12路LED PWM驱动器

12-CHANNEL LED PWM DRIVER

■ FEATURES

・Input voltage range VCC: 2.5V to 5.5V
・I^{2}C interface, automatic address increment function
・Four selectable I^{2}C addresses (HTR3212F)
・Internal soft reset register
・Modulate LED brightness with 256 steps PWM
・Each channel can be controlled independently
・Each channel can be scaled independently by 1, 1/2, 1/3 and 1/4
・PWM frequency selectable
- 3kHz (default)
- 22kHz
・Pb-free Packages, QFN20L-3×3

・输入电压范围VCC：2.5V-5.5V
・I^{2}C接口，支持连续写数据
・4个I^{2}C地址可选 (HTR3212F)
・内置软件复位寄存器
・每路LED支持256阶 PWM亮度调节
・12路 LED 独立控制
・12路 LED 最大电流独立控制，4档可选
・2档调制频率可选，3kHz(默认)和22kHz
・QFN20L-3×3，无铅封装

■ APPLICATIONS

・Smart Speakers   ・Wireless Speakers
・Mobile phones and other hand-held devices for LED display
・LED in home appliances

・智能音响   ・无线音响
・带LED显示的手机和掌上设备
・家电类LED显示

■ DESCRIPTION

HTR3212 is comprised of 12 constant current channels each with independent PWM control, designed for driving LEDs, PWM frequency can be 3kHz or 22kHz. The output current of each channel can be set at up to 38mA (Max.) by an external resistor and independently scaled by a factor of 1, 1/2, 1/3 and 1/4. The average LED current of each channel can be changed in 256 steps by changing the PWM duty cycle through an I^{2}C interface.

The chip can be turned off by pulling the SDB pin low or by using the software shutdown feature to reduce power consumption.

HTR3212 is available in QFN-20L (3mm×3mm) packages. It operates from 2.5V to 5.5V over the temperature range of -40°C to +85°C.

HTR3212是一款12路LED PWM驱动器，PWM频率可固定为3kHz或22kHz。每一路最大输出电流可通过外置电阻R$_{EXT}$调节，最大38mA，并可独立控制4档可选。每一路可通过I^{2}C单独控制256级细腻亮度调节。

主控器件通过I^{2}C接口对HTR3212进行编程控制，通过将SDB脚拉低或软件设置可关断芯片，进入低功耗模式。

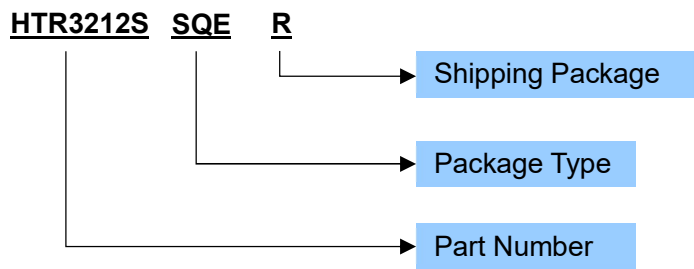HTR3212使用QFN-20L(3mm×3mm)封装。工作电压在2.5V到5.5V，可在-40°C to +85°C工作。
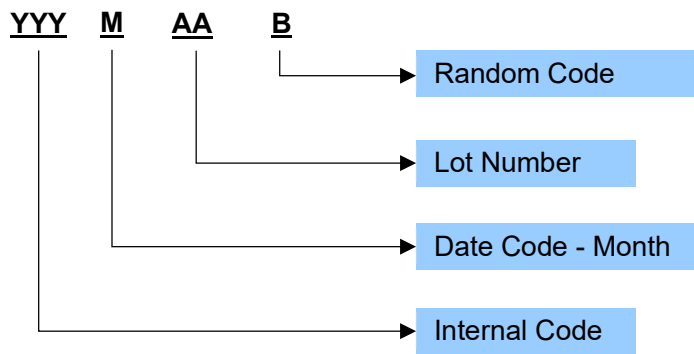
■ TYPICAL APPLICATION
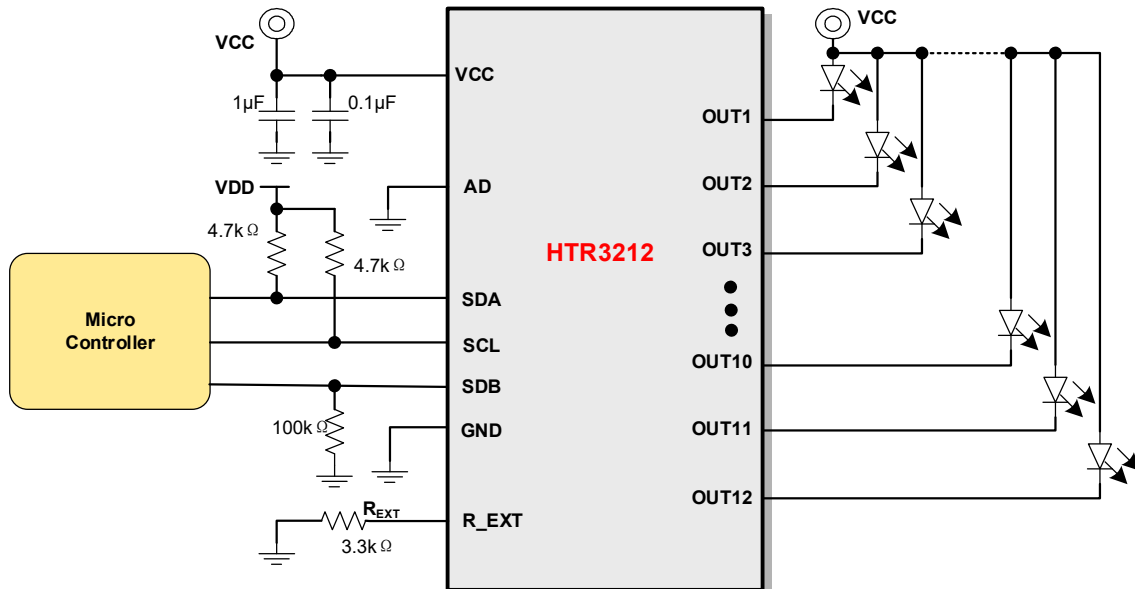
■ ORDERING INFORMATION

| Ordering Number	Package Type	Marking	Operating Temperature Range	Shipping Package / MOQ
HTR3212FSQER	QFN20L-3×3	HTR3212F YYYMAAB[1]	-40℃～85℃	Tape and Reel / 5000pcs
HTR3212SSQER	QFN20L-3×3	HTR3212S YYYMAAB	-40℃～85℃	Tape and Reel / 5000pcs

Ordering Number

HTR3212S SQE R

→ Shipping Package

→ Package Type

→ Part Number

Production Tracking Code

YYY M AA B

→ Random Code

→ Lot Number

→ Date Code - Month

→ Internal Code

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[1] YYYMAAB is production tracking code

■ TERMINAL CONFIGURATION
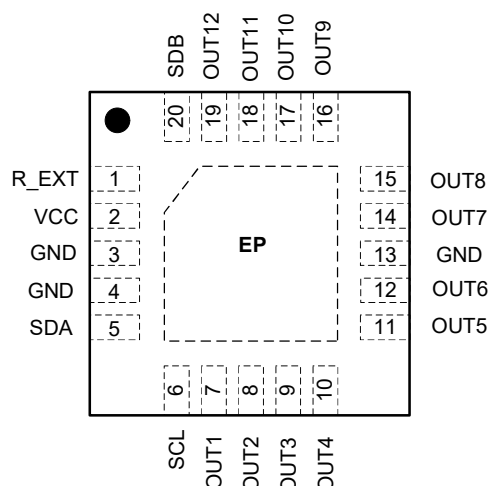
HTR3212S Top View
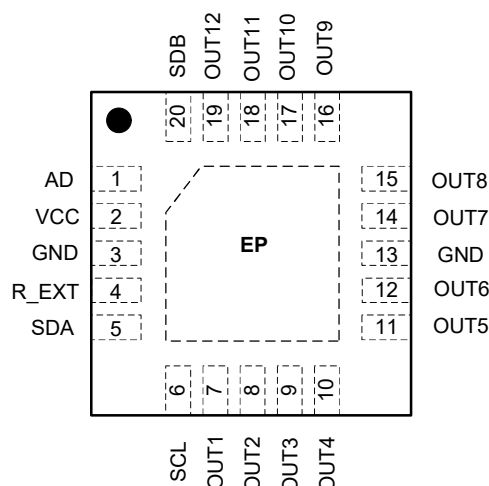
HTR3212F Top View

■ TERMINAL FUNCTION

Terminal No.		Name	Description
HTR3212S	HTR3212F		
/	1	AD	I²C address setting. I²C器件地址选择
2	2	VCC	Power supply. 电源输入端，接0.1uF和1uF电容到地
3,4,13	3,13	GND	Ground. 地
1	4	R_EXT	Input terminal used to connect an external resistor. This regulates the global output current. 每一路通道最大电流 I_{MAX}控制引脚，外接R_{EXT}电阻到地，$I_{MAX} = 63.3 \times \frac{1.2V}{R_{EXT}}$
5	5	SDA	I²C serial data. I²C时钟，需接上拉电阻（建议4.7k），1.8V/3.3V系统均可使用
6	6	SCL	I²C serial clock. I²C数据，需接上拉电阻（建议4.7k），1.8V/3.3V系统均可使用
7~12	7~12	OUT1~OUT6	Output channel 1~ 6 for LEDs. 输出通道1~6
14~19	14~19	OUT7~OUT12	Output channel 7~ 12 for LEDs. 输出通道7~12
20	20	SDB	Shutdown the chip when pulled low. 关断芯片，低电平有效。需接100k下拉电阻，使开机默认为低电平的GPIO控制。芯片关断后，I²C仍可对寄存器进行写操作。
/	/	Exposed Thermal Pad	Connect to GND. 接地散热。

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