

MxC™ 200 48Vdc 15W Configurable DC-DC Converter

The Helix Semiconductors MuxCapacitor™ (“MxC”) 200 is a monolithic configurable high voltage switch capacitor DC-DC converter targeted for use in both non-isolated and isolated, buck or boost converter applications. The MxC 200 supports seamless interface to low voltage PoL regulators to provide highly efficient DC-DC converter solutions with 12Vdc to 57Vdc input voltages and regulated or non-regulated PoL solutions. Consisting of three unique conversion capacitive conversion stages, each capable of providing a separate output voltage, the MxC 200 can be easily be configured to support systems with multiple voltage requirements. Intelligent MuxCapacitor timing & control optimize power delivery efficiency from no-load to maximum power.

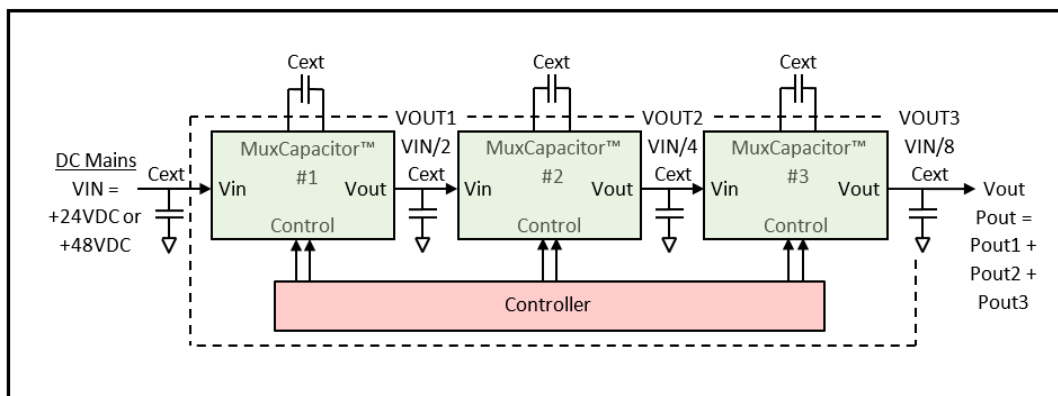
Target Applications

- PoE: Wireless Access Points, Security Cameras, VoIP Phones
- IoT & IIoT Gateways
- Electric & Hybrid Automobiles
- Industrial Controllers, HVAC
- Telecom, Data Center Auxiliary Functions

Features

- 16Vdc to 48Vdc Input/Output Voltage
 - 3-stage MuxCap™, $G=1/2$ or 2 each
 - Maximum 57Vdc Input/Output Voltage
- Up to 15W Output
 - $P_{out} = P_{out1} + P_{out2} + P_{out3}$
- 48Vdc to 12Vdc peak efficiency of >97%
 - > 90% Efficiency @ 15W
- 12Vdc to 48Vdc peak efficiency of >97%
 - > 90% Efficiency @ 15W
- Transformer-less isolation solutions
- Multiple intermediate outputs
- Idle Operation: Enabled, No-Load
 - 1mW Non-Switching
- Fault Detection
 - Output Over Current
 - Thermal Shutdown
- Package Options
 - 32 Pin QFN, 5mm x 5mm
 - Wire Bond Die
- Evaluation Boards and Reference Designs
 - Voltage Buck and Boost
 - Transformer-less Isolated Buck
 - Sensor and Control

Block Diagram (Buck configuration)



Available Evaluation Boards and Reference Designs

Voltage Reduction

- Triple Voltage Un-Regulated Outputs
 - P/N: MxC 290C-EB9
- Single Voltage Un Regulated Output
 - P/N: MxC 291C-EB3
- Single Voltage Regulated Output
 - P/N: MxC 292C-EB3
 - P/N: MxC 293C-EB3
- Multi Voltage + Negative Outputs
 - P/N: MxC 294C-EB9
- Transducer Amplifier
 - P/N: MxC 295C-EB5
- Motor Controller
 - P/N: MxC 296C-EB5

Voltage Boost

- Single Voltage Un-Regulated Output
 - MxC 281C-EB3
- Single Voltage Regulated Output
 - MxC 282-EB3
- Multi Voltage + Negative Outputs
 - MxC 283-EB9
- LED Current Source
 - MxC 284-EB3
- Motor Controller
 - MxC 285-EB5

Transformerless Isolated Supplies

- Multi Voltage Regulated/Un-Regulated
 - MxC 27x Family (Contact Factory)



1.8v, 3.3v, 5v POL configuration
(MxC 200 plus LV Buck Regulator)



15W 2 Stage MuxCap™ Configuration



15W 3 Stage MuxCap™ Configuration



2 module 24-30W isolated converter
(Capacitive isolation barrier)

