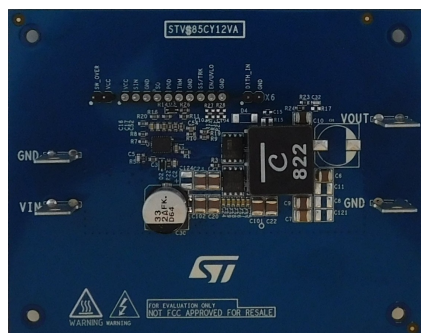


Evaluation board based on DC-DC converter buck regulator with DCP85CY controller



Features

- AEC-Q100 Grade 1 qualified
- Wide 5.5 to 85 V input voltage range
- Step down (buck) conversion
- Selectable two output voltage level 5 or 12 V
- 15 A DC max output current (20 A with air flow)
- 400 kHz switching frequency setting selectable
- Pulse skipping or forced PWM operation at light load selectable
- Synchronization to external clock
- Voltage motor control loop
- Power-good open collector output validates VOUT
- Dithering with external clock
- Switch over selectable
- Constant current protection with hiccup mode
- Current sensing on rds-on LowSide
- Thermal protection
- Four layer board 100 x 80 mm
- Operating temperature range: -40°C to 150°C
- RoHS and China RoHS compliant
- WEEE compliant (2012/19/UE RAEE II)

Description

The **STEVAL-85CY12V** evaluation board is a step-down switching power supply based on the **DCP85CY** controller. It operates over an input voltage range from 5.5 to 85 V and supports a high-voltage conversion ratio at the switching frequency.

The **STEVAL-85CY12V** uses two external VTH MOSFETs and operates at 400 kHz. The switching frequency can be selected and synchronized with an external clock.

By using external jumpers, it is possible to easily select the output voltage (5 or 12 V), the light-load operating mode (diode emulation or forced PWM mode), the switch-over feature, and the turn on and off the system.

The maximum output is 15 A with $V_{out} = 5$ V, but it can reach 20 A by adjusting the OCP threshold and using light airflow.

With a single-row connector, it is possible to monitor external signals such as power-good and sync out, or to access drive signals for synchronization, dithering, enable, and soft-start functions. The **STEVAL-85CY12V** is based on the **DCP85CY** DC-DC step-down controller, a voltage-mode device in a QFN-20 package, 3.5×4.5 mm.

It offers selectable switching frequency, soft-start time, and overcurrent protection (hiccup mode), with current sensing based on the low-side $R_{DS(on)}$.

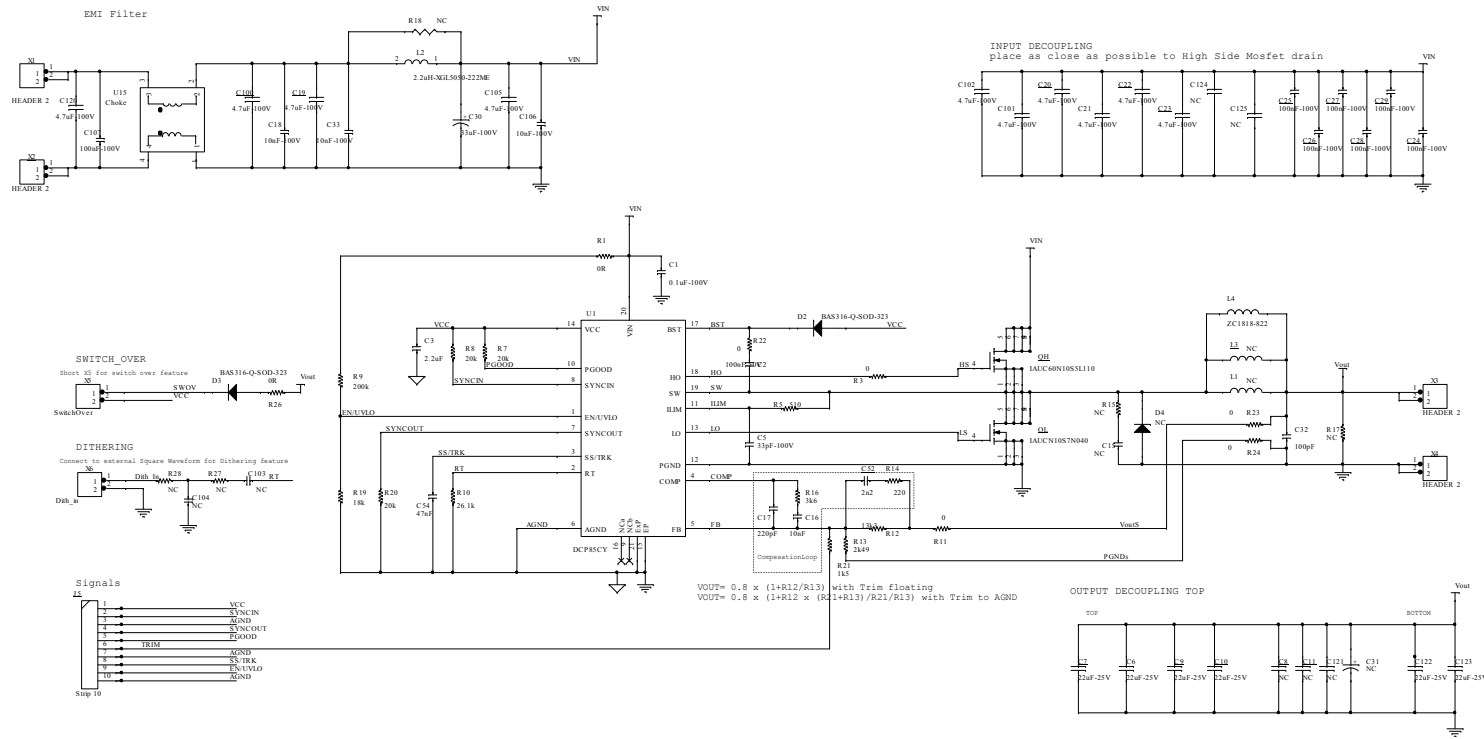
It also includes thermal monitoring and thermal shutdown at 175°C, enabling controlled and safe operation for automotive applications, unregulated 24 and 48 V input buses, and high-voltage battery to 12 and 5 V rails.

Product summary

Evaluation board based on DC-DC converter buck regulator with DCP85CY controller	STEVAL-85CY12V
DC-DC step-down controller, a voltage-mode device in a QFN-20 package	DCP85CPUR
Applications	Telecom system power Networking Automotive Systems Failsafe systems Unregulated 24 and 48 V input voltage bus

Schematic diagrams

Figure 1. STEVAL-85CY12V circuit schematic



3 Board versions

Table 1. STEVAL-85CY12V versions

Finished good	Schematic diagrams	Bill of materials
STEVAL\$85CY12VA ⁽¹⁾	STEVAL\$85CY12VA schematic diagrams	STEVAL\$85CY12VA bill of materials

1. This code identifies the STEVAL-85CY12V evaluation board first version.

Revision history

Table 2. Document revision history

Date	Revision	Changes
22-Oct-2026	1	Initial release.

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