

Constant Current Driver ICN2051

Description

The ICN2051 is a 16-channel PWM constant current sink LED driver for 1:8 time multiplexing applications. The constant-current value of all 16 channels is set by a single external resistor.

ICN2051 converts serial input data into the gray scale of each pixel by a 16-bit shift register. ICN2051 detects individual LED open errors without extra components. ICN2051 also integrated pre-charge circuit for ghosting reduction.

The ICN2051 exploits precise current regulation technology, with both channel-to-channel error and chip-to-chip error less than 2.0%.

Features

- 16 constant-current output channels
- Support time-multiplexing for 1~8 scans
- Output current setting range:
 - 0.5~30mA×16@V_{DD}=5V constant current output
 - 0.5~23mA×16@V_{DD}=4.2V constant current output
- Current accuracy
 - Between channel :< ±2.0 % (Max.)
 - Between ICs :< ±2.0 % (Max.)
- 8 bit current gain: 12.5%~200%
- Fast response of output current:
 - \overline{OE} (min):20ns@V_{DD}=5V
- Data transfer frequency: f_{MAX}=35MHz(Max)
- Power supply voltage: V_{DD}=3.3~5V
- Operating Temperature: -40°C to +85°C
- Output current equation

$$I_{out} = \frac{9.2\text{E}}{R_{EXT}}$$

- Pre-charge for ghosting reduction
- LED open detection
- Enhanced Circuit for Caterpillar Cancelling
- Low-gray scale enhancement
- Integrating LED protection circuit