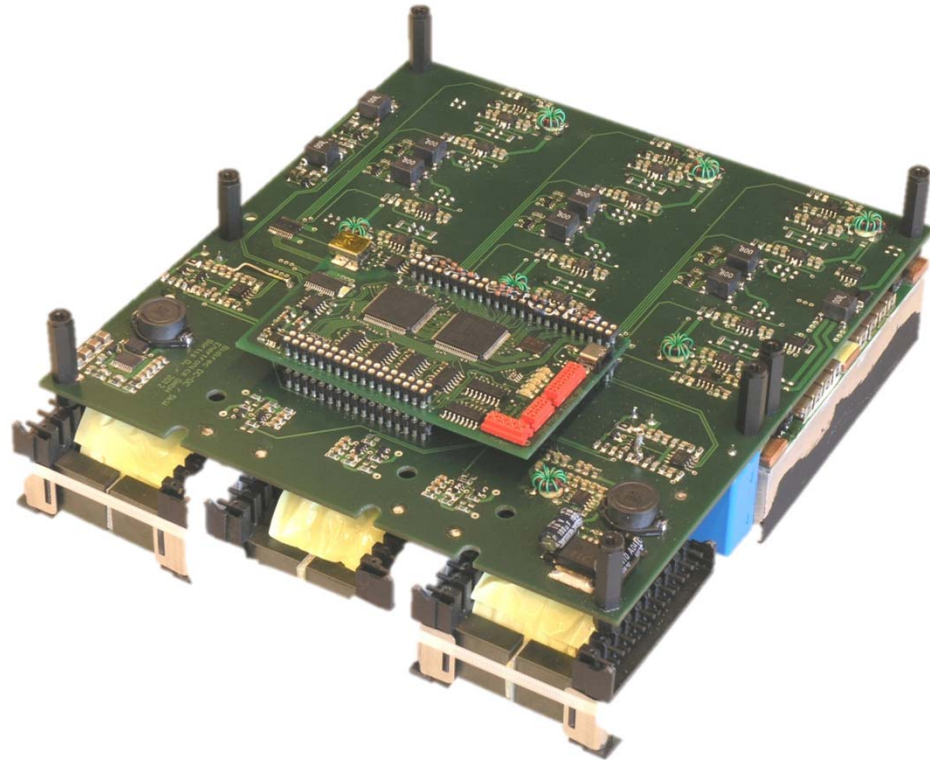


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# Bidirectional DC/DC Converters

(for high current application)



## Features

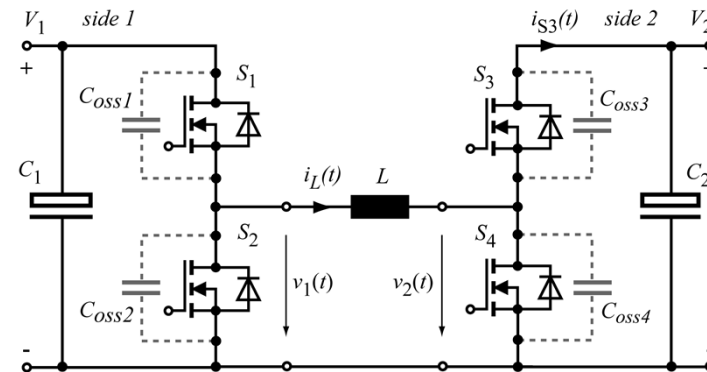
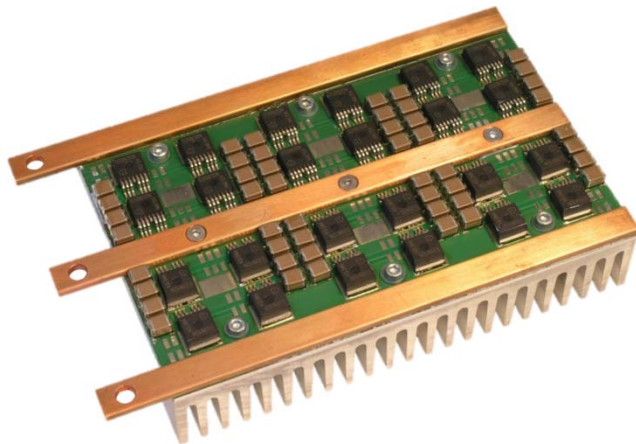
- Bidirectional Buck and Boost Operation
- No galvanic Isolation
- Output Voltage or Output Current Control
- Cooling: free convection
- Continuous Conduction Mode (CCM) or Trapezoidal Conduction Mode (TCM)
- Three Phase interleaved
- Hardware and Software Fault Protections (Over-Current and Over-Voltage)

# Bidirectional DC/DC Converters

(for high current application)

## Specifications

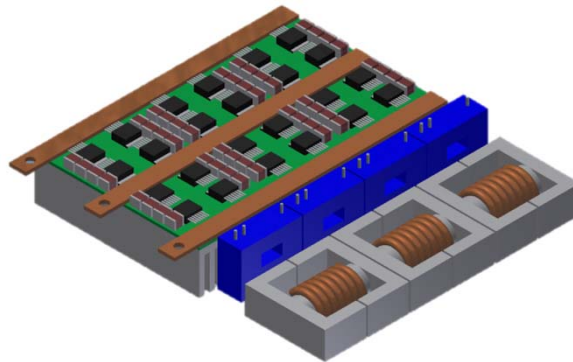
- **Power Range:** 0W ... 5kW
- **Input and Output Voltage Range:** 0V ... 60V
- **Input and Output Current Range:** 0A ... 120A
- **Switching Frequency:** 50kHz



# Bidirectional DC/DC Converters

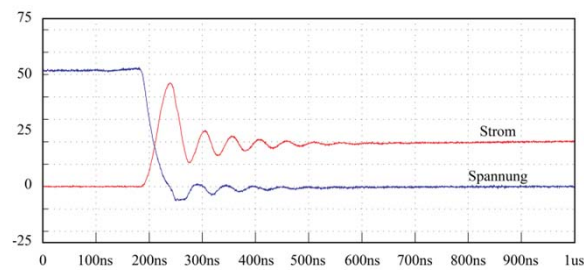
(for high current application)

## Mechanical Design

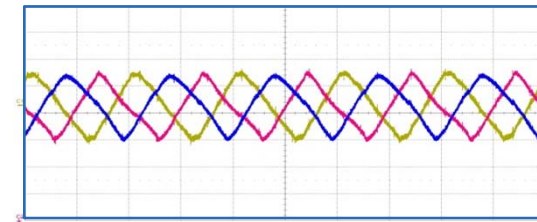


## Electrical Performance

- **Switching behaviour**



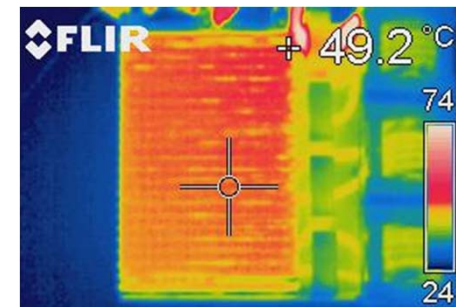
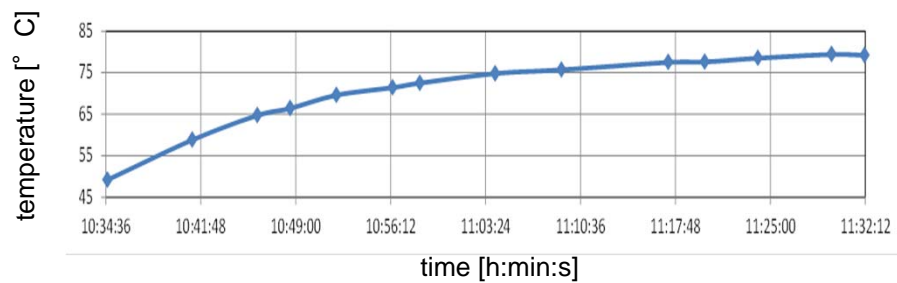
- **Interleaving of Phases/Converters**



# Bidirectional DC/DC Converters

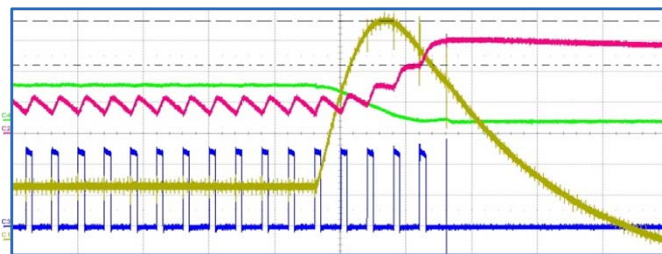
(for high current application)

## Thermal Design and Measurement

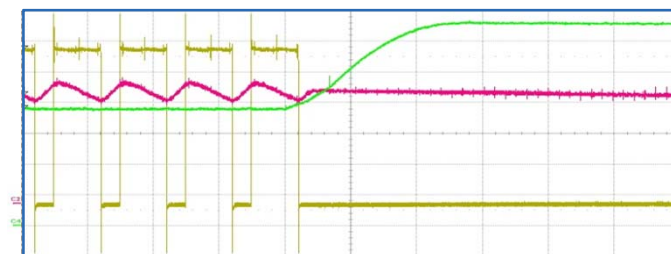


## Fault Protection

- **Over-Current Handling**



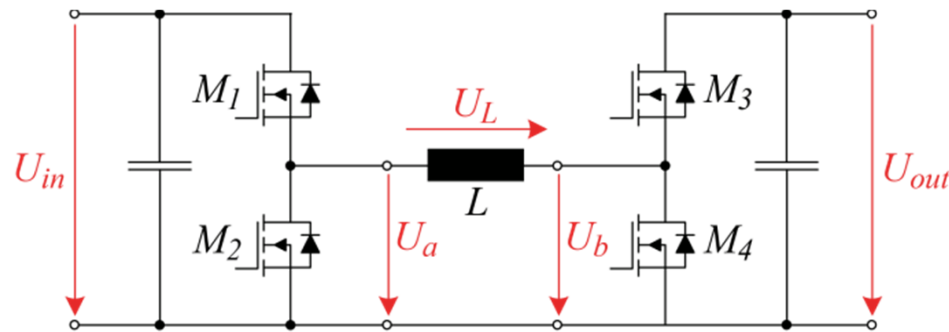
- **Over-Voltage Handling**



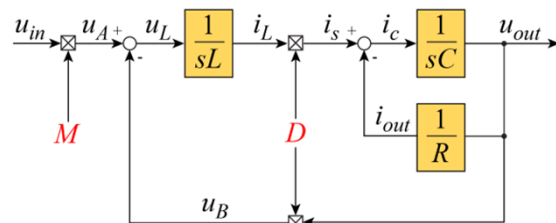
# Bidirectional DC/DC Converters

(for high current application)

Digital Control



- Modeling of the Plant



- Controller Structure

