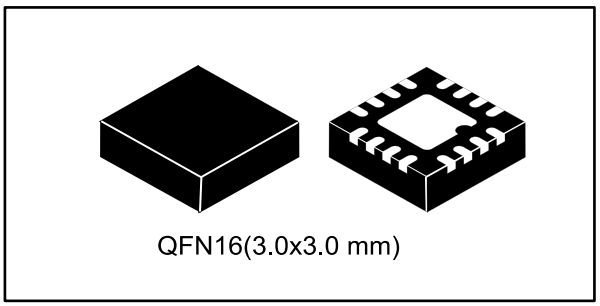
STOD32A

300 mA triple DC-DC converter for powering AMOLED displays

Data brief



Features

- Operating input voltage range from 2.5 V to 4.5 V
- 300 mA output current for step-up and inverting converters (V_{IN} > 2.9 V)
- 55 mA output current for an auxiliary step-up converter (V_{IN} > 2.9 V)
- 4.6 V positive step-up converter
- Programmable negative voltage from - 0.8 V to - 4.8 V default -4.0 V
- Auxiliary step-up converter positive voltage programmable step from 5.8 V to 7.9 V default 7.6 V
- Soft-start with inrush current protection
- Overtemperature protection
- True-shutdown mode
- Short-circuit protection
- Package QFN16 (3.0x3.0 mm), 0.5 mm pitch

Applications

- Active matrix OLED power supply in portable devices
- Cellular phones, multimedia players, camcorders and digital still cameras

Description

The STOD32A is a triple DC-DC converter for AMOLED display panels. It integrates 300 mA step-up and inverting DC-DC converters plus auxiliary step-up converter. This device is particularly suitable for battery-operated products, in which the major concern is overall system efficiency. Output voltages can be programmed by a dedicated pin, which implements S_{WIRE} protocol. Soft-start with controlled inrush current limit, thermal shutdown and short-circuit protection are integrated functions of the device.

1 Application schematic

Figure 1: Application schematic

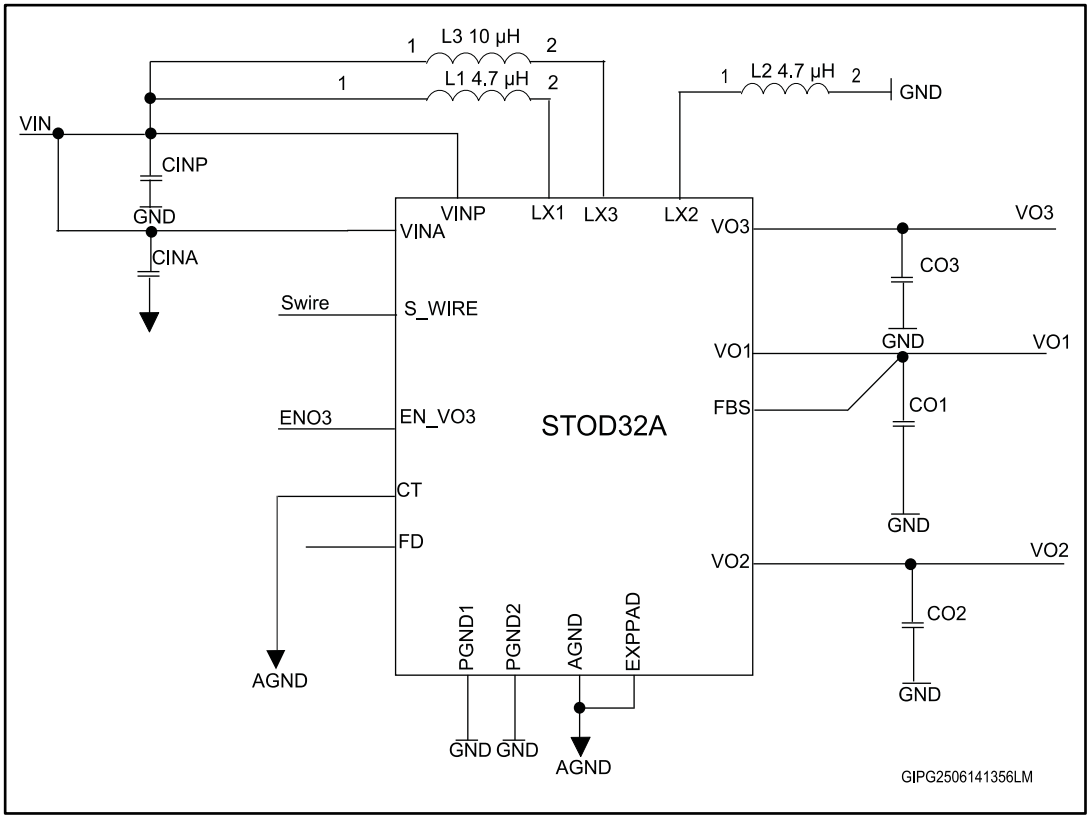


Table 1: Typical external components

Component	Manufacturer	Value	Size
L_1, L_2, L_3	TOKO ALPS COILCRAFT	4.7 µH	2.5x2.0x1.2 2.5x2.0x1.2 4.0x4.0x1.2
C_{INA}, C_{INP}, C_{O2}, C_{O3}	MURATA SEMCO	22 µF 10 µF	0805 0402 0603

2 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.

3 QFN16 (3.0x3.0 mm) package mechanical data

Figure 2: QFN16 (3.0x3.0 mm) drawings

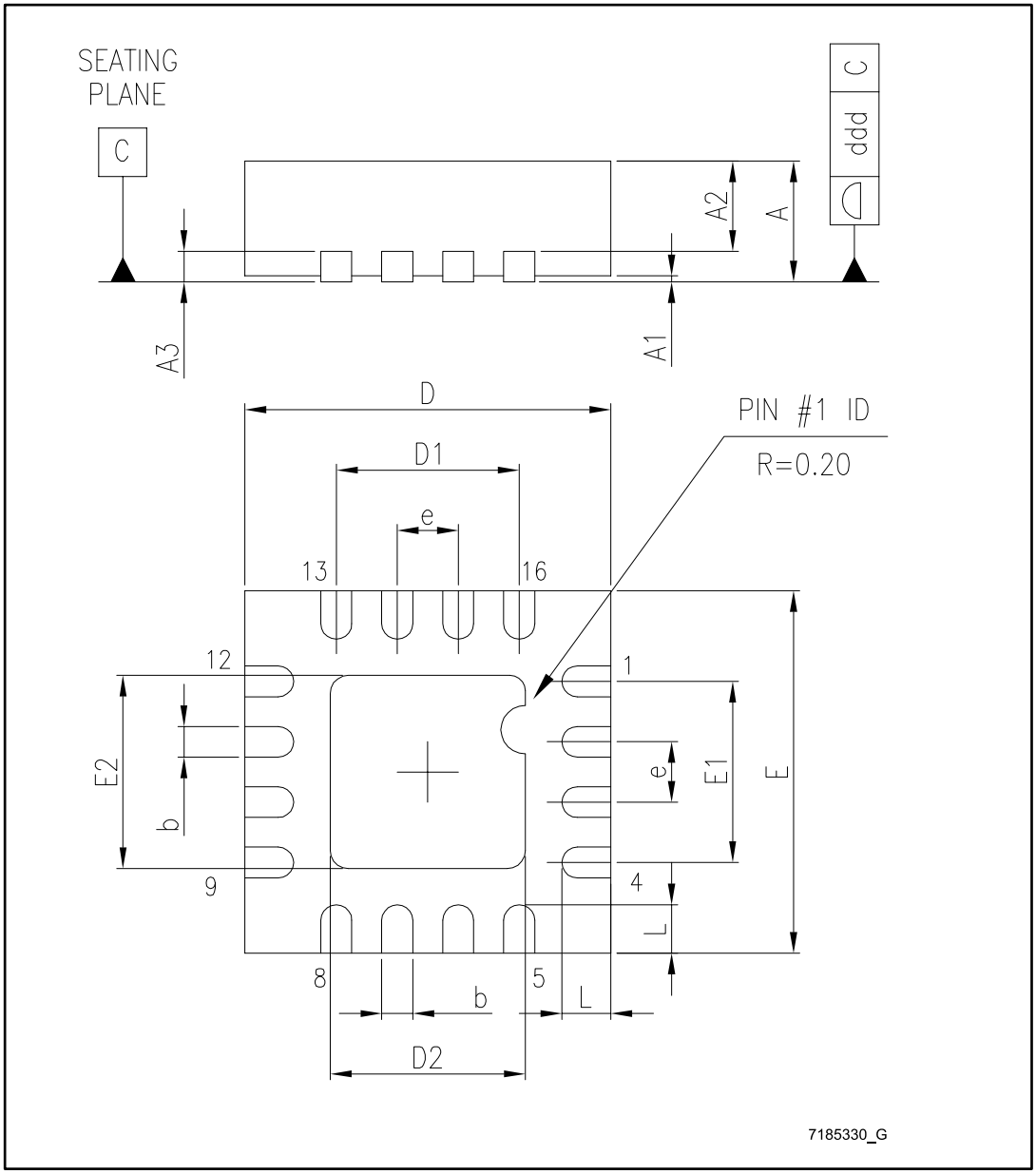
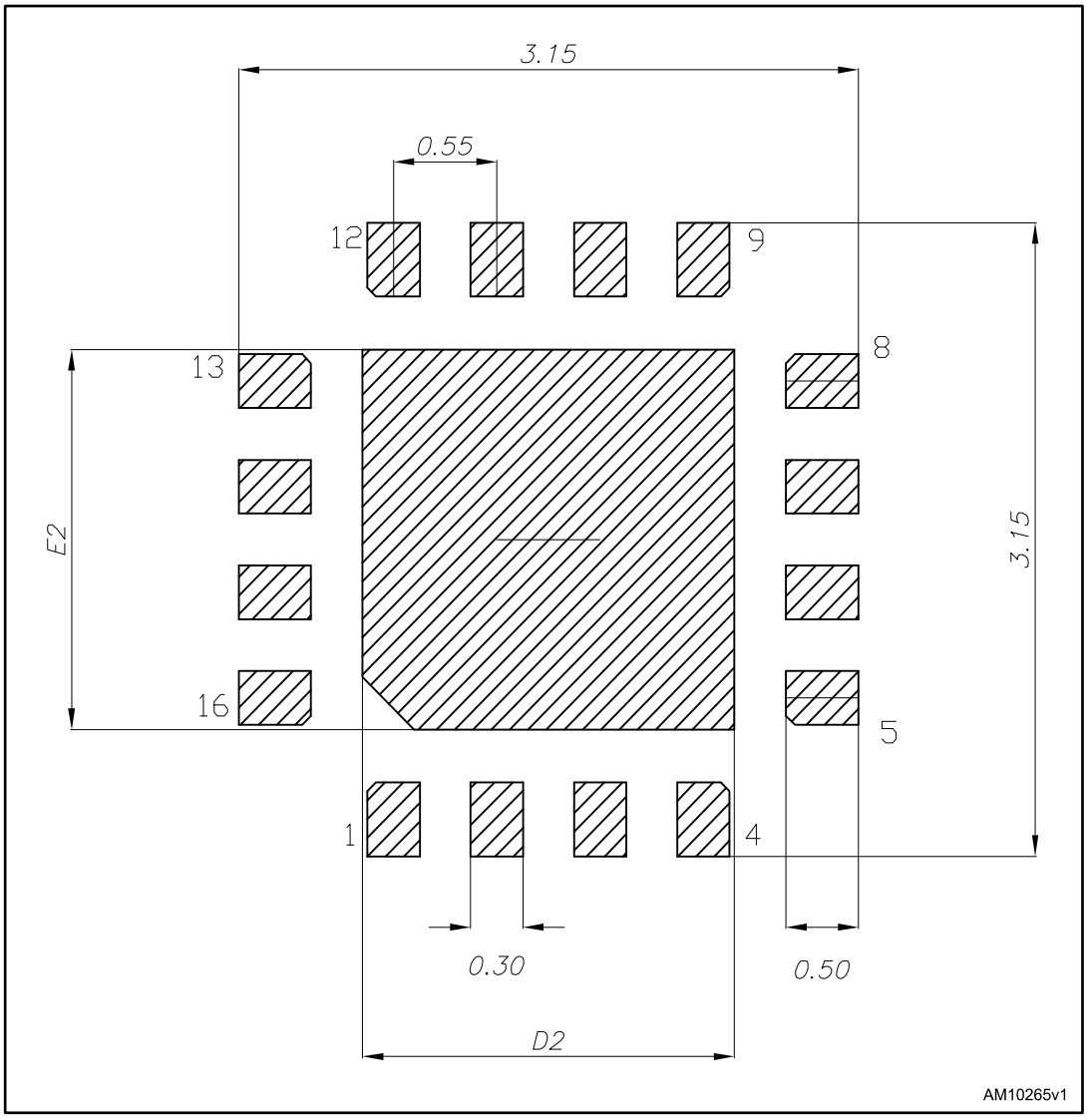


Table 2: QFN16 (3.0x3.0 mm) mechanical data

Dim.	mm		
	Min.	Typ.	Max.
A	0.49	0.55	0.61
A1	0.17	0.20	0.23
A2	0.27	0.30	0.33
b	0.23	0.26	0.29
D	1.68	1.71	1.74
D1		1.20	
E	1.588	1.618	1.648
E1		0.80	
e		0.40	
fD		0.255	
fE		0.409	
SD		0.20	
ccc		0.08	
$		0.05	

Figure 3: QFN16 (3.0x3.0 mm) recommended footprint



All dimensions are in mm

4 Ordering information

Table 3: Ordering information

Order code	Positive voltage	Negative voltage	Auxiliary positive voltage	Package	Packing
STOD32ATPQR	4.6 V	-0.8 to 4.8 V	5.8 to 7.9 V	QFN16 3x3 mm	3000 samples per reel

5 Revision history

Table 4: Document revision history

Date	Revision	Changes
16-Jul-2014	1	Initial release.

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