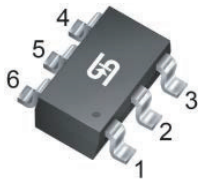


Automotive Constant Current Regulated LED Driver

TSCR400CX6, TSCR402CX6 TSCR420CX6/H, TSCR421CX6/H

SOT-26



> General Features

- **AEC-Q100 Qualified versions**
- **Linear Constant Current Regulator:**
 - TSCR420CX6/H, TSCR421CX6/H: Low-Side Control
 - TSCR400CX6, TSCR402CX6: High-Side Control
- **LED Drive Current**
 - TSCR420CX6/H, TSCR421CX6/H: 10mA
 - TSCR400CX6: 0.1mA
 - TSCR402CX6: 20mA
- **Adjustable Output Current with External Resistor**
 - TSCR420CX6/H, TSCR421CX6/H: up to 300mA
 - TSCR400CX6, TSCR402CX6: up to 65mA
- **Supply Voltage up to 40V**
- **Enhanced Reliability**
 - Highly integrated-easing system design; reducing external component count and increasing reliability
- **Simple Paralleling of multiple devices to Increase Current**
- **Good Temperature Coefficient vs. Output Current**
- **Digital PWM Input up to 10kHz (TSCR421CX6/H)**
- **Excellent Constant Current Accuracy ($\pm 5\%$)**
- **Excellent Constant Current Performance at High Temperature ($\pm 5\%$)**

> Pin Definition

TSCR420CX6/H, TSCR421CX6/H		TSCR400CX6, TSCR402CX6	
1. EN	6. REXT	1. GND	6. REXT
2. OUT	5. OUT	2. OUT	5. OUT
3. OUT	4. GND	3. OUT	4. Vs



> TSCR420CX6H, TSCR421CX6H

- **AEC-Q100 Qualified and PPAP capable**
 - Temperature Grade: -40°C to 125°C
 - HBM ESD Classification Level:H2
 - CDM ESD Classification Level: C6

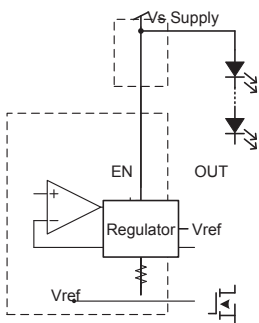
> Typical Application Circuit

> Target Applications

Low Power LED Strip Lighting

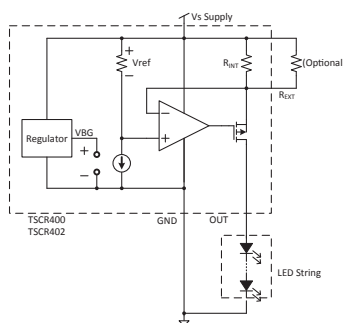
- Automotive Interior - Exterior lighting
- Decorative Mood Lighting
- Medical Lighting
- Channel Lighting
- Outdoor Illumination
- Advertising Signage
- Emergency Lighting Strips
- Aircraft, Train, Ship Illumination
- Retail Refrigeration case Lighting
- Vending Machines
- Architectural Lighting Strips
- Casino/Gaming system equipment -lighting

TSCR420CX6/H, TSCR421CX6/H



Linear Mode Current Sink / Low-Side Control

TSCR400CX6, TSCR402CX6



Linear Mode Current Source / High-Side Control

> Product Characteristic

Part Number	Breakdown Voltage (V)	Input Voltage (V)	Input Voltage (V)	Adj. Output Current (mA)	Configuration	PWM from MCU	Package
TSCR420CX6/H	40	1.4 - 40	10	10 - 300	Low-Side	No	SOT-26
TSCR421CX6/H	40	1.4 - 4.5	10	10 - 300	Low-Side	Yes	SOT-26
TSCR400CX6	40	1.6 - 40	0.1	0.1 - 65	High-Side	No	SOT-26
TSCR402CX6	40	1.4 - 40	20	20 - 65	High-Side	No	SOT-26

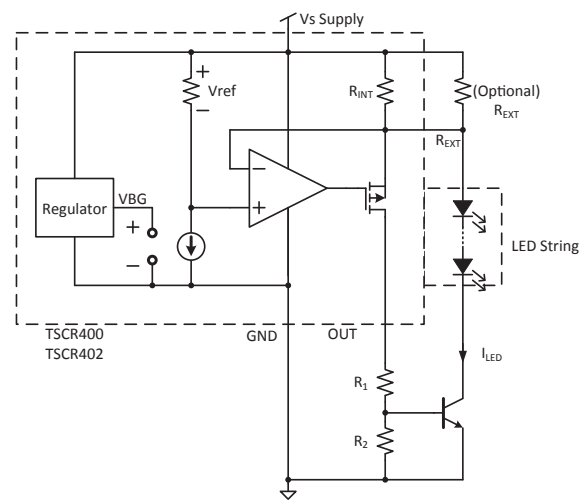
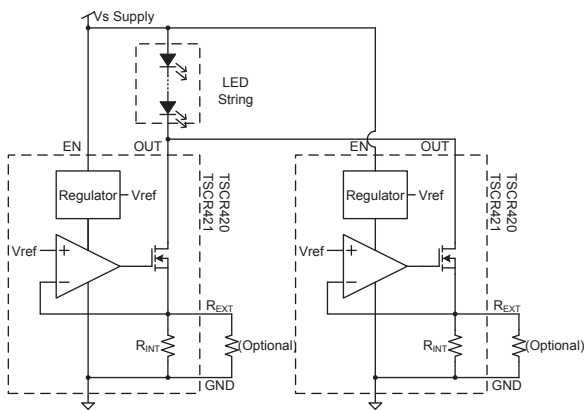
TSCR400CX6, TSCR402CX6 TSCR420CX6/H, TSCR421CX6/H

> Application Information

Increasing LED String Current

The The Negative thermal coefficient reduces the output current when temperature increases. This prevents thermal runaway and acting as self-protection while simplifying parallel operation. The expected power dissipation of the linear mode must be considered into the design.

- Two or more TSCR420 & TSCR421 can be connected in parallel to construct higher current LED strings.
- An NPN pass transistor can be used increase current to drive higher power LED's and LED Arrays.



PWM Dimming Circuit

The low-side configuration allows the enable pin (EN) of the TSCR421CX6/H to be PWM modulated to adjust LED light output.

- Dimming is achieved by modulating the duty cycle on the enable line (EN) with a PWM signal to vary LEDs brightness.
- The PWM signal can be up to 10kHz from a microcontroller other digital or analog circuits.

