TCA6507 - Low-Voltage 7-Bit I²C

Texas Instruments has released the TCA6507, an I²C LED driver that can control the brightness and blinking pattern, and perform automatic gradual fading of LEDs, all at the same time using pulse-width modulation intensity control. The purpose of this device is to free the processor from the LED blink operations, which allows the processor to focus on other tasks in the application. The TCA6507 was designed specially for funlight applications in the handset market but it has a wide enough voltage range to cover the consumer, server, computing and industrial market segments.

The TCA6507 features an internal self-contained oscillator that controls two PWM modules, which provide 2 independent blink / fade patterns. The user can program each of the 7 outputs or LEDs to one of seven operating modes including the two blink / fade patterns, three steady-intensity values, plus fully on and off. A major benefit of this device is it has very low power consumption (25uA max in the operating mode, 10uA in standby). In addition, the TCA6507 has superior drive capability. Each output can support up to 40mA of sink current to drive an LED. Each output also has an absolute max rating of 6.5V, which allows the user to drive a red, green, blue or white LED. The TCA6507 is offered in the 12-pin ZXU (BGA) package and is ideal for space-constrained applications.

Target End-Equipments
• Portable (PDAs, Cell Phones, PMP and MP3 Players)
• PC (Enterprise Servers, Workstations)
• Notebooks
• Telecom (Hubs, Switches, Routers)
• PC Peripherals (Printers, Disk Drives)

Features	Benefits
Wide Vcc range of 1.65 V to 3.6V	Can interface with next generation and legacy processors
Enable Input	Can put the TCA6507 into standby or shutdown mode for the low power mode. Internal registers are also returned to their default state without the need to power-cycle the device.
Outputs not used as LED drivers can be used as regular General-Purpose Open-Drain Outputs	Flexibility in adding features to the system level design
Each PWM module uses 16 programmable levels of LED maximum intensity, fade-on, fade-off, fully on, and fully-off times with dual-blink capability allowing blink rates from over 15 blinks per second to one blink cycle per 64 seconds.	Provides a widely programmable variety of blink patterns for the LEDs
256 steps of intensity during fading	Provides smooth perceived intensity transtions
Low Power Consumption	Useful in extending battery life in portable applications

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Asia

Phone

International	+91-80-41381665
Domestic	Toll-Free Number
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China	800-820-8682
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Taiwan	0800-006800
Thailand	001-800-886-0010
Fax	+886-2-2378-6808
Email	tiasia@ti.com or ti-china@ti.com
Internet	support.ti.com/sc/pic/asia.htm

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