

NXP PCA9633 daughter card OM6282

Easily test and demonstrate the PCA9633 4-bit LED driver

This add-on to NXP's I2C 2005-1 demo board makes it easy to test and design with the PCA9633, a Fast-mode Plus (Fm+) LED driver, that provides 4-bit blink and dimming for Red/Blue/Green/Amber (RGBA) color mixing applications.

Key features

- ▶ Easy-to-use daughter card with comprehensive evaluation software
- ▶ On-board RGBA LEDs with diffuser
- ▶ 1 MHz Fast-mode Plus I²C-bus serial interface
- ▶ Compliant with I²C-bus Fast-mode (400 kHz) and Standard-mode (100 kHz)
- ▶ 2.3 V to 5.5 V operation with 5.5 V tolerant I/Os
- ▶ 8-bit resolution individual PWM and 8-bit group PWM
- ▶ Totem-pole outputs (25mA sink/10 mA source) with software programmable Open-drain LED outputs selection
- ▶ 64 programmable slave addresses using 3 address pins
- ▶ Outputs change on STOP or ACK

Applications

- ▶ RGB or RGBA LED drivers, LCD backlights, LED displays, LED status information, Gaming machines, Keypad backlights

The PCA9633 uses the industry-standard I²C/SMBus port to communicate with the host demonstration board. The card can be connected in series with other I²C-bus daughter cards, via a standard 9-pin connector, to create a complete evaluation system.

Evaluation software, which runs on a standard Windows PC platform, lets the user explore a wide range of options. The output ports can be programmed to be totem-pole or open-drain, and outputs can change at either the Acknowledge command (bit change) or the Stop command (global change).

Each output port can set to LED on, LED Off, LED controlled by its own PWM, or LED controlled by its own PWM and the group PWM.



Extensive programmability

The daughter card's wide array of I/O commands and programmable pins makes development more flexible and increases design options.

The output pins can be programmed to totem-pole (10-mA source, 25-mA sink) or open-drain (25-mA sink) with a controlled edge-rate output structure. Totem-pole is the power-up default.

The Output Enable pin (OE) three-states all Outputs. Output polarity can be programmed via the I²C-bus.

The Address Select switch makes it possible to daisy-chain multiple PCA9633 devices together for evaluation. When multiple PCA9633 devices are on the same bus, the GPIO All Call command simultaneously programs multiple devices with the same parameters, even if they have different I²C-bus addresses.

There are also 3 Sub-Addresses that can be used to program multiple devices with the same instruction (e.g. turn on all red LEDs).

The software RESET sets the device to its power-up default state.

Demonstration platforms

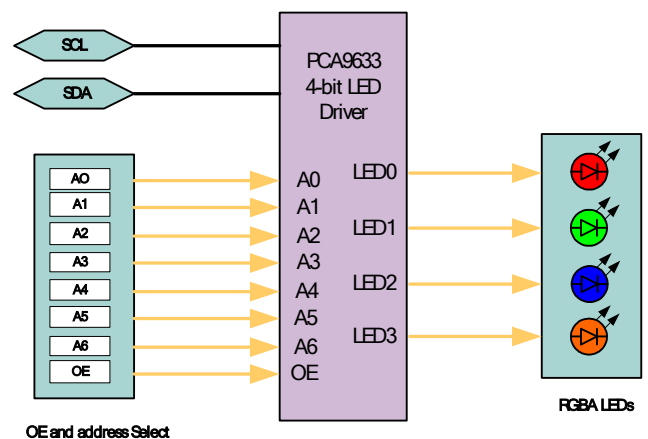
The OM6282 daughter card can be used with the Windows based OM6275 I2C 2005-1 demo board, the micro-controller based OM6299 industrial reference design, or stand alone in the user's application.

Additional information

To order the daughter card or demonstration platforms, visit www.digikey.com.

For downloadable support tools, visit www.nxp.com/i2clogic

For questions, email i2c.support@nxp.com.



Block diagram of the PCA9633 daughter card

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