

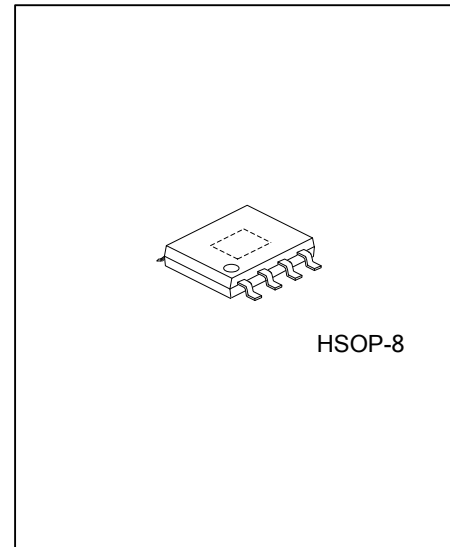


UL52A

Preliminary

CMOS IC

HIGH POWER FACTOR LINEAR CONSTANT CURRENT LED DRIVER



DESCRIPTION

UTC **UL52A** is a high power factor linear constant current LED driver which is applied to LED lighting. Through the distinctive constant current control technology, it realizes that constant current accuracy is less than $\pm 5\%$ and output current is adjustable through external resistor. High power factor and low harmonic distortion are the particular features.

The system is simple without transformer and electrolysis capacitor. Therefore, LED lighting batch job can be realized.

FEATURES

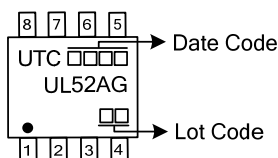
- * No transformer and high voltage electrolysis capacitor
- * Integrated high voltage startup power supply circuit
- * Adjustable output current, max 60mA
- * Inter-chip current deviation $< \pm 5\%$
- * Efficiency: $> 90\%$
- * Power factor: > 0.95
- * THD $< 20\%$
- * Over temperature protection
- * Application system no EMI problems

ORDERING INFORMATION

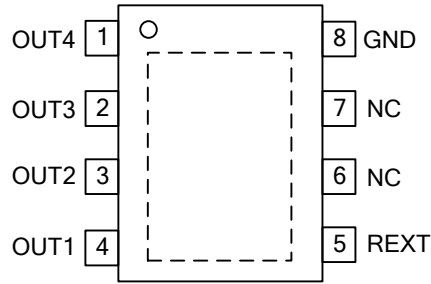
| Ordering Number | Package | Packing |
|-----------------|---------|-----------|
| UL52AG-SH2-R | HSOP-8 | Tape Reel |

| | |
|---|--|
| <p>UL52AG-SH2-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package | <ul style="list-style-type: none"> (1) R: Tape Reel (2) SH2: HSOP-8 (3) G: Halogen Free and Lead Free |
|---|--|

MARKING



■ PIN CONFIGURATION



■ PIN DESCRIPTION

| PIN NO. | PIN NAME | DESCRIPTION |
|---------|----------|--|
| 1 | OUT4 | current output port 4 |
| 2 | OUT3 | current output port 3 |
| 3 | OUT2 | current output port 4 |
| 4 | OUT1 | Power input and constant current output port 1 |
| 5 | REXT | Output current setting port |
| 6~7 | NC | |
| 8 | GND | GND |

FLYING 汎翔國際有限公司
www.flying1688.com

■ ABSOLUTE MAXIMUM RATING (Ambient temperature is 27°C if there is no special instruction)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------|-----------|------------|------|
| ESD Voltage Withstand | V_{ESD} | >2000 | V |
| Operating Temperature | T_{OPR} | -20 ~ +125 | °C |
| Storage Temperature | T_{STG} | -40 ~ +150 | °C |

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (Ambient temperature is 27°C if there is no special instruction)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|-----------------|-------------------------|-----|-----|-----|------|
| OUT1 Input Voltage | V_{OUT1} | | | | 6.5 | V |
| Output Current | I_{OUT} | | 10 | | 60 | mA |
| REXT Port Voltage | V_{REXT} | $V_{OUT1}=V_{OUT4}=10V$ | | 0.9 | | V |
| OUT1/ OUT2 Port Withstand Voltage | V_{DS_BV1} | $I_{OUT1}=I_{OUT2}=0$ | 450 | | | V |
| OUT3/ OUT4 Port Withstand Voltage | V_{DS_BV2-4} | $I_{OUT3}=I_{OUT4}=0$ | 250 | | | V |
| IOUT Accuracy | dI_{OUT} | $I_{OUT}=10\sim 50mA$ | | ±5 | | % |
| Over-Temperature Protection Point (Note 1) | TSC | | | 120 | | °C |

Note: When the junction temperature is over 120°C, the output current of UL52A will be reduced

■ FUNCTIONAL DESCRIPTION

UTC **UL52A** is constant current drive which integrates the functional module such as LED constant current control and OUT port high voltage drive. OUT1 port minimum input voltage is 6V ($I_{OUT}=20\text{mA}$) and it can reach output current 10mA ~ 60mA by external REXT resistor. Built-in LED constant current drive maintains LED current a high precision without impact of ambient temperature. The chip can achieve high efficiency and high power factor by opening four switches one by one.

The chip output current is adjustable by REXT resistor $I_{OUT}=V_{REXT}/R$. Output current generated by four switches opening one by one is shown below:

$$I_{OUT1}=0.56\text{V}/R$$

$$I_{OUT2}=0.73\text{V}/R$$

$$I_{OUT3}=0.87\text{V}/R$$

$$I_{OUT4}=0.94\text{V}/R$$

■ TYPICAL APPLICATION CIRCUIT

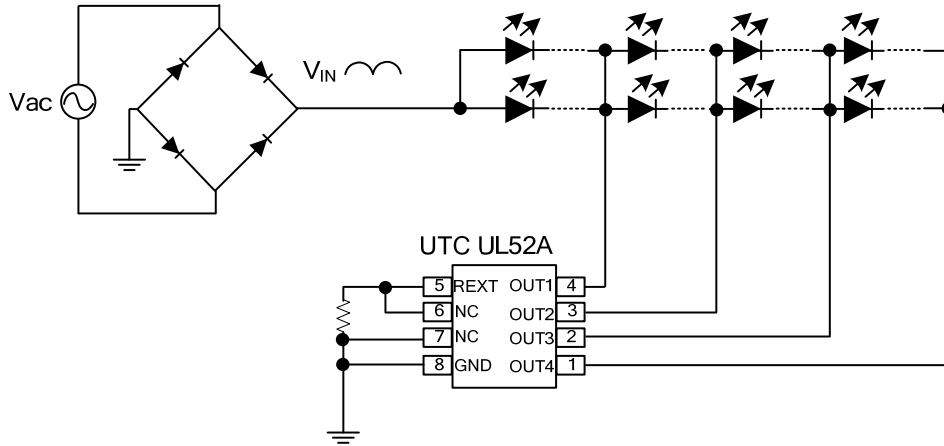


Figure 1. UTC UL52A Typical Schematic Circuit Diagram

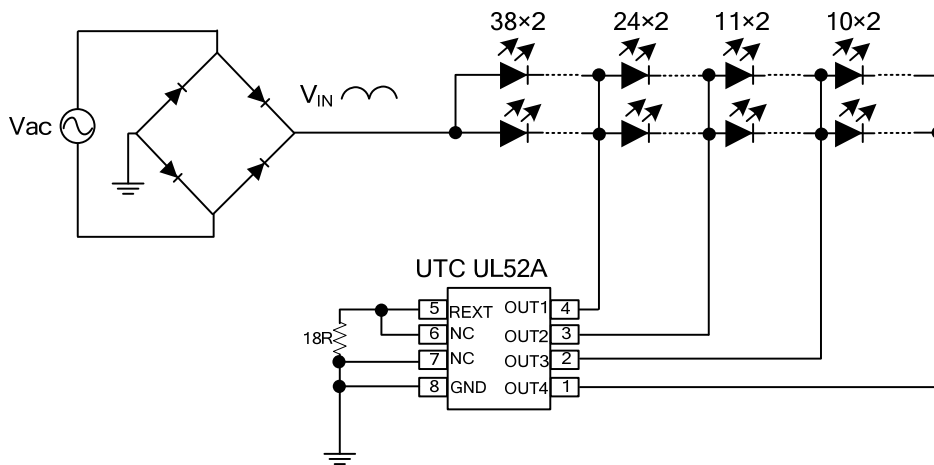


Figure 2. UTC UL52A Typical Application Circuit

FLYING 汎翔國際有限公司
www.flying1688.com

■ TYPICAL APPLICATION CIRCUIT (Cont.)

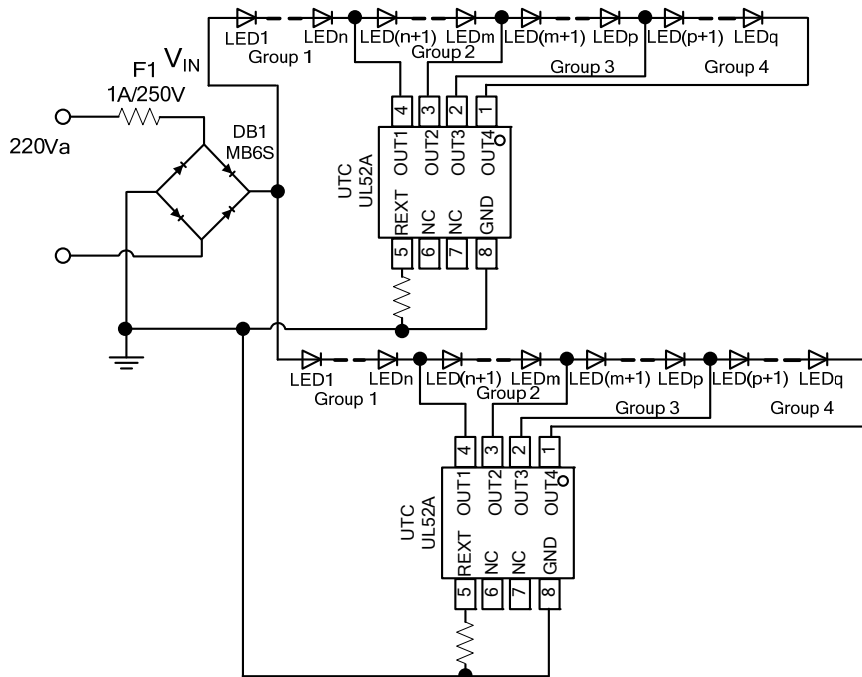


Figure 3. UTC UL52A Parallel Application Circuit

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.