
EREBUS® TECHNOLOGY

Product Brief

Version: 1.1

8-Mar-11

High-temperature DC-DC Converter Platform

General Description

EREBUS® technology is a turnkey non-isolated DC-DC converter platform offering ultimate reliability and extreme operating temperature range **from -55°C to +225°C**. It implements a voltage mode, constant frequency and continuous current mode (CCM) synchronous buck converter topology. The technology package from CISSOID provides a flexible and scalable reference design and an evaluation board for non-isolated DC-DC converters applications such as switched-mode power supplies and point-of-loads, with high-efficiency on the whole temperature range from -55°C to +225°C.

Compared to CISSOID' VESUVIO® technology, EREBUS® brings a wider voltage input range (40V or 50V max.), a scalable output current (from 2A to 8A) as well as protection against short circuit on the output.

EREBUS® is built around CISSOID's chip-set CHT-MAGMA & CHT-HYPERION (PWM controller and half-bridge driver) plus some high-temperature MOSFETs from the CISSOID' PLANET family. The bill of materials also includes a CHT-555 timer and two additional small-signal transistors which implement the short-circuit protection stage. This stage can be removed by the user if not needed.

The EREBUS® technology is available under license from CISSOID. The evaluation board is available in 2 versions: with a 40V or 50V maximum input voltage. The output is set to a 5V voltage with 2A current capability. The design is scalable by replacing MOSFET transistors, increasing the current capability to 4A (and up to 8A for EVK-EREBUS-40). The output voltage can easily be modified by the user to fit different needs.

EREBUS® Technology Kit Content:

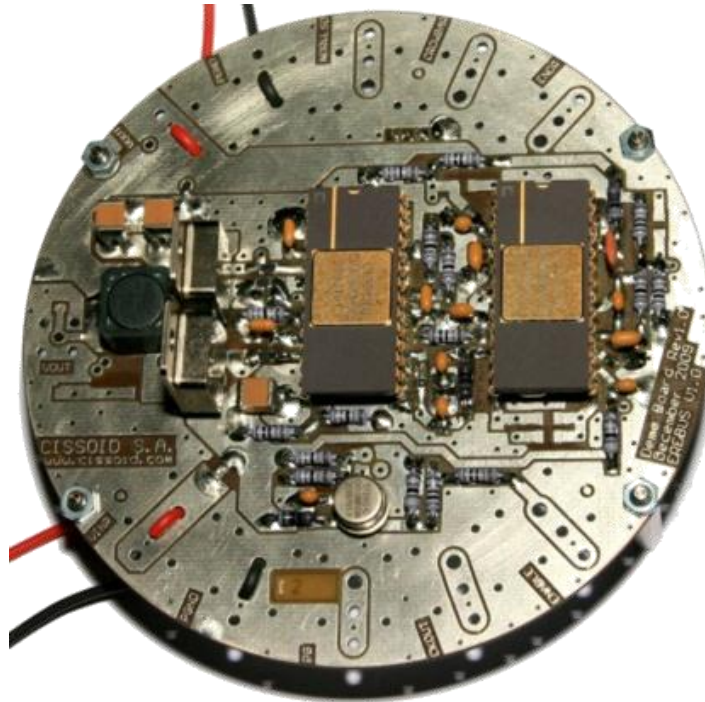
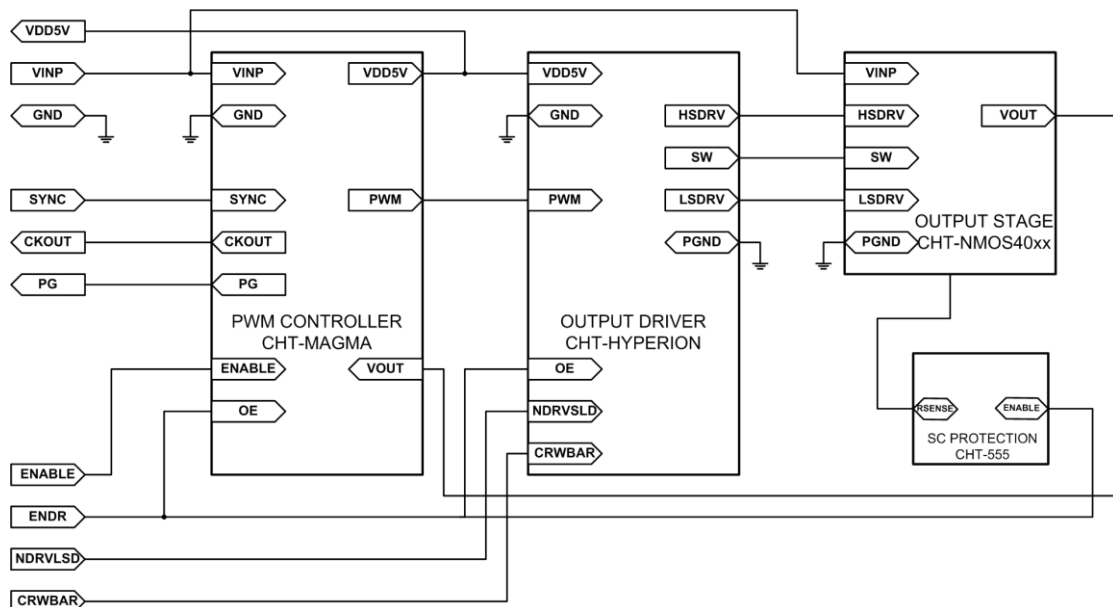
- One EVK-EREBUS-x0 Eval-Board:
 - Qualified from -55 to +175°C (Ta)
 - 200°C Polyimide PCB
 - Active components all qualified from **-55 to +225°C (Tj)**
- Data-sheet
- Detailed electrical schematics
- Bill-of-Material
- Application Note
- User's License
- 5 hours of engineering support

Evaluation Board - Key Features

- **Input voltage range:**
 - EVK-EREBUS-40: **12V to 40V**
 - EVK-EREBUS-50: **12V to 50V**
- **Output voltage: +5V** (other voltages possible thru customization)
- **Max. output current: 2A** (scalable to 4A and 8A)
- Switching frequency: 230kHz
- Soft start for inrush current limitation
- Clock synchronization input & output
- Short-circuit protection
- Efficiency: up to 85% at maximum power at room temperature
- Bill of Material:
 - Resistors (1/8W): 36 pcs
 - Capacitors (up to 22µF): 32 pcs
 - 33µH inductor: 1 pc
 - CISSOID: 3 ICs and 4 MOSFET
- PCB Dimension: Φ 100mm [4.2"]

Applications

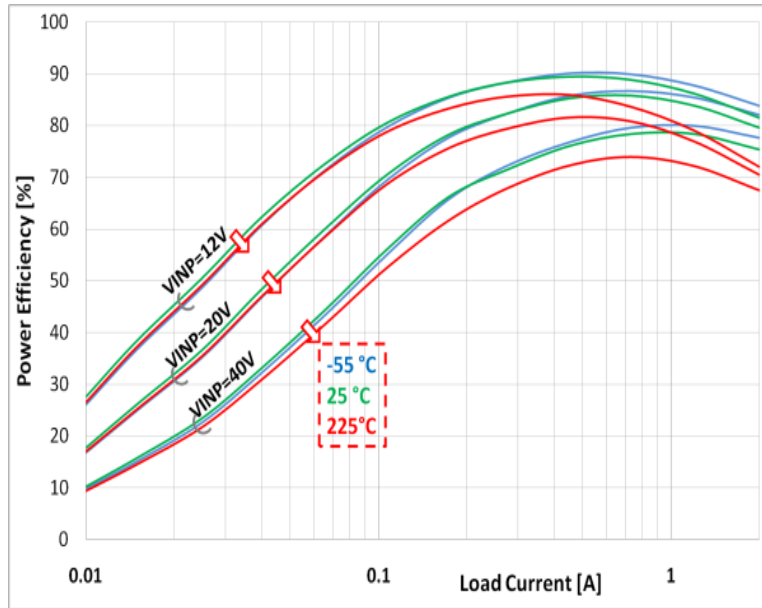
- Distributed power architectures in aeronautics, aerospace, industrial and military electronic systems:
 - PoL (Point of Loads)
 - PDU (Power Distribution Units)
- SMPS power supplies in down-hole tools such as MWD and equipment

Evaluation Board
EVK-EREBUS-40 / 50 Evaluation Board

Functional Block Diagram


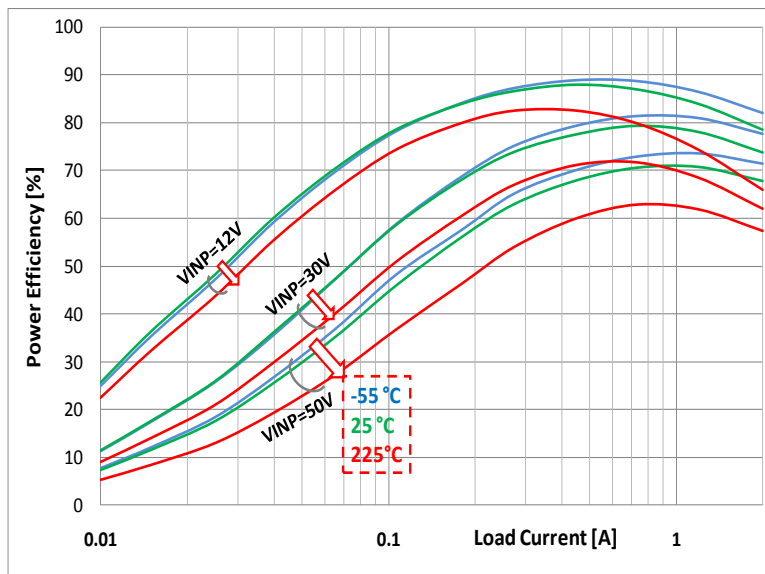
EREBUS® DC-DC Converter Technology is based on a synchronous buck architecture which provides voltage step-down capability with high efficiency compared to traditional voltage regulator solutions.

Efficiency

Efficiency vs. Load current at -55°C, 125°C and 225°C (junction) for various input voltages and $V_{out}=5V$:



EVK-EREBUS-40



EVK-EREBUS-50

Contact & Ordering

Ordering Information

DESCRIPTION	ORDER NUMBER
IP EREBUS®: High-temperature non-Isolated DC-DC Converter Technology - Voltage input range 12V to 40V – The package includes one evaluation Board, documentation and user's license.	LIC-EREBUS-40
IP EREBUS®: High-temperature non-Isolated DC-DC Converter Technology - Voltage input range 12V to 50V – The package includes one evaluation Board, documentation and user's license.	LIC- EREBUS -50

CISSOID S.A.

Headquarters and contact EMEA:	CISSOID S.A. – Rue Francqui, 3 – 1435 Mont Saint Guibert - Belgium T : +32 10 48 92 10 - F: +32 10 88 98 75 Email: sales@cissoid.com
Sales Representatives:	Visit our website: http://www.cissoid.com

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