

A6280: Three-Bit Constant-Current LED Driver

The A6280 is a three-bit constant-current LED driver that has a wide range of output currents. The A6280 controls LED luminance with a pulse width modulation (PWM) scheme that gives the application the capability of displaying one billion colors. The overall maximum current is set by an external resistor, and the LED grayscale is controlled by the PWM control of the output currents. The luminance data of the PWM signal for each LED is stored in three 10-bit registers. Also, each LED can be DOT-corrected with a 7-bit scalar register that scales the maximum current from 100% down to 36.5%. All the internal latches are loaded via a 31-bit serial shift register.

The A6280 is designed to minimize the number of components needed to drive LEDs with large pixel spacing. Several can be joined together and controlled by four control signals (clock, serial data, latch and output enable). Each of these inputs has buffered outputs on chip. Also, the VIN pin can be tied to the LED voltage supply bus, thereby eliminating the need for a separate chip supply bus or an external linear regulator.