

4-channel current source for high power white LEDs

Data brief

Features

- Input voltage range from 2.7 V to 5.5 V
- 4 current sources drive 4 LEDs up to 2.5 A each
- Separate current regulation for each channel
- Operational modes:
 - Standby mode
 - Flash mode: up to 10 A total
- Total flash current adjustable from 1 A to 10 A
- 10% current accuracy
- LED short-circuit detection and protection
- Chip overtemperature detection and protection

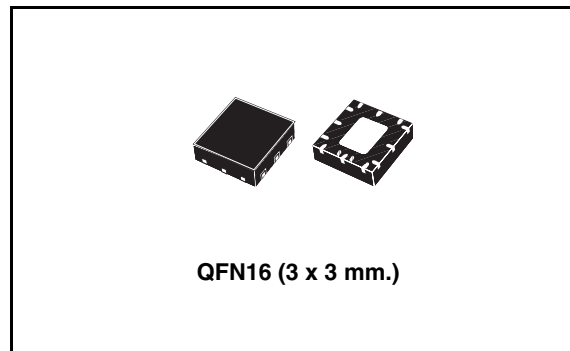
Applications

- High-end cell phones and smart phones
- High power camera flashe using SuperCap technology
- PDAs and digital still cameras
- High brightness white LEDs

Description

The STCS44 is a dedicated and space optimized solution for controlling the current of high power white LEDs in camera phones, PDAs and other hand-held devices.

It is capable of controlling the current of 4 independent white LEDs with a maximum current of 2.5 A each using linear control. However at 10 A of total current, the power dissipation reaches very high values. Therefore, the operation of the device must be limited to a short period of time.



This makes the device specifically suitable for flash light applications. Continuous current control can be maintained if the power dissipation limit is not exceeded.

The operation is based on closed loop architecture capable of comparing the voltage of a sensing resistor to an external voltage reference. This ensures good current regulation over the forward voltage spread characteristics of the flash LEDs.

It includes several functions to protect the chip and the power LEDs. These include chip overtemperature detection and protection, shorted LEDs detection and protection.

The STCS44 is optimized and designed as a companion chip for the STCF04 device, which is a high current SuperCap flash led driver. The STCS44, together with STCF04, creates a high-power flash LED function with minimal application area.

The device is packaged in a 3 x 3 mm QFN package with 1 mm height.

Table 1. Device summary

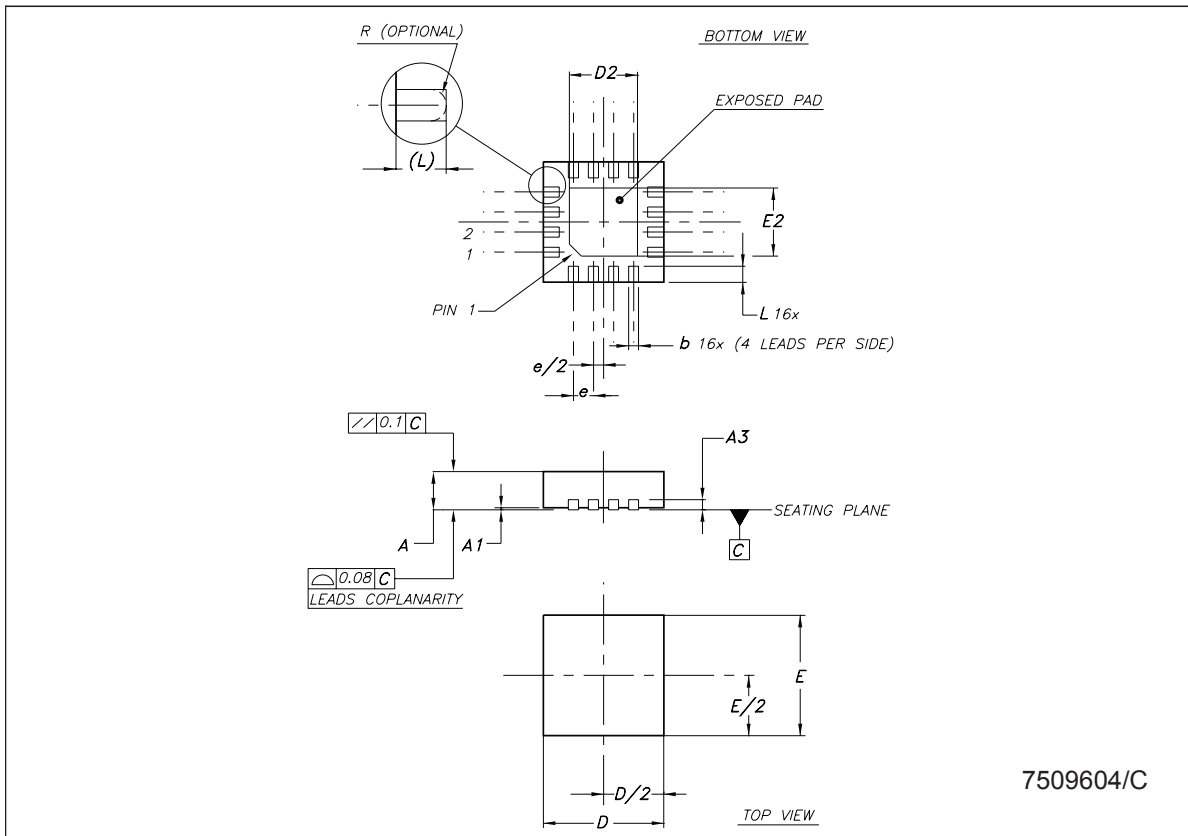
Order code	Package	Packaging
STCS44PQR	QFN16 (3 x 3 mm.)	2500 parts per reel

1 Package mechanical data

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: www.st.com. ECOPACK is an ST trademark.

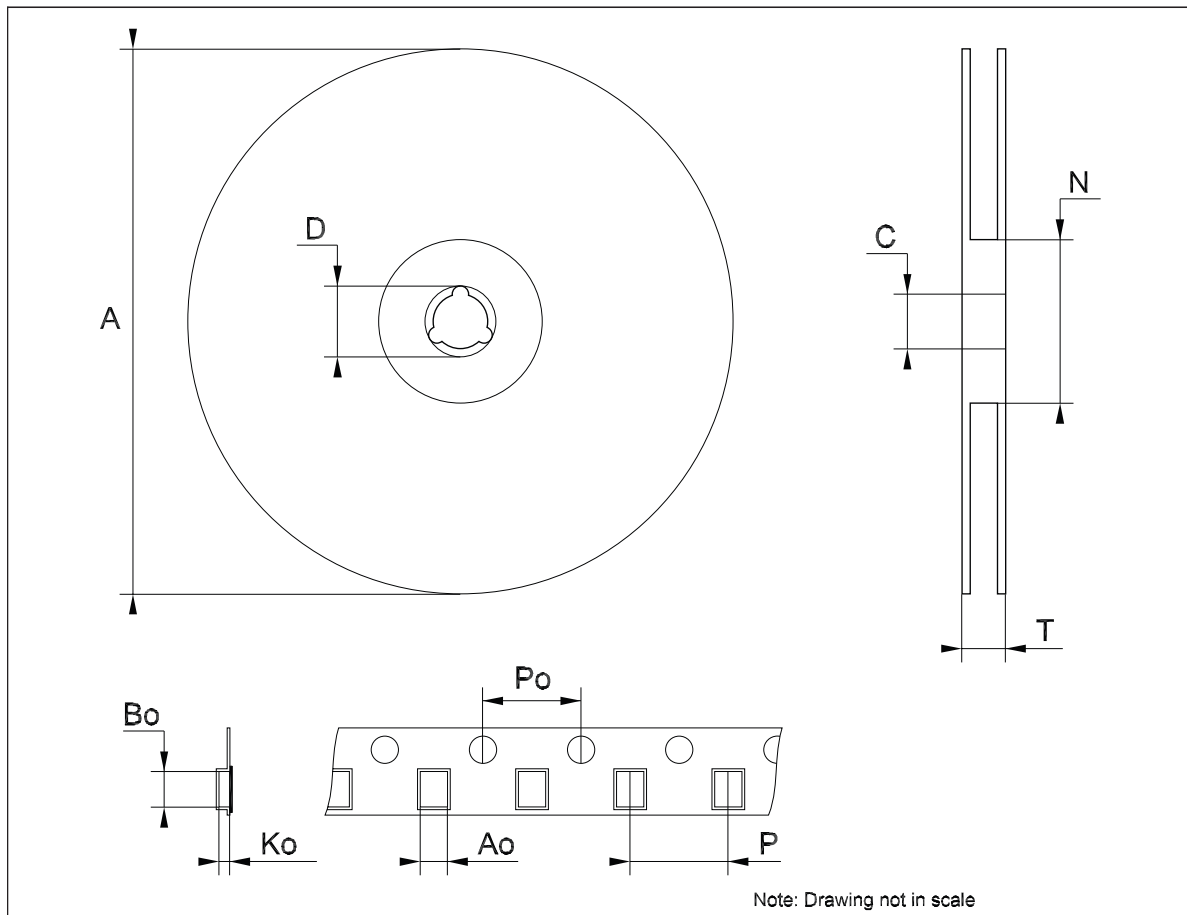
QFN16 (3 x 3 mm.) mechanical data

Dim.	mm.			inch.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.80	0.90	1.00	0.031	0.035	0.039
A1	0		0.05			0.002
A3		0.20			0.008	
b	0.18		0.30	0.007		0.012
D	2.90	3.00	3.10	0.114	0.118	0.122
D2	1.50		1.80	0.059		0.071
E		3.00			0.118	
E2	2.90	3.00	3.10	0.114	0.118	0.122
e		0.50			0.020	
L	0.30		0.50	0.012		0.020



Tape & reel QFNxx/DFNxx (3 x 3 mm.) mechanical data

Dim.	mm.			inch.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			180			7.087
C	12.8		13.2	0.504		0.519
D	20.2			0.795		
N	60			2.362		
T			14.4			0.567
Ao		3.3			0.130	
Bo		3.3			0.130	
Ko		1.1			0.043	
Po		4			0.157	
P		8			0.315	



2 Revision history

Table 2. Document revision history

Date	Revision	Changes
24-Mar-2009	1	First release.

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