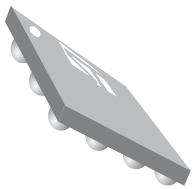
STOD32W

100 mA triple DC-DC converter for powering AMOLED displays

Data brief



Flip Chip 12 (1.618 x 1.710 mm)

Features

- Operating input voltage range from 2.9 V to 4.5 V
- 100 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 - 4.6 V default -3.0 V
- Auxiliary step-up converter positive voltage programmable step from 6.6 V to 7.6 V default 7.0 V
- Soft-start with inrush current protection
- Overtemperature protection
- True-shutdown mode
- Short-circuit protection
- Package Flip Chip 12 bumps (1.618 x 1.710 mm), 0.4 mm pitch

Applications

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

Description

The STOD32W is a triple DC-DC converter for AMOLED display panels. It integrates 100 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. The auxiliary step-up positive output voltage is also configured by an external pull-down resistor. Soft-start with controlled inrush current limit, thermal shutdown and short-circuit protection are integrated functions of the device.

Contents

1 Application schematic

Figure 1: Application schematic

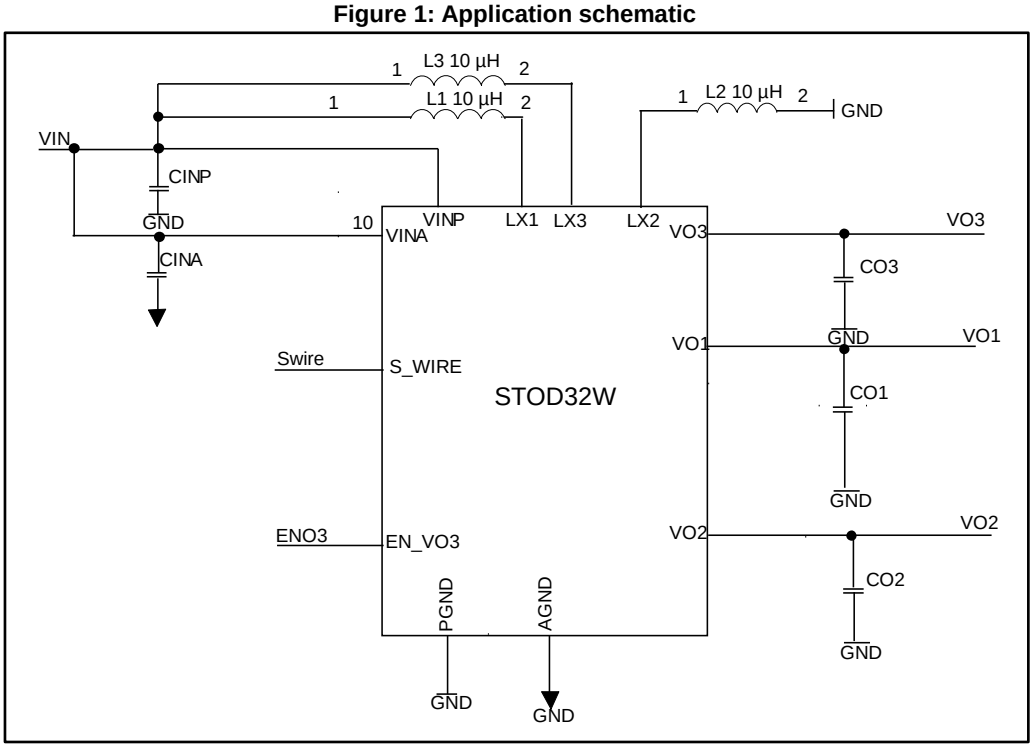


Table 1: Typical external components

Component	Manufacturer	Part Number	Value	Size	Ratings
L1, L2, L3	TOKO CYNTEC TDK	1239AS-H-100N=P2 PITB20161T-100MDR MLZ1608N100L	10 µH	2520 1.2T 2016 1.0T 1608 0.8T	1.0 A 0.460 Ω 0.8 A 0.750 Ω 0.3 A 0.780 Ω
CINA, CINP, CO1, CO2, CO3	SEMCO	CL10A226MP8NUN CL05A106MP5NUN	22 µF 10 µF	1608 1005	X5R 10 V ±20%

All the above components refer to the typical application performance characteristics. Operation of the device is not limited to the choice of these external components.

2 Package information

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.

2.1 Flip Chip 12 (1.618 x 1.710 mm) package information

Figure 2: Flip Chip 12 (1.618 x 1.710 mm) package outline

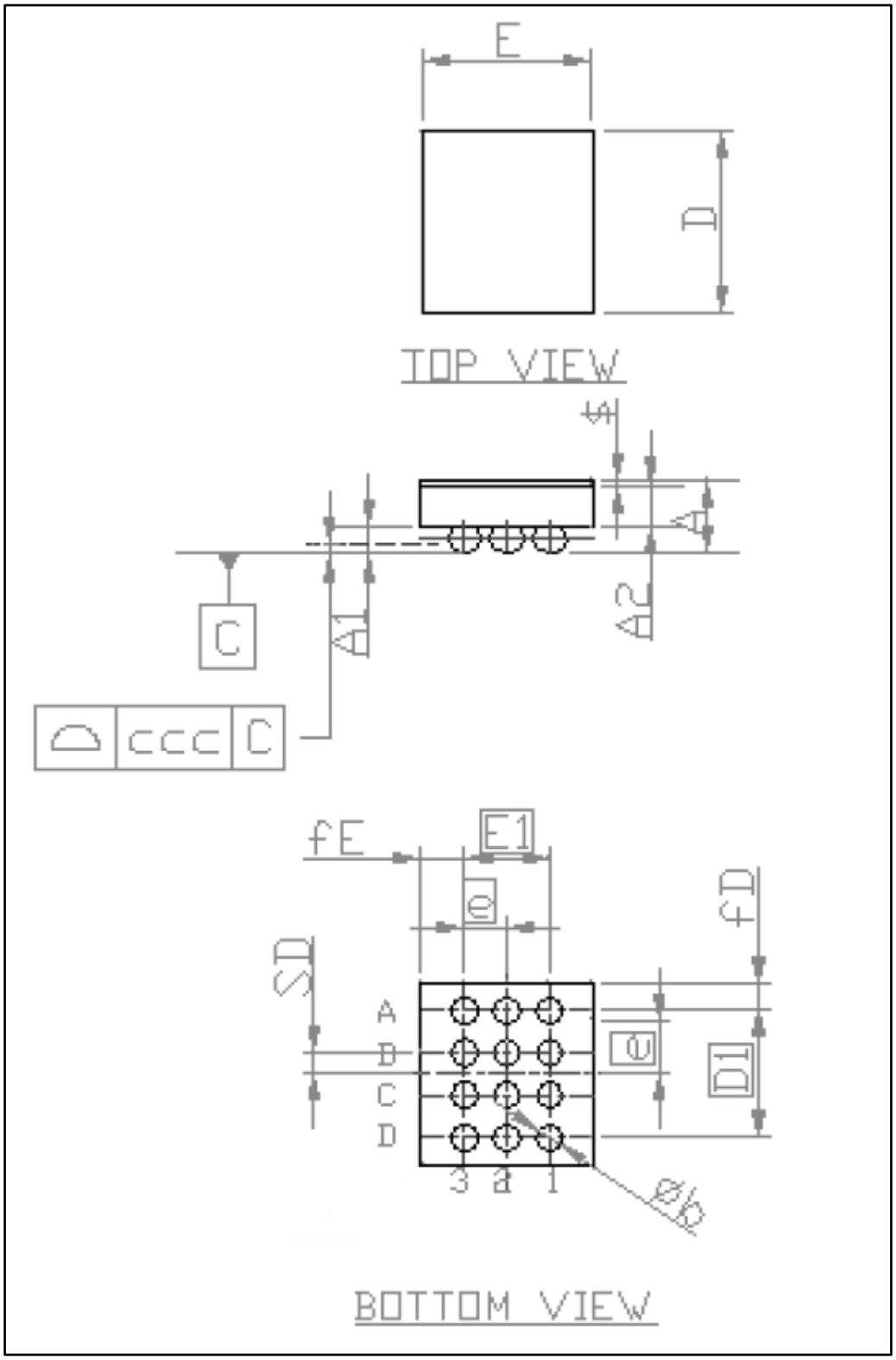
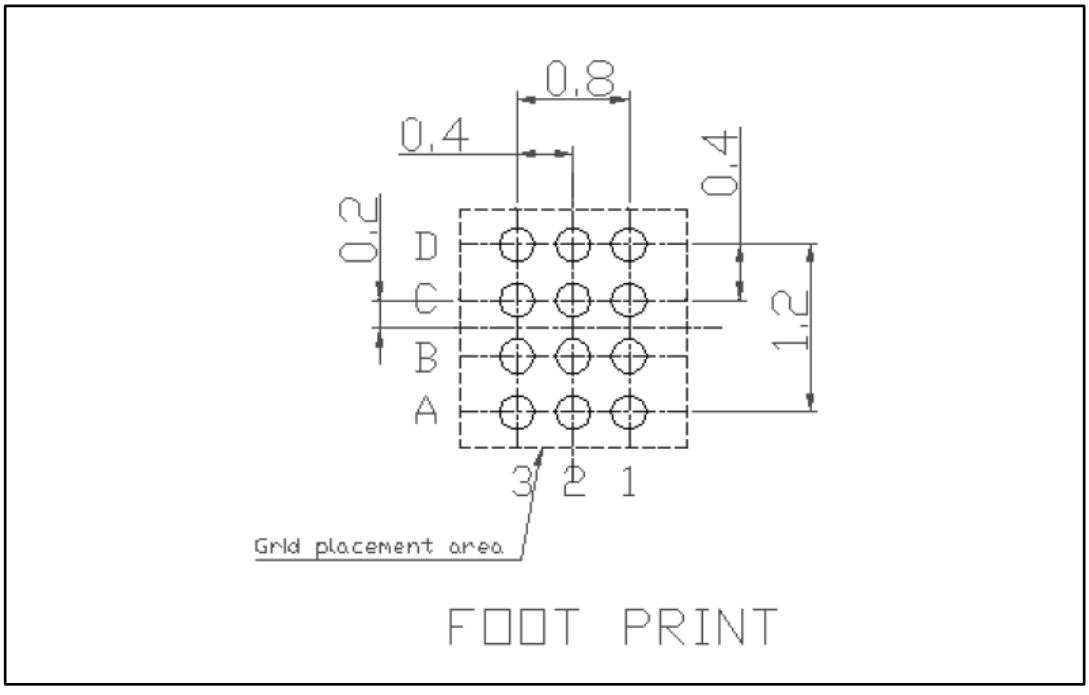


Table 2: Flip Chip 12 (1.618x1.710 mm) package mechanical data

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: Flip Chip 12 (1.618x1.710 mm) recommended footprint



All dimensions are in mm.

3 Ordering information

Table 3: Ordering information

Order code	Negative voltage	Auxiliary positive voltage	Package	Packing
STOD32WJR	-0.8 to -4.6 V	6.6 to 7.6 V	Flip Chip 12 (1.618 x 1.710 mm)	5000 samples per reel

4 Revision history

Table 4: Document revision history

Date	Revision	Changes
04-Jun-2014	1	Initial release.
21-Sep-2015	2	Updated the figure titled “Application schematic” and the table titled “Typical external components”.

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