

# 8-CH Local Dimming LED Driver IC

## 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  $\pm 3\%$  and current balance  $\pm 2\%$
  - ◆ maximum CSn voltage (18V)
  - ◆ Low operation voltage (500mV , @ 120mA)
  - ◆ minimum on time 400nS ( $T_r < 80nS$ ,  $T_f < 80nS$ )
  - ◆ 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
- ◆ External PWM mode
  - Dimming frequency range: 100Hz ~ 25kHz
  - Dimming resolution: 1%
  - PWM phase-shift function (Hardware type)
- ◆ Provide for output channels Parallel
- ◆ Keep unused channel at ground
- 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

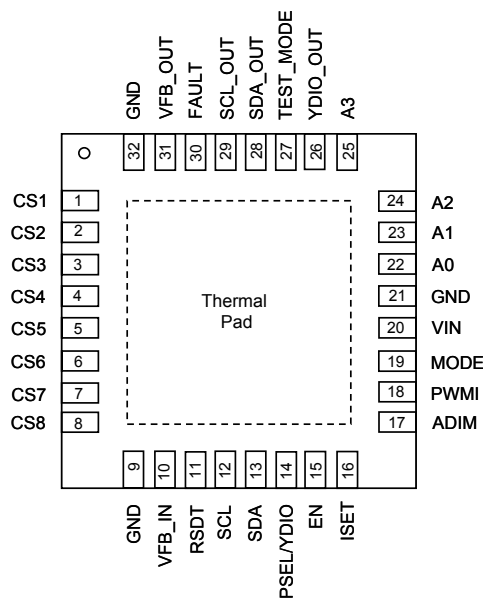
ORDER NUMBER	MARKING	TEMP. RANGE	PACKAGE (Green)
G5998RA1U	5998	-40°C to +85°C	TQFN5X5-32

Note: RA: TQFN5X5-32

1: Bonding Code

U: Tape & Reel

## Pin Configuration



**G5998 TQFN5X5-32**

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