



# Helix Semiconductors

## MxC<sup>®</sup> 200 Family Product Brief

### MxC<sup>®</sup> 200 48V 15W Configurable DC-DC Converter Family

The Helix Semiconductors MuxCapacitor<sup>®</sup> (“MxC”) 200 Family consists of five monolithic, configurable, high-voltage switch capacitor integrated circuits targeted for use in both non-isolated and isolated, buck or boost DC-DC converter applications. The MxC 200 family of ICs supports seamless interface to low voltage PoL regulators to provide highly efficient DC-DC converter solutions with 12V to 57V input voltages and regulated or non-regulated PoL solutions. Consisting of multiple capacitive conversion stages, the MxC 200 ICs can be easily configured to support systems with multiple voltage requirements. Intelligent MuxCapacitor<sup>®</sup> 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

- 6V to 48V Input/Output Voltage
  - 3-stage MuxCap<sup>™</sup>, G=1/2 or 2 each
  - Maximum 57V Input/Output Voltage
- Up to 15W Output
  - $P_{out} = P_{out1} + P_{out2} + P_{out3}$
- 48V to 12V peak efficiency of >97%
  - > 90% Efficiency @ 15W
- 12V to 48V peak efficiency of >97%
  - > 90% Efficiency @ 3W
- 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

### Part Description

Part Number	Description	Package
2D-048-015A-QFN32-C	48V Input to 24V, 12V & 6V Outputs	32 QFN
2D-024-010A-QFN32-C	24V Input to 12V & 6V Outputs	32 QFN
2D-048-015B-QFN32-C	48V Input to 12V Output	32 QFN
2I-048-010A-QFN32-C	48V Input to 24V Capacitive Isolation Driver	32 QFN
2U-012-010A-QFN32-C	12V Input to 48V Output	32 QFN

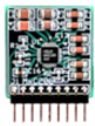


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### Available Evaluation Boards and Reference Designs

#### Non-Isolated Unregulated PoL Evaluation Boards



P/N: MxC 290-EB9-C  
15W MuxCapacitor  
48V to 24V, 12V & 6V  
Uses: 2D-048-015A



P/N: MxC 291-EB3-C  
15W MuxCapacitor  
48V to 12V  
Uses: 2D-048-015B



P/N: MxC 281-EB3-C  
10W MuxCapacitor  
12V to 48V  
Uses: 2U-12-010A

#### Non-Isolated PoL Reference Designs



P/N: MxC 292-EB3-C  
MuxCapacitor+Vreg  
48V to 5Vreg.  
Uses: 2D-048-015B



P/N: MxC 284-EB2-C  
MuxCapacitor+LED  
9V to 32V@20mA  
Uses: 2U-012-010A

#### TL Isolation Unregulated Evaluation Boards



P/N: MxC 270-EB-C  
10W MuxCapacitor  
48V to 12V  
Uses: 2I-048-010A  
and 2D-024-010A



P/N: MxC 271-EB-C  
3W MuxCapacitor  
6V to 12V  
Uses: 2U-12-010A  
2I-048-010A  
and 2D-024-010A

#### TL Isolation Regulated Reference Design



P/N: MxC 270-EB-C  
MuxCapacitor+Vreg  
48V to 5Vreg.  
Uses: 2I-048-010A  
and 2D-024-010A