

KC24W-XXXX Series

CONSTANT CURRENT GREAT POWER BUCK LED DRIVER



FEATURES

- High efficiency up to 96%
- Ultra wide range voltage input (5.5-48 VDC)
- Drive current: 500mA
- Output Power: 18W
- Output current accuracy ($\pm 2\%$)
- Output current stability ($\pm 1\%$)
- Low Ripple & Noise (<100mV)
- With large capacitive loads (1000 μ F)
- Continuous short circuit protection
- AC-DC, EMC recommended circuit
- Lead wire package, simple and convenient
- Waterproof Level: IP67
- RoHS Compliance

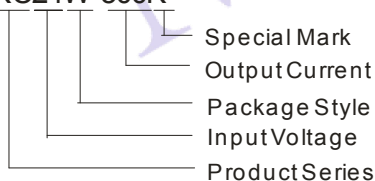
APPLICATIONS

KC24W-XXXX series is a high-power LED driver design for the step-down constant current source. With high efficiency, wide input voltage range, high-temperature environment, functional and so on.

It can be widely used in backlight and 12V, 24V, 36V landscape lighting, special lighting controls, commercial lighting, street lighting, home lighting, automotive lighting and other lighting systems. Use of lead type package, allowing customers to use more convenient.

MODEL SELECTION

KC24W-500K



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PRODUCT PROGRAM

Model	Input Voltage(VDC)		Output		Efficiency (% ,max)
	Normal	Range	Voltage (VDC)	Current (mA)	
KC24W-500K	24	5.5-48	3.3-36	500	96

COMMON SPECIFICATIONS

Item	Test condition	Min.	Typ.	Max.	Units
Utmost input voltage	≤ 10 seconds	5		55	VDC
Recommended input voltage		5.5	24	48	
Input filter		Capacitor(1 μ F)			
Output voltage range	Vin=48V	3.3		36	VDC
Input-Output voltage drop	Vin=5.5~48V, 1~10LEDs	2		4	
Output current range	See the product program				
Output current accuracy			± 2	± 5	%
Output current stability	Vin=48V, Vo=3.3V~36V			± 1	
Internal power dissipation	Vin=24V, 5LEDs			700	mW
Temperature coefficient	-40 °C to +71 °C ambient			± 0.015	%/°C
Efficiency				96	%
Ripple & Noise (Vp-p)	Vin=48V, 1~ 10LEDs			100	mV
Short circuit protection	Continuous, automatic recovery				
Operating temperature range	500mA	-40		71	°C
Storage temperature range		-55		105	
Lead temperature	≤ 10 seconds			265	
Maximum case temperature				100	
Thermal resistance			60		°C/W
Maximum capacitive Load			1000		μ F
Operating frequency range		320	370	420	kHz
MTBF	MIL-HDBK-217F(+25°C)		1,500,000		Hours
Case Material		Plastic (UL94-V0)			
Dimensions		22.10*12.55*8.50			mm
Weight			8.5		g

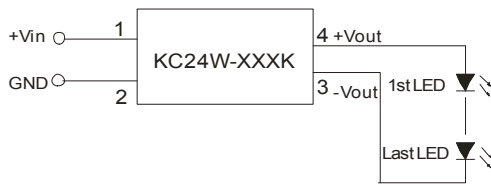
EMC SPECIFICATIONS

EMI conducted	EN55015	Power port(refer to Figure 3)
RFI conducted	EN55015	CISPR22 class B(refer to Figure 3)
ESD	IEC/EN 61000-4-2	level 3 contact ± 6 KV perf. Criteria B
R/S	IEC/EN 61000-4-3	level 3 (10V/m) perf. Criteria A
EFT	IEC/EN 61000-4-4	level 2 (± 1 KV) perf. Criteria B (refer to Figure 3)
Surge	IEC/EN 61000-4-5	level 2 (± 1 KV) perf. Criteria B (refer to Figure 3)
C/S	IEC/EN 61000-4-6	level 3 (10Vr.ms) perf. Criteria A

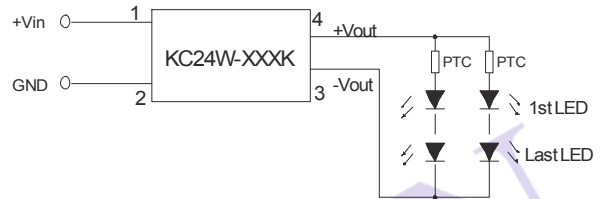
INPUT VS OUTPUT

Input voltage(VDC) (VDC)	Output voltage range(VDC)	Output constant current (mA)	Output power (W Max)
48	3.3-36.0	500	18.00
36	3.3-32.0	500	16.00
24	3.3-21.0	500	10.50
20	3.3-17.0	500	8.50
15	3.3-13.2	500	6.60
12	3.3-10.0	500	5.00
5.5	3.3-4.0	500	2.00

TYPICAL APPLICATION CIRCUITS



(Figure 1) Series Application

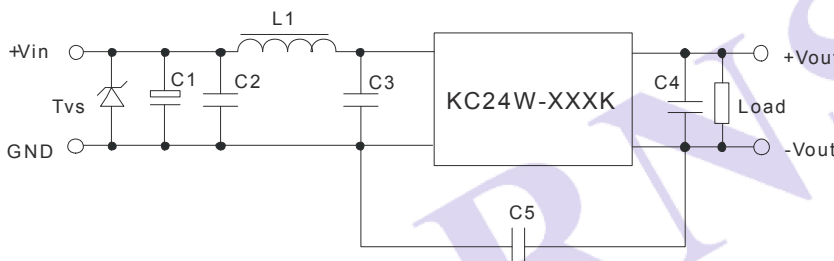


(Figure 2) Parallel-series Application

If it is necessary to protect LED in actual application, you could connect a PTC to the input of every channel or all channels, as shown in Figure 2. Note: The negative output terminal can't connect GND, or the module may be damaged.

EMC RECOMMENDED CIRCUIT

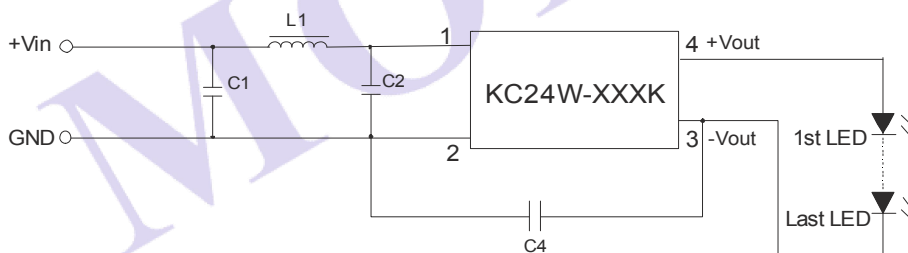
RECOMMENDED PARAMETER



(Figure 3) EMI/EMC recommended circuit

Components	Specifications
Tvs	SMC51A,1500W (Bringtking)
L1	CD53-82μH (CEAIYA)
C1	470μF/100V (CapXon)
C2	2.2μF/50V 1210 X7R (TORCH)
C3	0.1μF/50V (TORCH) 0805 X7R
C4	1.0μF/50V (TORCH) 1210 X7R
C5	1.0nF/2000V 1210 (TDK) (choose)

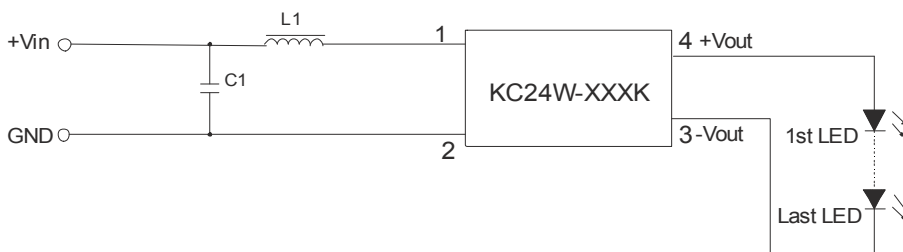
Table 1
(Figure 3) Recommended parameter



(Figure 4) EMI/RFI conducted EN55022 Class B recommended circuit

Components	Specifications
C1	2.2μF/50V 1210 ×7R (TORCH)
C2, C4	0.1μF/50V 1210 ×7R (TORCH)
L1	PI043-131MT (SHENZHEN CEAIYA)

Table 2
(Figure 4) Recommended parameter

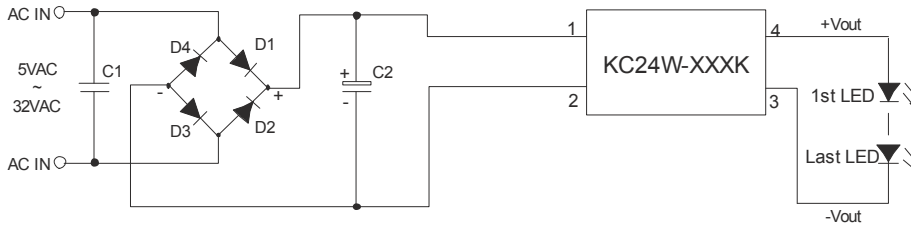


(Figure 5) EMI/RFI conducted EN55022 Class A recommended circuit

Components	Specifications
L1	CD53-33μH (SHENZHEN CEAIYA)
C1	1.0μF/50V 1210 ×7R (TORCH)

Table 3
(Figure 5) Recommended parameter

AC INPUT RECOMMENDED CIRCUIT

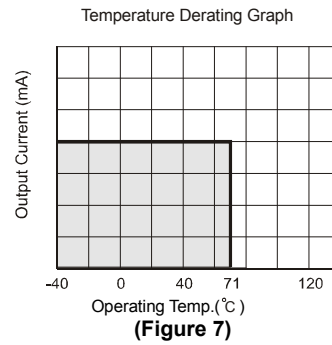


(Figure 6) AC input recommended circuit

Components	Specifications
C1	X1 Safety capacitor, 0.1 μ F /300VAC (QIYA)
C2	100 μ F/63V Electrolytic capacitor (CapXon)
D1、D2、D3、D4	Rectifier diode IN4007 1A/1000V D0-41(PANJIT)

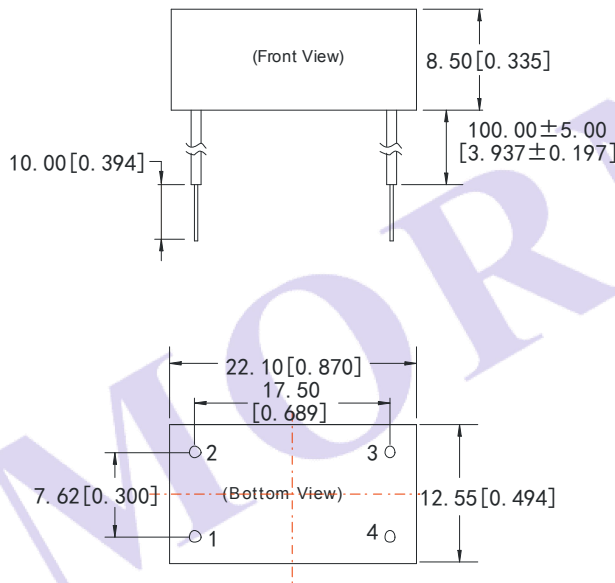
Table 4
(Figure 6) Recommended parameter

TYPICAL TEMPERATURE CURVE



(Figure 7)

OUTLINE DIMENSIONS & PIN CONNECTIONS



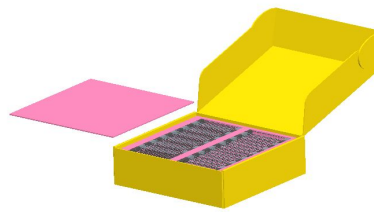
FOOTPRINT DETAILS		
Pin	Out	Comments
1 (red)	+Vin	DC Supply
2 (black)	GND	Do not connect to -Vout
3 (white)	-Vout	LED Cathode Connection
4 (yellow)	+Vout	LED Anode Connection

Note:
Unit: mm[inch]
Input
Lead internal diameter:1.35mm;
Lead external diameter:2.10mm;
Lead dimensions:UL1569 300V 10 ϕ
Output
Lead internal diameter:0.76mm;
Lead external diameter:1.60mm
General tolerances: \pm 0.25mm[\pm 0.010inch]

PACKAGE DIAGRAM



(EPE packaging)



(Inner packaging box)

EPE packaging dimensions: L*W*H=340*340*22.5 mm
Packaging quantity: 56pcs
Inner packaging box dimensions: L*W*H=365*350*105mm
Packaging quantity: 224pcs
Outer packaging box dimensions: L*W*H=390*360*245 mm
Packaging quantity: 448pcs

Note:

1. Operation under minimum output voltage will not damage the converter; However, they may not meet all specification listed.
2. All specifications measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
3. Only typical models listed, other models may be different, please contact our technical person for more details.
4. In this datasheet, all the test methods of indications are based on corporate standards.