8 Channel LED Driver with I²C Interface

General Description

E522.46 provides eight linear high side current sources for LED driving. Binning information for each individual LED as well as various system configurations are stored in internal EEPROM memory. The luminous intensity level of each LED is adjusted by a common analog master current and an individual PWM duty cycle, considering the stored binning information. Supporting noise sensitive applications, external PWM clocks can be applied up to 24kHz repetition rate.

Due to the synchronizable master-slave characteristic and adjustable error handling with a common INTB error bus the E522.46 is also designed to drive cluster applications and a higher number of LED channels. For system setup and diagnostics an I²C interface is used. An internal power management system including a current source shut-off above $T_J = +165°C$ guarantees an appropriate power dissipation of the system.

Ordering Information

<table>
<thead>
<tr>
<th>Ordering-No.:</th>
<th>Temp Range</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>E52246AB84C</td>
<td>-40°C to +105°C</td>
<td>DFN18L5040</td>
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</table>

Typical Application Circuit

Features

- Input voltage range 3.3V to 32V (max. 42V)
- 8-channel I²C programmable Linear LED Driver
- Parallel output operation for up to 200mA
- 8Bit adjustable LED master current 1mA to 26.5mA
- 8Bit PWM based LED luminous intensity level for LED binning calibration
- All LED operating adjustment data and system configurations storable in EEPROM memory
- Global PWM and configurable Analog Dimming
- Adjustable thermal management by chip-temperature based derating of LED currents
- Diagnostic functionalities:
  - OV/UV input voltage monitoring
  - Readable Temperature and LED Forward Voltages
  - Open/Short Load with Single-Short Detection
- I²C interface assigned to:
  - LED parameter settings in EEPROM/Registers
  - Diagnosis feedback
- Operating temperature range -40°C to +105°C
- Full automotive qualification AEC-Q100

Applications

- Automotive LED lighting, rear or stop Light
- Multi-channel panel applications
- Low current interior lighting
- Turn indicator driver
- Industrial LED applications or RGB drivers

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Info Sheet
QM-No.: 25IS0146E.00