1 Features

- Input supply voltage (VIN): 3V~5.5V
  - \( V_{IH} : 1.6V \)
  - \( V_{IL} : 0.8V \)
- LED Driver
  - 8 output channels
  - Drive capability (Constant-Current Sink) from 5mA ~ 150mA
  - Current accuracy ±3% and current balance ±2%
  - maximum CSn voltage (18V)
  - Low operation voltage (500mV ,@ 120mA)
  - minimum on time 400nS (\( Tr < 80nS, Tf < 80nS \))
  - minimum \( V_{FB} \) feedback input and output(with a Gain value 3)
- Input Interface
  - Serial digital interface HSC (High Speed Serial Control)
  - External PWM input
  - Analog Dimming input
  - HSC/PWM mode selection
- Output PWM Control
  - Two operation mode: HSC/PWM
  - HSC mode
    - Dimming frequency range: 40Hz ~ 1.92kHz
    - Dimming resolution: 0.1% (CSn[9:0] = 10d’1)
    - Dimming frequency function: 1x ~ 8x frame rate (frequency of YDIO)
  - PWM waveform selection: front/middle/end alignment
  - PWM phase-shift function (Software type)
  - PWM scanning offset function
- Protection Function
  - LED driver Input under voltage lockout (UVLO)
  - LED Current Sink open circuit protection
  - Thermal overload protection (OTP)
  - LED Current Sink short circuit protection
- Current DAC control function

2 General Description

This specification describes a high constant-current driving, 8-channel, LED Driver with integrated high speed serial control (HSC) for LED backlight. Each channel has an individually adjustable 1024-step grayscale PWM brightness control (HSC mode) or direct controlled by external PWM signal or Analog Dimming signal (external PWM mode).

Ordering Information

<table>
<thead>
<tr>
<th>ORDER NUMBER</th>
<th>MARKING</th>
<th>TEMP. RANGE</th>
<th>PACKAGE (Green)</th>
</tr>
</thead>
<tbody>
<tr>
<td>G5998RA1U</td>
<td>5998</td>
<td>-40°C to +85°C</td>
<td>TQFN5X5-32</td>
</tr>
</tbody>
</table>

Note: RA: TQFN5X5-32
1: Bonding Code
U: Tape & Reel

Pin Configuration

Note: Recommend connecting the Thermal Pad to the Ground for excellent power dissipation.