



LED Drivers Power Solutions

GENERAL FEATURES

- Wide V_{IN} range: 4.5V to 45V
 - Guarantees flicker free operation
- V_{OUT} up to 65V
 - Higher voltage minimizes number of LED strings
- Up to 240mA per Channel +/- 2% matching
 - Provides uniform brightness across all LEDs
- Advanced dimming control
 - Phase shifted operation lowers output voltage ripple
 - Reduces output capacitor size
 - PWM dimming up to 50kHz
- Enable ultra-thin displays
 - Up to 10x smaller inductor size
- AEC-Q100 qualified solutions

APPLICATIONS

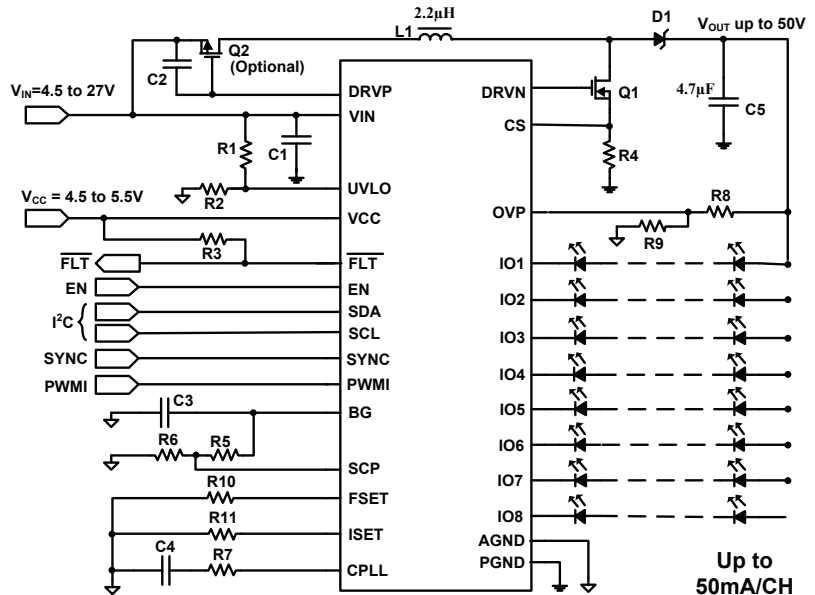
- Displays in:
 - Automotive
 - Industrial
 - Computing
 - Consumer
- High brightness displays up to 12.4"



LED Driver ICs

POWER MANAGEMENT SOLUTIONS

Semtech designs and manufactures an extensive line of LED driver ICs for LCD display backlight and LED camera flash applications. They include inductor-based boost LED drivers for series-connected LEDs and charge pump LED drivers and low-dropout current sinks for parallel-connected LEDs. Each LED Driver topology is designed for optimal high efficiency in the smallest footprint with accurate current regulation, low noise, and a wide dimming range.



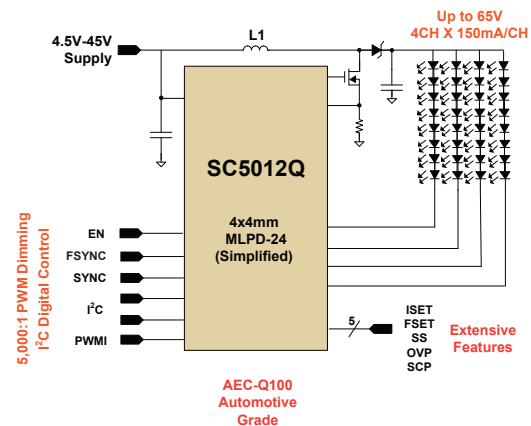
LED Driver Typical Application Schematic

SC5012Q HIGH BRIGHTNESS 4-CHANNEL 150mA/CH. LED DRIVER WITH PHASE-SHIFTING**FEATURES**

- V_{IN} 4.5V to 45V
- V_{OUT} up to 65V
- 2.2 μ H inductor
- Up to 150mA/Channel
- Adj Switch frequency 200kHz-2.2MHz
- Channel matching: \pm 1%
- PWM dimming (100Hz-30kHz)
- 9 or 10 Bit dimming resolution
- Phase shifted operation
- Optional VSYNC / HSYNC / FSYNC
- I²C Control / Configuration
- 6 μ A Shutdown current
- Extensive protection (Adj OVP, OCP, UVLO, Open/Short LED)
- 4x4mm, QFN-24
- “Q” is AEC-Q100, Grade-2, qualified version

BENEFITS

- Prevents false registering of short circuit fault
- Enables ultra-thin display panels
- Eliminates audible noise and waterfall effect, reduces EMI
- Dimming profile is smooth with no visible steps
- I²C interface
- Low quiescent current

**High Brightness Backlighting Product Summary & Ordering Info**

Part #	# CHs	I/Ch (mA)	Vin (V)		Auto Grade	Features	Package (mm)	Std Reel Qty
			Min	Max				
SC441ATETRT	4	150	4.5	21	3	500:1, PWM dimming, low power dissipation	TSSOP-20	2,500
SC442ULTRT	10	30	4.5	21	-	External Sync, PWM dimming, extensive protection	MLPQ-28 (4x4)	3,000
SC443ULTRT	3	30	4.5	27	-	+/- 1% string to string current matching, programmable switching frequency	MLP-UT-16 (3x3x0.6)	3,000
SC445TETRT / SC445QTERT	4	150	4.5	27	2	Feed forward compensation => smaller input caps, PWM dimming	TSSOP-20	2,500
SC446TETRT	3	100	4.5	27	-	500:1 PWM dimming, greater than 90% efficiency	TSSOP-16	2,500
SC4541SKTRT	1	100	2.9	22	-	Buck or Boost operation, integrated Schottky, high side sense	SOT23-6	3,000
SC5010HULTRT	8	50	4.5	27	-	I ² C, VSYNC, 5000:1 Phase shifted PWM dimming	MLPQ-28 (4x4)	3,000
SC5012MLTRT / SC5012QMLTRT	4	150	4.5	45	2	I ² C, FSYNC, 5000:1 Phase shifted PWM dimming	QFN-24 (4x4)	3,000
SC5014MLTRT	4	120	4.5	27	2	I ² C, Phase shifted PWM dimming	QFN-20 (4x4)	3,000
SC5014AMLTRT	2	240	4.5	27	2	I ² C, 5000:1 PWM dimming ratio	QFN-20 (4x4)	3,000



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