

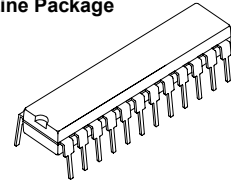


16-bit Constant Current LED Sink Driver with Gain Control

Features

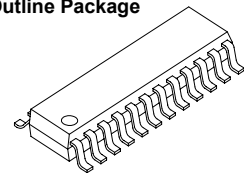
- 16 constant-current output channels
- Output current adjustable through an external resistor
- Programmable output current gain for White Balance
- Constant output current range: 5-90 mA
- Excellent output current accuracy:
between channels: $\pm 3\%$ (max.), and
between ICs: $\pm 6\%$ (max.)
- Constant output current invariant to load voltage change
- Fast response of output current, \overline{OE} (min.): 200 ns
- 25MHz clock frequency
- Schmitt trigger input
- 5V supply voltage
- Optional for "Pb-free & Green" Package

Dual In-Line Package



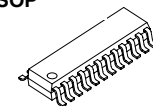
CN: P-DIP24-300-2.54
 GN: P-DIP24-300-2.54
 CNS: SP-DIP24-300-1.78
 GNS: SP-DIP24-300-1.78

Small Outline Package



CD: SOP24-300-1.27
 GD: SOP24-300-1.27
 CF: SOP24-300-1.00
 GF: SOP24-300-1.00

Shrink SOP



CPICPA: SSOP24-150-0.64
 GPIGPA: SSOP24-150-0.64

Current Accuracy		Conditions
Between Channels	Between ICs	
< $\pm 3\%$	< $\pm 6\%$	$I_{OUT} = 10 \sim 60 \text{ mA}$

MBI5028 16-bit Constant Current LED Sink Driver with Gain Control

Product Description

MBI5028 succeeds MBI5026 and is designed for LED displays with Gain Control extension. MBI5028 exploits PrecisionDrive™ technology to enhance its output characteristics. MBI5028 contains a 16-bit shift register and data latches, which convert serial input data into parallel output format. At MBI5028 output stage, sixteen regulated current ports are designed to provide constant current sinks for driving LEDs within a wide range of Vf variations.

MBI5028 provides users with great flexibility and device performance while using MBI5028 in their LED panel system design. Users may adjust the output current from 5 mA to 90 mA through an external resistor R_{ext} , which gives users flexibility in controlling the light intensity of LEDs. MBI5028 guarantees to endure maximum 17V at the output port. The high clock frequency, 25 MHz, also satisfies the system requirements of high volume data transmission.

MBI5028 also exploits Share-I-O™ technology and is backward compatible with MBI5026 in both electrical characteristics and package aspect. To utilize the Current Adjust feature, users may not have to change the printed circuit board originally for MBI5026. To enter a special function mode--Current Adjust mode, users just need to set a specific sequence of signals on LE(CA1), \overline{OE} (CA2) and CLK input pins. Normally, the output current can be regulated only through an external resistor. In addition, in the Current Adjust mode, the output current can be software-programmable by a system controller. The system controller adjusts the output current by sending a 7-bit Current Adjust code to 16-bit Configuration Latch through MBI5028 SDI pin. The code will be latched and effective to control the output current regulator. A fine adjustment of the output current could be achieved by a gain ranging from 1/9 to 0.9896 with 128 fine steps. By setting another sequence of signals on LE(CA1), \overline{OE} (CA2) and CLK input pins, MBI5028 may resume to a Normal mode and perform as MBI5026. The Shift Register, with SDI, SDO, and CLK, carries the image data as usual.

By means of the Share-I-O™ technique, an additionally effective function, Current Gain, can be added to LED drivers, MBI5028, without any extra pins. Thus, MBI5028 could be a drop-in replacement of MBI5026. The printed circuit board originally designed for MBI5026 may be also applicable for MBI5028.

For MBI5028, Pin LE and \overline{OE} can respectively offer two functions:

Device Type	Pin Name	Function description
CN\CNS\CD\CF\CP GN\GNS\GD\GF\GP	Pin4	LE+Current Adjust
CPA GPA	Pin10	LE+Current Adjust
CN\CNS\CD\CF\CP GN\GNS\GD\GF\GP	Pin21	\overline{OE} +Current Adjust
CPA GPA	Pin3	\overline{OE} +Current Adjust