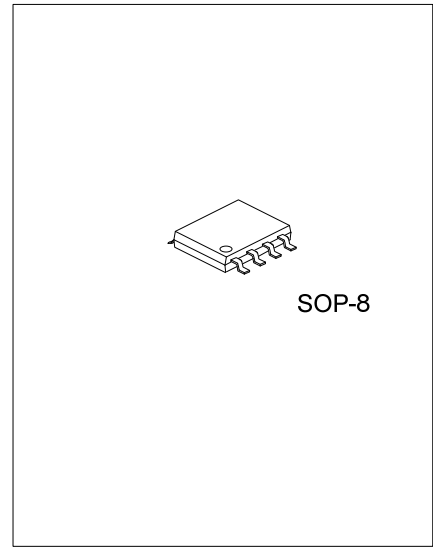




## ULD5131

CMOS IC

### ADAPTIVE 100/120Hz CURRENT RIPPLE REMOVING CIRCUIT CONTROLLER



#### DESCRIPTION

UTC **ULD5131** is a controller, which drives external NMOSFET to remove the 100/120Hz LED current ripple on AC/DC power by a capacitor between VC and GND. The chip ensures minimum power dissipation on NMOSFET while removing LED current ripple relying on the adaptive technology.

UTC **ULD5131** allows user to setup the maximum cathode voltage of LED string by sensing the drain voltage of NMOSFET which could help limit the power dissipation on chip.

#### FEATURES

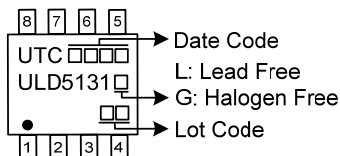
- \* Controller for adaptive 100/120Hz current ripple remover
- \* Amplitude of LED current ripple programming
- \* Maximum cathode voltage of LED programming
- \* Maximum LED current programming

#### ORDERING INFORMATION

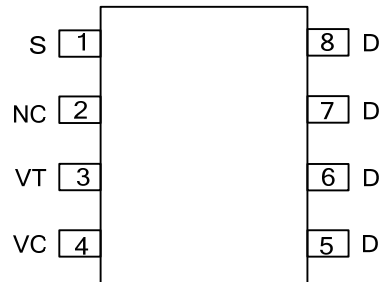
| Ordering Number |                | Package | Packing   |
|-----------------|----------------|---------|-----------|
| Lead Free       | Halogen Free   |         |           |
| ULD5131L-S08-R  | ULD5131G-S08-R | SOP-8   | Tape Reel |

|   |  |
|---|--|
| <p>ULD5131G-S08-R</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Green Package</li> </ul> | <ul style="list-style-type: none"> <li>(1) R: Tape Reel</li> <li>(2) S08: SOP-8</li> <li>(3) G : Halogen Free and Lead Free, L: Lead Free</li> </ul> |
|---|--|

#### MARKING



## ■ PIN CONFIGURATION



## ■ PIN DESCRIPTION

| PIN NO.    | PIN NAME | DESCRIPTION                        |
|------------|----------|------------------------------------|
| 1          | S        | Connecting NMOSFET Source Pin      |
| 2          | NC       | NC                                 |
| 3          | VT       | Programming LED Voltage Limit Pin  |
| 4          | VC       | Programming LED Current Ripple Pin |
| 5, 6, 7, 8 | D        | Connecting NMOSFET Drain Pin       |

■ ABSOLUTE MAXIMUM RATING

| PARAMETER            | SYMBOL    | RATINGS    | UNIT |
|----------------------|-----------|------------|------|
| Junction Temperature | $T_J$     | 150        | °C   |
| Storage Temperature  | $T_{STG}$ | -65 ~ +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.

■ RECOMMENDED OPERATING CONDITIONS

| PARAMETER                    | SYMBOL | RATINGS | UNIT |
|------------------------------|--------|---------|------|
| Maximum Junction Temperature | $T_J$  | +150    | °C   |

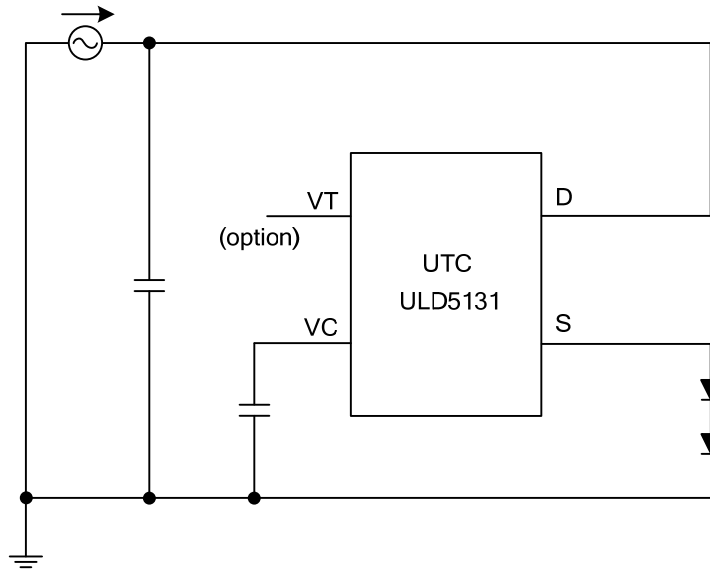
■ THERMAL RESISTANCE

| PARAMETER           | SYMBOL        | RATINGS | UNIT |
|---------------------|---------------|---------|------|
| Junction to Ambient | $\theta_{JA}$ | 150     | °C/W |
| Junction to Case    | $\theta_{JC}$ | 50      | °C/W |

■ ELECTRICAL CHARACTERISTICS  $T_A=25^\circ\text{C}$ , unless otherwise stated.

| PARAMETER                           | SYMBOL       | TEST CONDITIONS | MIN | TYP | MAX | UNIT       |
|-------------------------------------|--------------|-----------------|-----|-----|-----|------------|
| Resistance Between D Pin and VC Pin | $R_{D\_VC}$  |                 | 40  | 47  | 52  | K $\Omega$ |
| Voltage (D Pin to VT Pin)           | $V_{D\_VT}$  |                 | 0.5 | 0.7 | 0.9 | V          |
| Voltage (VT Pin to VC Pin)          | $V_{VT\_VC}$ |                 | 5   | 6.5 | 8   | V          |
| Voltage (D Pin to S Pin)            | $V_{D\_S}$   |                 |     |     | 30  | V          |
| Voltage (VC Pin to S Pin)           | $V_{VC\_S}$  |                 |     |     | 8   | V          |

■ TYPICAL APPLICATION CIRCUIT



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