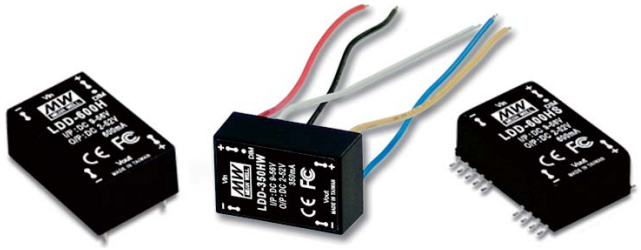
DC-DC Constant Current Step-Down LED driver — LDD-H series



Features :

- DC/DC step-down converter
- Constant current output: 300mA to 1000mA
- Wide input voltage: 9 ~ 56VDC
- Wide output LED string voltage: 2 ~ 52VDC
- High efficiency up to 97%
- Built-in EMI filter, comply with EN55015 and FCC part15 without additional input filter and capacitors
- Built-in PWM and remote ON/OFF control
- Protections: Short circuit / Over temperature
- Cooling by free air convection
- Fully encapsulated with IP67 level for pin and wire style
- Non-potted, optional conformal coating for SMD style (Order No.: LDD-350HSC)
- Compact size
- Low cost, high reliability
- Suitable for driving illumination LED
- 3 years warranty

LDD-350H□	Blank : pin style
	W : wire style
	S : SMD style

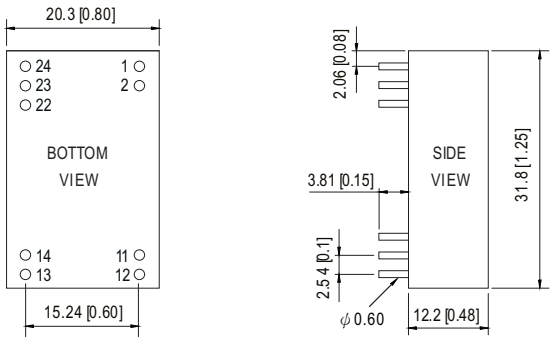
SPECIFICATION

ORDER NO.			LDD-300H□	LDD-350H□	LDD-500H□	LDD-600H□	LDD-700H□	LDD-1000H□
OUTPUT	CURRENT RANGE		300mA	350mA	500mA	600mA	700mA	1000mA
	VOLTAGE RANGE Note.4		2 ~ 52VDC					
	CURRENT ACCURACY (Typ.)		±3% at 24VDC input ; ±4% at 48VDC input for LDD-H/HW ; ±5% for LDD-HS					
	RIPPLE & NOISE(max.) Note.2		150mVp-p	150mVp-p	150mVp-p	200mVp-p	200mVp-p	350mVp-p
	SWITCHING FREQENCY		40KHz ~ 1000KHz					
	EXTERNAL CAPACITANCE LOAD (max.)		2.2uF					
INPUT	VOLTAGE RANGE		9 ~ 56VDC					
	EFFICIENCY (max.)		97% at full load and 36VDC/48VDC input for LDD-H/HW ; 96% at full load and 36VDC/48VDC input for LDD-HS					
	DC CURRENT	Full load Note.3	270mA	320mA	450mA	550mA	650mA	900mA
		No load	5mA					
	FILTER		Capacitor					
PWM DIMMING & ON/OFF CONTROL	REMOTE ON/OFF		Leave open if not use					
			Power ON with dimming: DIM ~ -Vin >2.5 ~ 6VDC or open circuit					
			Power OFF : DIM ~ -Vin < 0.8VDC or short					
	PWM FREQUENCY		100 ~ 1KHz					
	QUIESCENT INPUT CURRENT IN SHUTDOWN MODE(max.)		1mA at PWM dimming OFF and 24VDC input					
PROTECTION	SHORT CIRCUIT		Regulated at rated output current					
			Protection type: Can be continued, recovers automatically after fault condition is removed					
	OVER TEMPERATURE		Tj 150℃ typically(IC1) detect on main control IC					
			Protection type : Shut down, recovers automatically after temperature goes down					
ENVIRONMENT	WORKING TEMP.		-40 ~ + 85℃(Refer to derating curve)					
	WORKING HUMIDITY		20% ~ 90% RH non-condensing for LDD-H/HW ; 20%~85% RH non-condensing for LDD-HS					
	STORAGE TEMP., HUMIDITY		-55 ~ +125℃, 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.)		100℃					
EMC	EMC EMISSION		Compliance to EN55015, FCC part 15 class B					
	EMC IMMUNITY		Compliance to EN61000-4-2,3,4,6,8, light industry level, criteria A					
OTHERS	MTBF		2000Khrs min. MIL-HDBK-217F (25℃)					
	DIMENSION		31.8*20.3*12.2mm or 1.25"*0.8"*0.48" inch (L*W*H) for LDD-H/HW ; 31.8*20.3*11.4mm or 1.25"*0.8"*0.45" inch (L*W*H) for LDD-HS					
	WEIGHT		LDD-H:15.6g ; LDD-HW:18g ; LDD-HS:12.8g					
	POTTING MATERIAL		Expoxy(UL94-V0) for LDD-H/HW ; without potted for LDD-HS					
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 0.1uf capacitor. 3.Test condition: 48VDC input. 4.Output voltage will always step down by 3 volts from input DC voltage. 5.The output of LDD-H should not be connected to the input of the same unit or output from other sources.							

■ Mechanical Specification

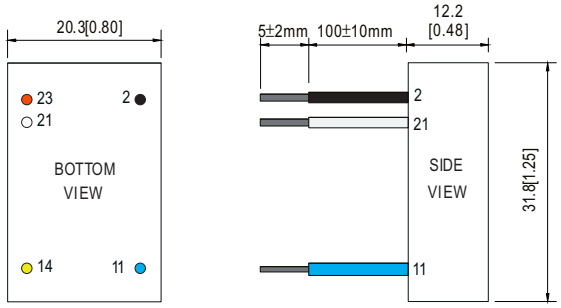
Blank type(LDD– H):

Unit: mm (inch)



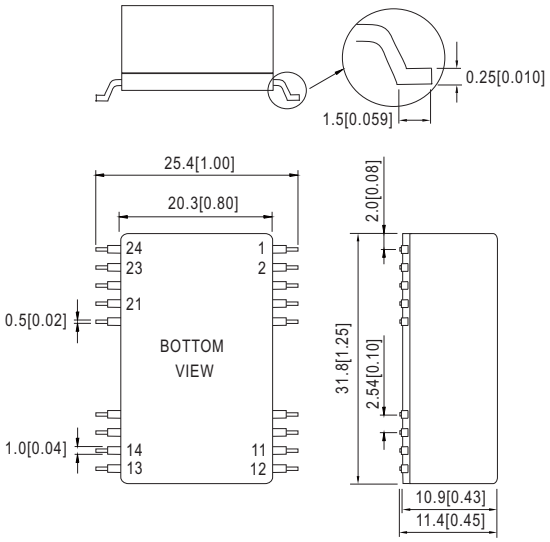
NOTE: Pin tolerance ±0.05mm

W type(LDD– __HW):



NOTE: All wires UL3385 22AWG

S type(LDD – __HS):



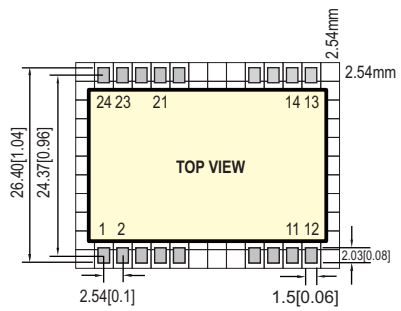
■ Pin Configuration

Pin No.	Output	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

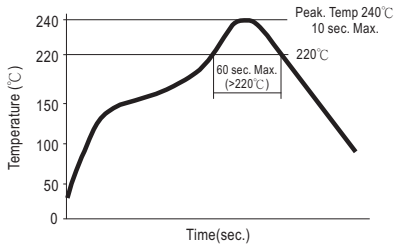
Pin No.	Output	Comment
2	-Vin (Black)	Don't connect to -Vout
11	-Vout (Blue)	LED - Connection
14	+Vout (Yellow)	LED + Connection
21	PWM DIM (White)	ON/OFF and PWM Dimming (Leave open if not used)
23	+Vin (Red)	DC Supply

Pin No.	Output	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

■ Recommended PCB layout (for LDD-HS)

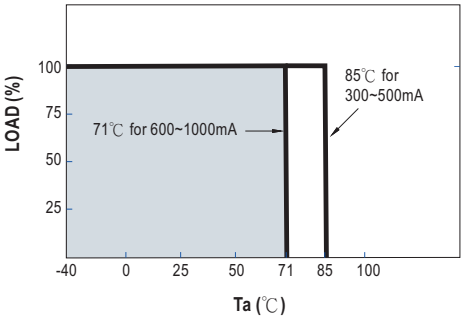


■ Reflow Soldering Curve (for LDD-HS)

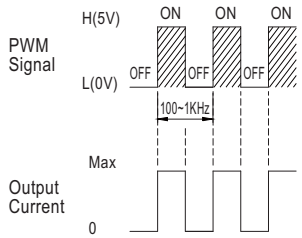


Remark : The curve applies only to the " Hot Air Reflow Soldering"

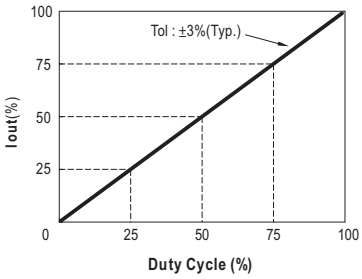
■ Derating Curve



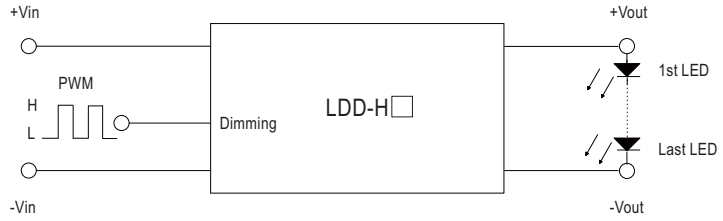
■ PWM Dimming Control



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



■ Standard Application



H: >2.5~6VDC or open circuit

L: <0.8VDC or short

■ Efficiency VS Output Voltage(Number of LEDs)

Fig-1 12VDC input, 1~3 LEDs(Vf=3V)

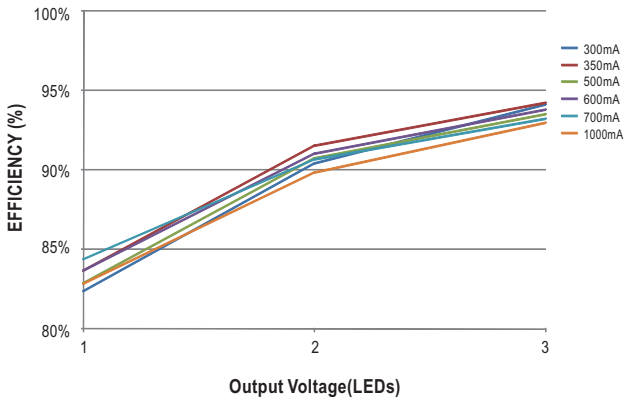


Fig-2 24VDC input, 1~7 LEDs(Vf=3V)

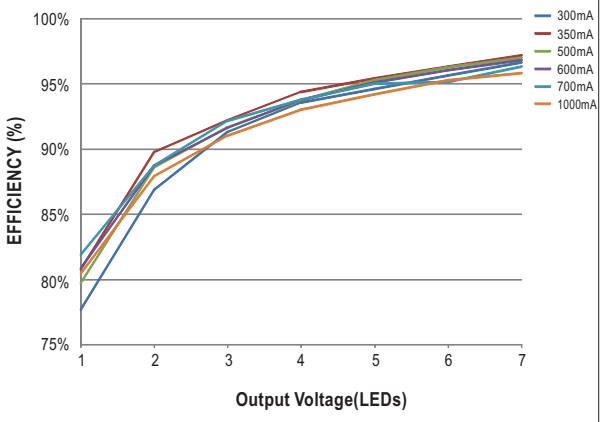


Fig-3 36VDC input, 1~10 LEDs(Vf=3V)

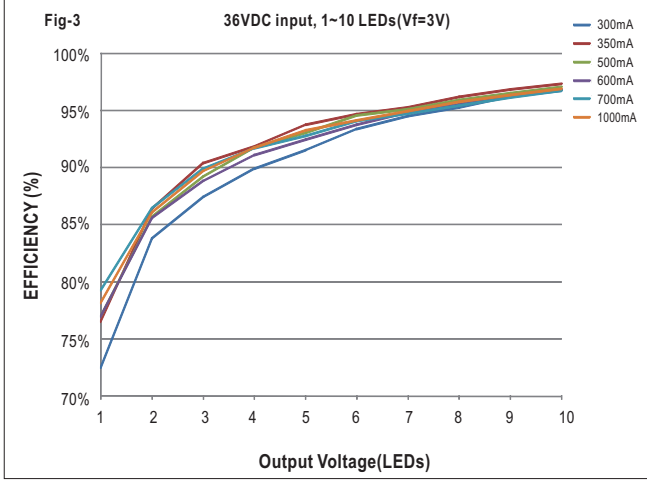


Fig-4 48VDC input, 1~14 LEDs(Vf=3V)