



KC24AH Series

PWM DIM CONSTANT CURRENT OUTPUT LED DRIVER

RoHS

FEATURES

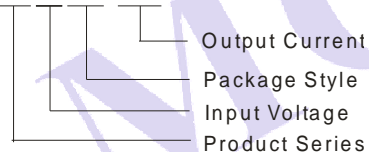
- High efficiency up to 96%
- Constant current output
- Power LED driver
- Wide input voltage range
- PWM dimming
- Remote ON/OFF
- Short circuit protection

APPLICATIONS

The KC24AH Series is a step-down constant current source designed for driving high power LEDs. The output currents available are 300mA, 350mA, 500mA, 600mA, 700mA. The KC24AH series is fully featured with very high efficiency, wide input voltage range, high ambient operating temperature, PWM dimming and Remote ON/OFF.

MODEL SELECTION

KC24AH-350



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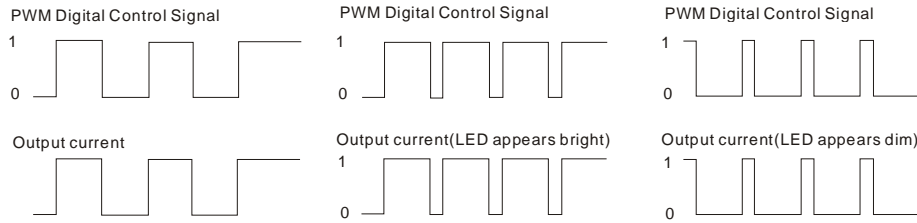
PRODUCT PROGRAM

| Part Number | Input Voltage(V) | | Output | | Dimming control | Efficiency (%.max) |
|-------------|------------------|--------|---------------|--------------|-----------------|--------------------|
| | Nominal | Range | Voltage (VDC) | Current (mA) | | |
| KC24AH-300 | 24 | 6.5-36 | 2-30 | 0-300 | PWM | 96 |
| KC24AH-350 | 24 | 6.5-36 | 2-30 | 0-350 | PWM | 96 |
| KC24AH-500 | 24 | 6.5-36 | 2-30 | 0-500 | PWM | 96 |
| KC24AH-600 | 24 | 6.5-36 | 2-30 | 0-600 | PWM | 96 |
| KC24AH-700 | 24 | 6.5-36 | 2-30 | 0-700 | PWM | 96 |

COMMON SPECIFICATIONS

| Item | Test condition | Min. | Typ. | Max. | Units |
|--|--|--------------------|-----------|--------|-------|
| Utmost input voltage | ≤10 seconds | 5.5 | | 40 | VDC |
| Recommended input voltage | | 6.5 | 24 | 36 | |
| Input filter | | Capacitor | | | |
| Output voltage range | Vin=36V | 2 | | 30 | VDC |
| Input-output voltage drop | | 4.5 | | | |
| Output current range | See the selection guide ,while Vin-Vout>4.5V | | | | |
| Output current accuracy | Vin=24V, 5 LEDS | | ±7 | ±12 | % |
| Output current stability | Vin=24V, 1LED to 5 LEDS | | ±8 | ±15 | |
| Temperature coefficient | -40 °C to+71 °C ambient | | | ± 0.03 | %/°C |
| Efficiency at full load | | | | 96 | % |
| Short circuit protection | | Continuous | | | |
| Operating temperature range | 300mA / 350mA | -40 | | 85 | °C |
| | 500mA/ 600mA/ 700mA | -40 | | 71 | |
| Storage temperature range | | -55 | | 125 | |
| Maximum case temperature | | | | 100 | |
| Maximum capacitive Load | | | 470 | | μF |
| MTBF | MIL-HDBK-217F(+25°C) | | 2,000,000 | | Hours |
| Case Material | | Plastic (UL94-V0) | | | |
| Dimensions | | 22.8*10.2*9.5 | | | mm |
| Weight | | 3.5 | | | g |
| PWM Dimming and ON/OFF Control (let it open if not use) | | | | | |
| Remote ON/OFF | ON | Open or 2.8V<Vc<6V | | | |
| | OFF(shutdown) | Vc<0.6V | | | |
| Remote pin current | Vc=5V | | | 1 | mA |
| Quiescent input current in Shutdown mode | Vin=24V, Vc <0.6V | | | 400 | μA |
| PWM frequency | | | 0.2 | 10 | KHz |

DIGITAL DIMMING CONTROL



This is a PWM type digital dimming, which you can control the output current by adjusting the pulse width of the PWM signal.

$$I_{o_set} = I_{o_norm} \times D$$

I_{o_set} refers to the wanted output current value.

I_{o_norm} refers to the rated output current

D refers to the pulse width of the PWM signal

For example: we assume the rated output current is 300mA and wanted output current is 150mA, then the pulse width should be 0.5 from the equation above. That is say if we keep the pulse width of PWM signal at 0.5, the output current will be kept at 150mA. It is natural for the driver to generate a audibly noise in dimming process, because the frequency of the control circuit is within human audibly range (20Hz~20KHz).

TYPICAL APPLICATION CIRCUITS

PWM Dimming control circuit

Figure 1

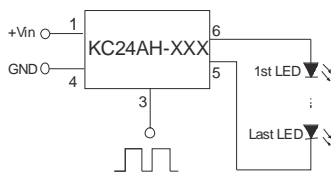
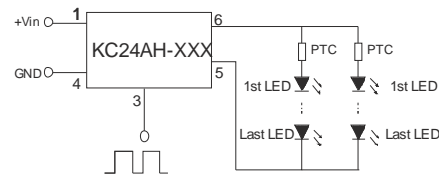
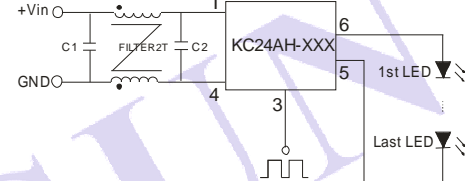


Figure 2



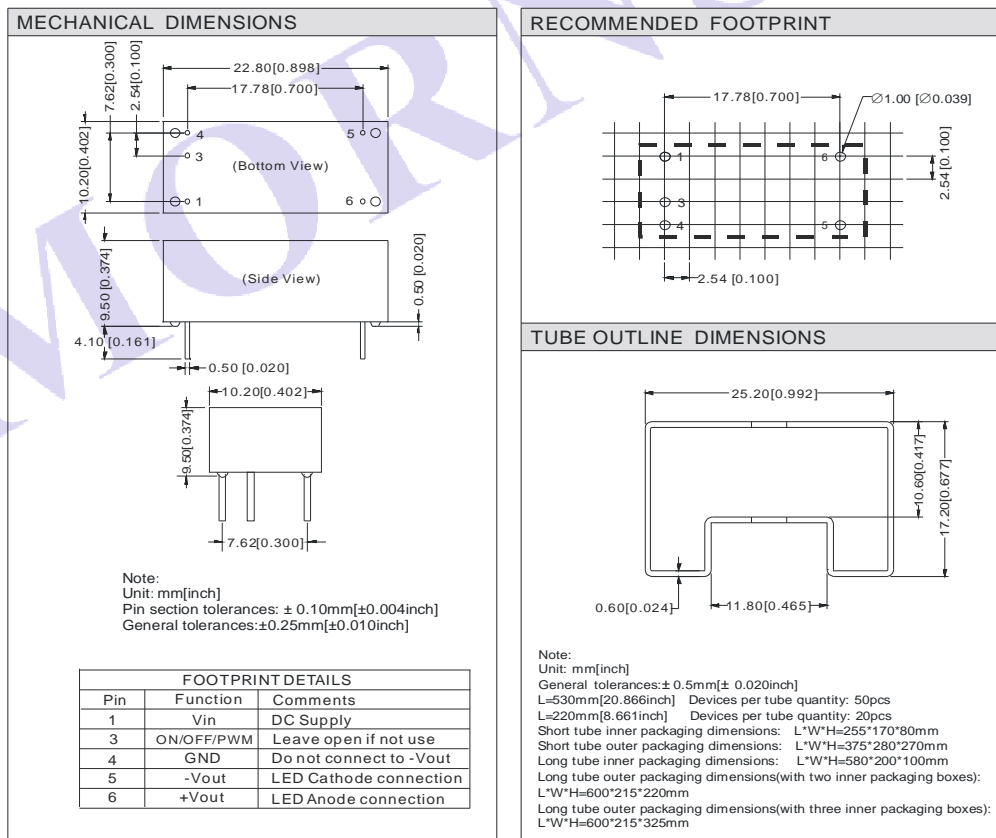
EMI filter circuit

Figure 3



In actual use, if necessary to protect LED, a PTC of positive temperature coefficient may be connect to the input end of every channel or all channels, as shown in Figure 2.

OUTLINE DIMENSIONS & PIN CONNECTIONS



Note:

- All specifications measured at $T_a=25^\circ\text{C}$, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
- In this datasheet, all the test methods of indications are based on corporate standards.