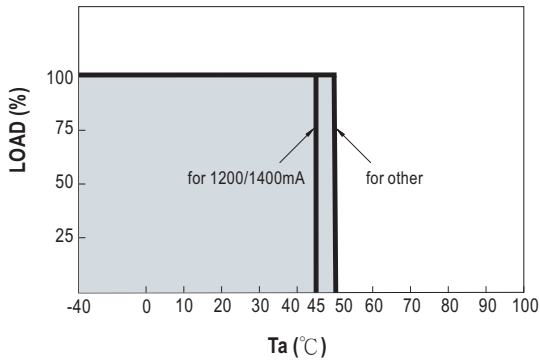
### Pin Configuration

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

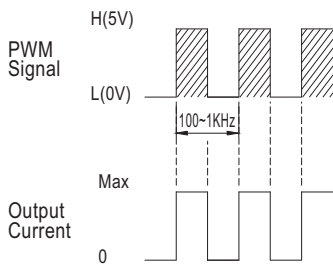
Pin No.		Comment
1,2	-Vin	Don't connect to -Vout
11,12	-Vout	LED - Connection
13,14	+Vout	LED + Connection
21	PWM DIM	ON/OFF and PWM Dimming (Leave open if not used)
23,24	+Vin	DC Supply
others	N.C	No connection

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

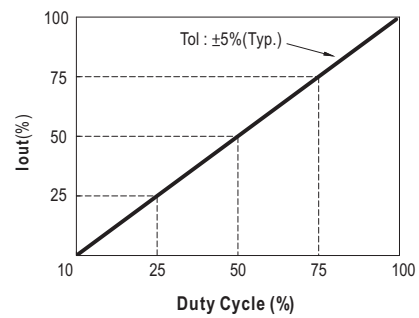
**Derating Curve**



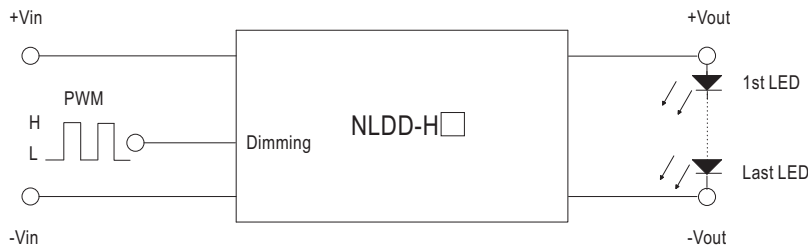
**PWM Dimming Control**



- ⊙ Short circuit PWM PIN can realize dimming turn off.
- ⊙ During PWM dimming operation, the output current will change to PWM style.

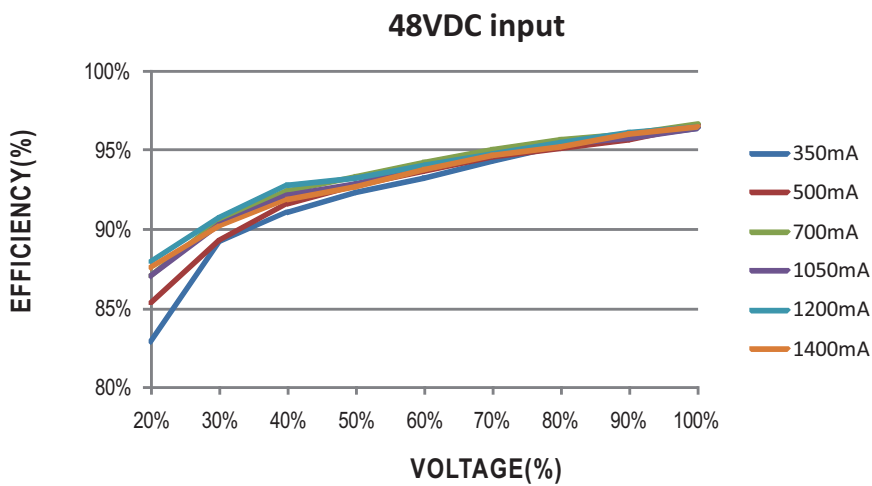
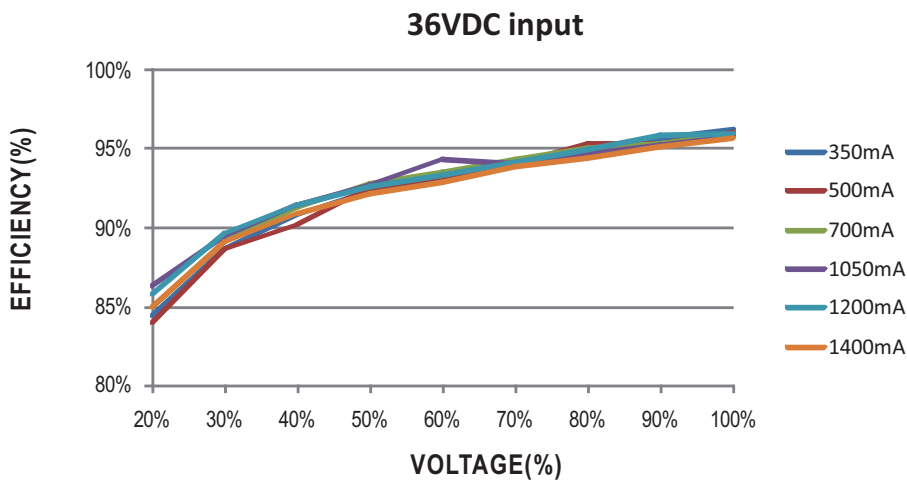
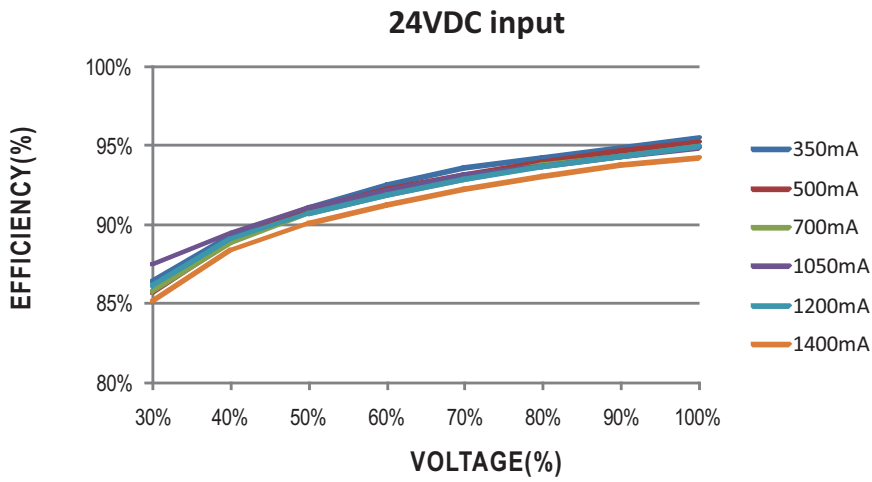


**Standard Application**



H: >2.5~5VDC or open circuit  
 L: <0.8VDC or short

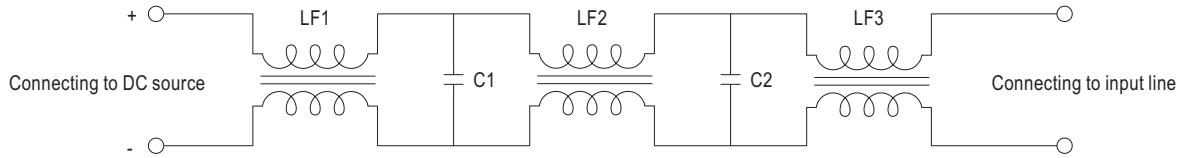
■ Efficiency VS Output Voltage



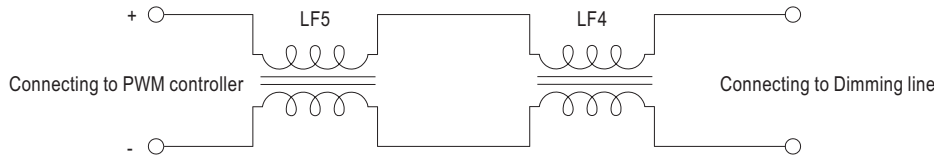
**GUIDANCE OF ADDITIONAL FILTER**

**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.Configuration**

