

DC-DC converters for

Gate drive applications

*Designed with high dv/dt immunity
for safety & reliability*



DC-DC converters for gate drive applications

Designed for reliability

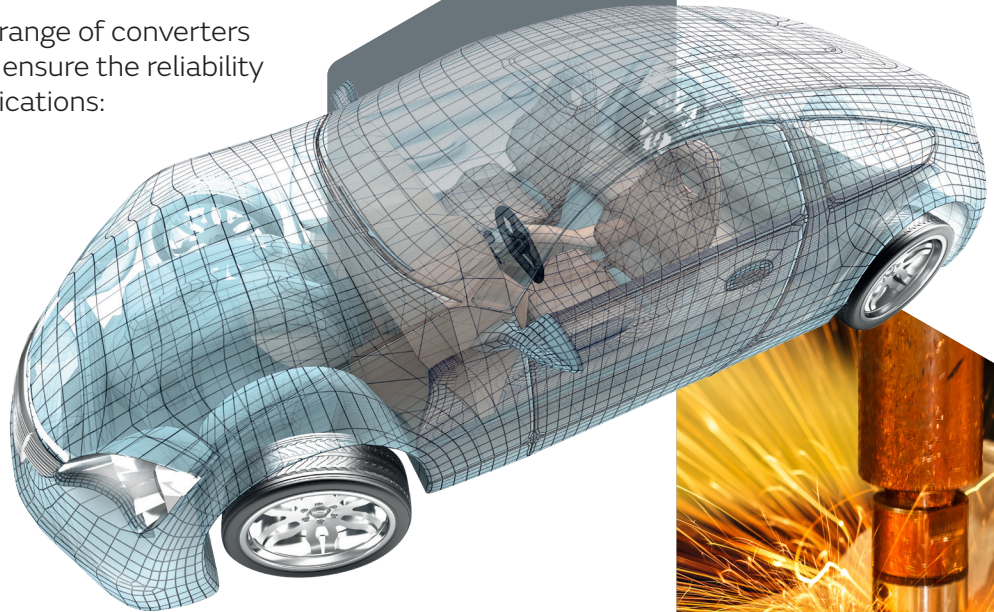
Murata MGJ series DC-DC converters have been designed and tested to withstand high dv/dt and DC link conditions without measurable breakdown within the isolation barrier.

Gate drive applications create challenging conditions which are not factored into the design of standard DC-DC converters.

For this reason Murata has created a range of converters specifically engineered and tested to ensure the reliability and safety required in gate drive applications:

Applications

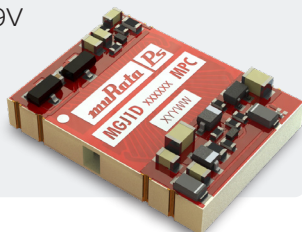
- Motor drives / motion control
- Solar inverters
- Welding
- Medical pump controllers
- Medical X-ray systems
- HVAC inversion systems
- High power AC-DC conversion
- Electrical powered transportation
- (Water) pump and valve control



MGJ1

Features

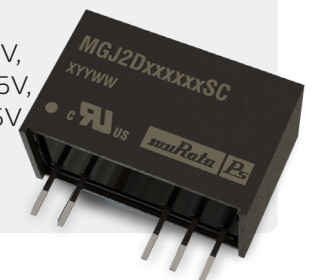
- Optimised bipolar output voltages for IGBT/SiC & MOSFET gate drives
- Reinforced insulation to UL60950 to a working voltage of 250Vrms
- ANSI/AAMI ES60601-1, 2 MOPP recognised
- Characterised CMTI >200kV/uS
- Continuous barrier withstand voltage 3kVDC
- 5.7kVDC isolation test voltage 'Hi Pot Test'
- Ultra-low isolation capacitance 3pF
- 5V, 12V, 15V & 24V inputs
- +15V/-3V, +15V/-5V, +15V/-9V & +19V/-5V outputs
- Creepage and clearance 9 mm



MGJ2 through hole

Features

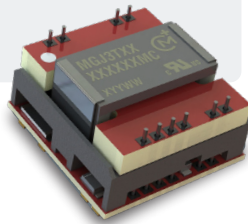
- Optimised bipolar output voltages for IGBT/SiC & MOSFET gate drives
- Reinforced insulation to UL60950 recognised
- ANSI/AAMI ES60601-1, 1 MOPP/2 MOOP's recognised
- Continuous barrier withstand voltage 2.4kVDC
- Characterised CMTI >200kV/uS
- 5.2kVDC isolation test voltage 'Hi Pot Test'
- Ultra-low isolation capacitance 3pF
- 5V, 12V, 15V & 24V inputs
- +15V/-3V, +15V/-5V, +15V/-8.7V, +15V/-15V, +17V/-9V, +18V/-2.5V, +18V/-5V, +20V/-3.5 & +20V/-5V outputs
- Operation to 100°C



MGJ3

Features

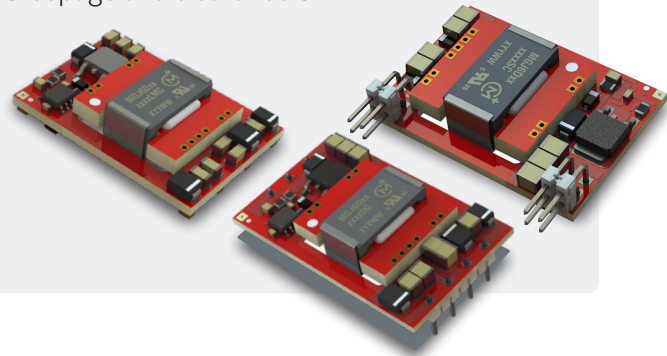
- No opto feedback
- Optimised bipolar output voltages for IGBT/SiC & MOSFET gate drives
- UL60950 reinforced isolation to a working voltage of 250Vrms
- ANSI/AAMI ES60601-1, 1 MOPP/2 MOOP's recognised
- Continuous barrier withstand voltage 3kVDC
- Characterised CMTI >100kV/uS
- Isolation capacitance 15pF
- 5.2kVDC isolation test voltage 'Hi Pot Test'
- Characterised partial discharge performance
- 5V, 12V & 24V input voltages
- Configurable dual outputs for all gate drive applications: +15V/-5V, +15V/-10V & +20V/-5V
- 105°C operating temperature



MGJ6 SIP, DIP & Low Profile

Features

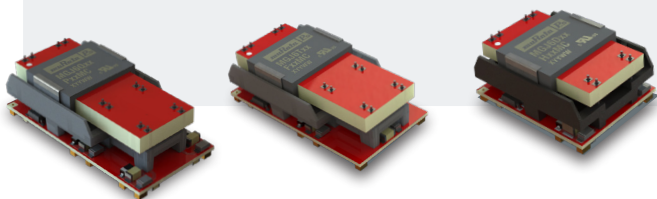
- Optimised bipolar output voltages for IGBT, silicon and silicon carbide gate drives
- Continuous barrier withstand voltage 3kVDC
- Characterised CMTI >100kV/uS
- Isolation capacitance 15pF
- Wide 2:1 input voltage ranges of 5V, 12V & 24V
- +15V/-5V, +15V/-10V & +20V/-5V outputs
- Creepage and clearance 8 mm



MGJ6 half, full and 3-phase

Features

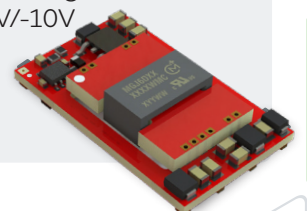
- Two, three or four isolated output voltages for IGBT/SiC & Mosfet gate drives in half-bridge, full bridge, three phase configuration
- UL60950 reinforced isolation to a working voltage of 250Vrms
- ANSI/AAMI ES60601-1, 2 MOOP's recognised
- Continuous barrier withstand voltage 3kVDC
- Characterised CMTI >100kV/uS
- Isolation capacitance 15pF
- Wide 2:1 input voltage range of 5V, 12V and 24V
- Creepage and clearance 8 mm



MGJ6-14mm

Features

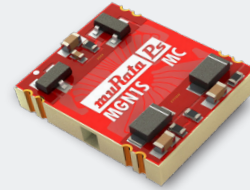
- No opto feedback
- Optimised bipolar output voltages for IGBT/SiC & MOSFET gate drives
- UL60950 reinforced isolation to a working voltage of 690Vrms
- IEC 61800-5-1 to a working voltage of 690Vrms
- Continuous barrier withstand voltage 3kVDC
- Characterised CMTI >100kV/uS
- Isolation capacitance 13pF
- 14mm creepage and clearance
- 5V, 12V & 24V input voltages
- Configurable dual outputs for all gate drive applications: +15V/-5V, +15V/-10V & +20V/-5V
- 105°C operating temperature



MGN1

Features

- Optimised output voltages designed to meet leading GaN devices requirements
- Reinforced insulation to UL62368 recognition pending
- Continuous barrier withstand voltage 1.1kV
- Characterised CMTI >200kV/uS
- Ultra low isolation capacitance 2.5pF
- 3kVAC isolation test voltage 'Hi Pot Test'
- 5V & 12V inputs
- +8V, +12V & +6V/-3V outputs
- Characterised partial discharge performance
- Operation up to 105°C



NEW

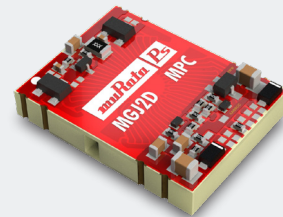
Applications

- EV/HEV
- Motor drives/motion control
- PV inverters

MGJ2 surface mount

Features

- Optimised bipolar output voltages for IGBT/SiC & MOSFET gate drives
- Reinforced insulation to UL62368 recognition pending
- ANSI/AAMI ES60601-1 recognition pending
- Continuous barrier withstand voltage 2kV
- Characterised CMTI >100kV/uS
- Ultra low isolation capacitance 3pF
- 5.7kVDC isolation test voltage 'Hi Pot Test'
- 5V, 12V & 15V inputs
- +15V/-9V, +15V/-5V & +20V/-5V outputs
- Characterised partial discharge performance



Applications

- HVAC inversion systems
- Medical pump controllers
- Water pump and valve control

Power	Description	Isolation capacitance	Package type	Murata series
1 Watt	1 Channel, Embedded transformer	3 pF	SMD, low profile	MGJ1 
1 Watt	1 Channel, Fixed outputs	2.5 pF	SMD, low profile	MGN1 
2 Watt	1 Channel, Fixed outputs	4 pF	THT, SIP7	MGJ2 
2 Watt	1 Channel, Fixed outputs	3 pF	SMD	MGJ2 SM 
3 Watt	1 Channel, Configurable outputs	15 pF	SMD	MGJ3T 
6 Watt	1 Channel, Configurable outputs	15 pF	SMD	MGJ6T 
6 Watt	1 Channel, Fixed outputs	15 pF	SMD low profile, THT SIP + DIP	MGJ6-LP, -SIP, -DIP 
6 Watt	2 channels for Half-Bridge	15 pF	SMD	MGJ6H 
6 Watt	3 channels for Full-Bridge	15 pF	SMD	MGJ6F 
6 Watt	4 channels for 3-Bridge	15 pF	SMD	MGJ6P 
6 Watt	1 channel, 690Vac reinforced isolation	13 pF	SMD	MGJ6W 

Global locations

For details please visit www.murata.com



Note

1 Export Control

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- ② Undersea equipment
- ③ Medical equipment
- ④ Traffic signal equipment
- ⑤ Data-processing equipment
- ⑥ Aerospace equipment
- ⑦ Power plant equipment
- ⑧ Transportation equipment (vehicles, trains, ships, etc.)
- ⑨ Disaster prevention / crime prevention equipment
- ⑩ Application of similar complexity and/or reliability requirements to the applications listed above

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7 No ozone depleting substances (ODS) under the Montreal Protocol are used in our manufacturing process.

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