

Murata Power
featured products

Murata Power: components for standard and custom designs

To meet the demands for efficient power, Avnet Abacus offers a wide range of highly reliable Murata products for standard and custom designs.

One of the global leaders in the design and supply of DC-DC converters, Murata has expanded its portfolio with market leading products and cutting-edge manufacturing techniques. Its range of AC-DC power supplies and DC-DC converters has been designed for a wide range of applications.

DC-DC CONVERTERS

From standard models to modified products and complete custom designs, Murata's DC-DC converters can meet the needs for miniaturisation, low profile, high efficiency, power-saving and low noise designs for use in industrial and electronic equipment, telecom, medical, automotive, infrastructure, renewables, lighting and more.

AC-DC POWER SUPPLY SOLUTIONS

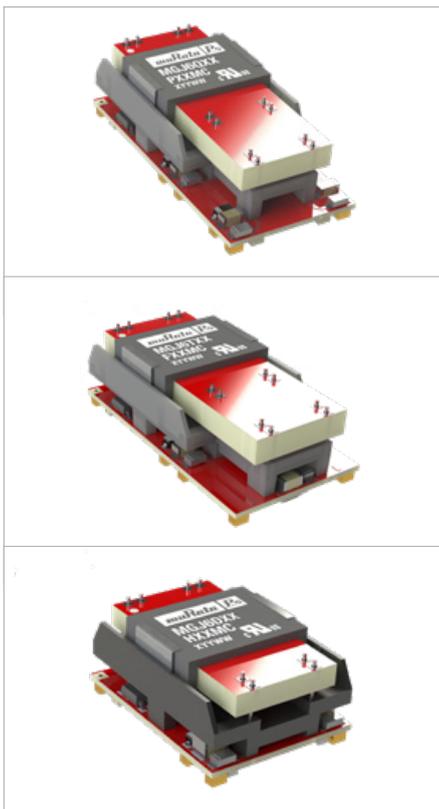
These can be designed to meet almost every conceivable application requirement in terms of power, performance, efficiency, communications, protection, size, approvals compliance and cooling.

MORE INFORMATION

Avnet Abacus' European team of field application engineers works closely with Murata to offer our customers the highest levels of engineering support. To discuss your design requirements in your local language, contact this team online at avnet-abacus.eu/ask-an-expert or call your local sales office.

To download datasheets and technical information on the products featured in this brochure, or to buy online, visit avnet-abacus.eu/murata-power-solutions

MGJ6 for half bridge, full bridge, or three phase application



Offering two, three, or four configurable isolated output voltages of 24V, the MGJ6 series of DC-DC converters is ideal for simultaneously powering 'high side' and 'low side' gate drive circuits for IGBTs, silicon and silicon carbide mosfets in half bridge, full bridge and three phase circuits. The MGJ6 series is characterised for high isolation and dV/dt requirements commonly seen in bridge circuits used in motor drives and inverters.

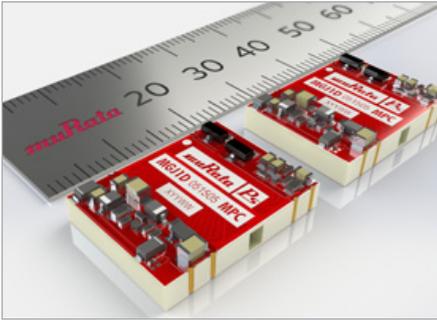
PRODUCT FEATURES

- Two, three or four isolated output voltages for IGBT/SiC & Mosfet gate drives in half-bridge, full bridge, three phase configuration
- Suitable for DC link voltages up to 3kVDC
- UL60950 recognised for reinforced insulation to a working voltage of 250Vrms
- Wide 2:1 input voltage range of 5V, 12V and 24V
- ANSI/AAMI ES60601-1, 2MOPP recognised
- Characterised dV/dt immunity 80kV/μs at 1.6kV and partial discharge performance
- Ultra low coupling capacitor 15pF
- Creepage and clearance 8mm
- 6W total output power

APPLICATIONS

- Solar inverters
- High power AC-DC conversion
- Motor drives/motion control
- Electrical powered transportation
- Welding

MGJ1



The MGJ1 series of 1W DC-DC converters is ideal for powering 'high side' and 'low side' gate drive circuits for IGBTs/SiC and MOSFETs in bridge circuits. A choice of asymmetric output voltages allows optimum drive levels for best system efficiency. The MGJ1 series is characterised for high isolation requirements commonly seen in bridge circuits used in motor drives and inverters, while the MGJ1 industrial grade temperature rating and construction gives long service life and reliability.

PRODUCT FEATURES

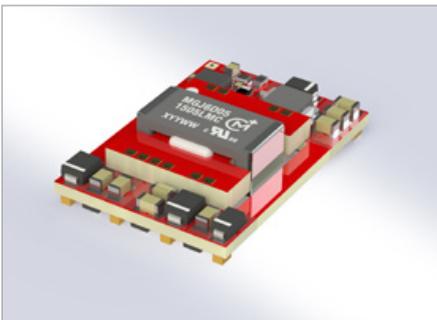
- Optimised bipolar output voltages for IGBT/SiC & MOSFET gate drives
- UL60950 recognised for reinforced insulation to a working voltage of 250Vrms
- ANSI/AAMI ES60601-1 recognition pending
- DC link voltage 3kVDC
- Ultra-low coupling capacitance 3pF
- Creepage and clearance 9mm

- 5V, 12V, 15V & 24V inputs
- +15V/-9V, +15V/-5V & +19V/-5V outputs
- 1W output power

APPLICATIONS

- Renewable energy
- Motor drives / motion control
- Electrical powered transportation
- Medical equipment

MGJ6 SIP/DIP & low profile



Offering configurable dual output voltages of +15V/-10V, +20V/-5V and +15V/-5V, the MGJ6 series of DC-DC converters is ideal for powering 'high side' and 'low side' gate drive circuits for IGBTs, silicon carbide and MOSFETs in bridge circuits. A choice of asymmetric output voltages allows optimum drive levels for best system efficiency and EMI. The MGJ6 series is characterised for high isolation and dV/dt requirements commonly seen in bridge circuits used in motor drives and inverters. A disable/frequency synchronisation pin simplifies EMC filter design. The MGJ6 protection features include short circuit protection and overload protection.

PRODUCT FEATURES

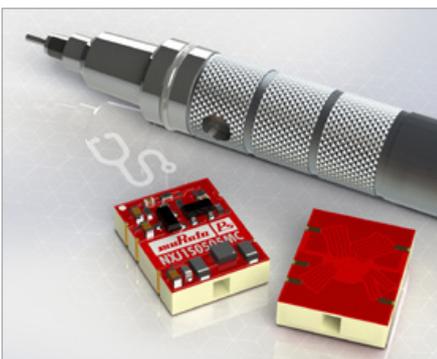
- Optimised bipolar output voltages for IGBT, silicon and silicon carbide gate drives
- Suitable for DC link voltages up to 3kVDC
- Wide 2:1 input voltage ranges of 5V, 12V & 24V
- +15V/-5V, +15V/-10V & +20V/-5V outputs
- Characterised dV/dt immunity 80kV/μs at 1.6kV and partial discharge performance
- Ultra-low coupling capacitor 15pF
- Reinforced insulation to UL60950 to a working voltage of 250Vrms

- ANSI/AAMI ES60601-1, 2MOPP recognised
- Patent protected
- Creepage and clearance 8mm
- 6W output power

APPLICATIONS

- Motor drives / motion control
- Solar inverters
- High power AC-DC conversion
- Welding
- Electrical powered transportation

NXJ1



The 1W NXJ series is a new range of low cost, lower profile, fully automated manufactured surface mount DC-DC converters. The NXJ1 series automated manufacturing process with substrate embedded transformer, offers increased product reliability and repeatability of performance in a halogen free iLGA inspectable package. The NXJ1 series, industry standard footprint is compatible with existing designs. The NXJ1 series has a MSL rating 2, and is compatible with a peak reflow solder temperature of 260°C as per J-STD-020.

PRODUCT FEATURES

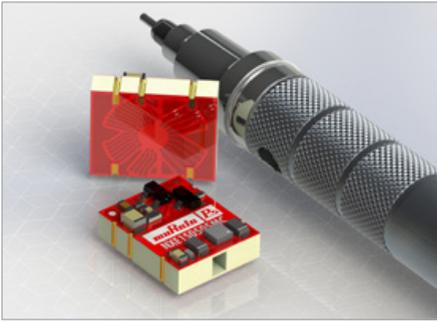
- Patent protected
- Low profile
- UL60950 recognised for reinforced insulation to a working voltage of 200Vrms
- ANSI/AAMI ES60601-1, 2 MOOP/1MOPP recognised
- 4.2kVDC isolation "hi pot test"
- Substrate embedded transformer
- Automated manufacture

- Industry standard footprint
- Halogen free

APPLICATIONS

- Medical
- Telecom and wireless
- Isolated power for data communication
- Industrial control and automation
- Instrumentation

NXE1



The NXE1 series is a new range of low cost, lower profile, fully automated manufacture surface mount DC-DC converters. The NXE1 series automated manufacturing process with substrate embedded transformer offers increased product reliability and repeatability of performance in a halogen free, iLGA inspectable package. The NXE1 series, industry standard footprint is compatible with existing designs. The NXE1 series has a MSL rating 2, and is compatible with a peak reflow solder temperature of 260°C as per J-STD-020.

PRODUCT FEATURES

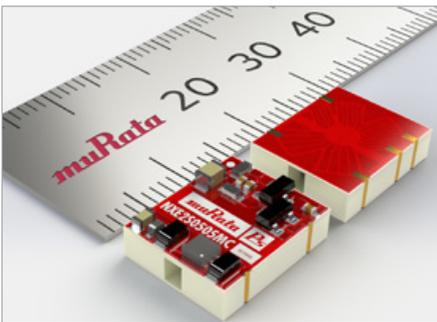
- Patent protected
- Low profile
- UL60950 recognised for reinforced insulation to a working voltage of 125Vrms
- ANSI/AAMI ES60601-1, 1 MOOP recognised
- 3kVDC isolation "hi pot test"
- Substrate embedded transformer
- Industry standard footprint

- Halogen free
- 1W output power

APPLICATIONS

- Isolated power for data communication
- Industrial control and automation
- Medical
- Instrumentation

NXE2



The NXE2 series is a new range of low cost, lower profile, fully automated manufactured surface mount DC-DC converters. The NXE2 series automated manufacturing process with substrate-embedded transformer, offers increased product reliability and repeatability of performance in a halogen free iLGA inspectable package. The NXE2 series, industry standard footprint is compatible with existing designs. The NXE2 series has a MSL rating 2, and is compatible with a peak reflow solder temperature of 260°C as per J-STD-020.

PRODUCT FEATURES

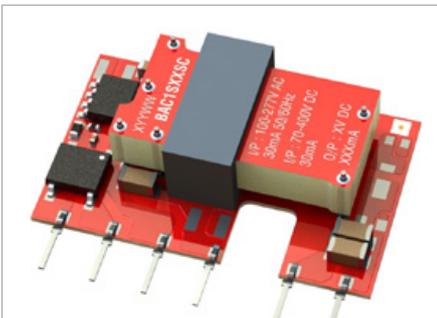
- Patent protected
- Low profile
- UL60950 recognised for reinforced insulation to a working voltage of 125Vrms
- ANSI/AAMI ES60601-1, 1 MOOP recognised
- 3kVDC isolation "hi pot test"
- Substrate embedded transformer
- Automated manufacture
- Industry standard footprint

- Halogen free
- 2W output power

APPLICATIONS

- Isolated power for data communication
- Industrial control and automation
- Medical
- Instrumentation

BAC1 series



The BAC1 Isolated 1W Regulated Single Output AC-DC Converters operate over the wide industrial temperature range of -40°C to +85°C, supporting operation in still air for the most demanding environments. The BAC1 series delivers full power to +85°C and operates from -40°C. The BAC1 series has ultra-low standby power consumption (20mW) for demanding energy-saving and cost-effective applications. The BAC1 series with ultra low leakage current is ideally suited for medical applications.

PRODUCT FEATURES

- Fully regulated 1W AC/DC
- 85-305VAC input voltage range
- 5V, 12V, and 24V output voltages
- UL60950 recognized
- Reinforced insulation to a working voltage of 264VAC
- ANSI/AAMI ES60601-1 pending for 2MOOP, 1MOOP
- -40°C to +85°C operating temperature range

- Typical line regulation of 0.3% for 5V and 0.1% for 12V and 24V
- Typical load regulation of 0.1%
- Ultra-low standby power (20mW)

APPLICATIONS

- Medical equipment
- LED lighting
- Sensing
- Smart buildings
- Metering

IRS series – encapsulated DC-DC converters



Murata's IRS Q48 & Q12 range offer an isolated single o/p, with 2250V isolation. The IRS range offers o/ps 3.3V, 5V, 12V, 15V & 24V variants. Two universal i/p ranges either 9V–36V or 18V–75V, allow for operation from 12V, 24V & 48V battery systems, including meeting the requirements of EN50155.

PRODUCT FEATURES

- Sixteenth brick footprint.
- 9V–36V & 18V–75V I/P V options.
- Slotted flanged baseplate or basic baseplate options
- Single O/P 3V3 15A, 5V 10A, 12V 4A, 15V 3A, 24V 2A.
- Single output: 5V/30A, 12V/12.5A or 24V/6.25A
- High efficiency – up to 91%
- 3000Vrms reinforced isolation

- On/off control (positive or negative logic)
- Adjustable output trim (±10%)
- Thermal shutdown protection
- UL approval
- Designed to meet EN50155

APPLICATIONS

- Railway
- Transportation
- Industrial

PQU650 series



The PQU650 Series products are rated at 650W employing a 'U' channel construction to operate with natural convection or forced airflow. The PQU650 series is a 1524 x 1016mm format capable of providing a continuous 650W output, with a constant current overload characteristic, and 800W "power boost" at output start to deliver transient loads.

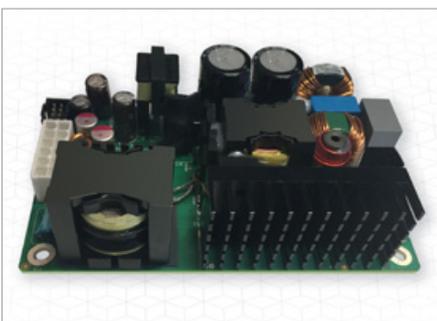
PRODUCT FEATURES

- 90v – 264v AC I/P V range
- 12v, 24v, 28v, 48v, 54v O/Ps
- 1524 x 1016 x 40mm (42.7mm with cover)
- U channel design
- -30c – +70c (derate above 50c)
- 650w O/P – fan cooled (50c)
- 450w O/P – convection cooled (50c)
- Medical approved IEC60601-1

APPLICATIONS

- Industrial applications
- Medical applications
- Visual signage
- Test and measurement
- Broadcast
- Motor (inductive) power
- Industrial comms.
- ATE
- Stage lighting

PQC250



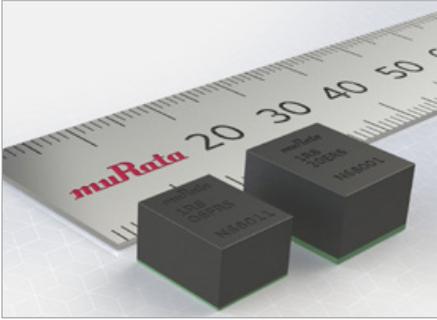
The PQC250 series switching power supplies utilise advanced component and circuit technologies to deliver high efficiency and low power dissipation in both operational and standby operation in a compact 762 x 1270 x 356mm package. Designed for medical, computing, consumer, communications, telecom, industrial applications and other OEM applications deployed to satisfy 1U height systems. All models offer universal AC input with active power factor correction (PFC) and compliance to worldwide safety and EMC standards.

PRODUCT FEATURES

- EN/IEC60601 Ed 4 medical (2 X MOPP pri-sec; 1 X MOPP pri-chassis ground)
- EN60950 ITE safety approved
- 250W compact high density 250W at +50°C
- 762 x 1270mm standard footprint
- High efficiency 94% typical
- Remote sense, main output
- Optional DC input capability
- Universal AC input with active PFC

- Less than 1U high – 356mm
- Isolated 5V@0.5A standby output
- RoHS compliant
- Very low no load standby designed to meet Energy STAR[®] program requirements for single voltage external AC-DC power supplies
- Active inrush protection
- Droop current share option

MonoBK



The MYMGK series are miniature MonoBK type non-isolated point-of-load (PoL) DC-DC power converters for embedded applications. The tiny form factor measures only 9.0 x 7.5 x 5.0mm. Applications include powering FPGA/CPU's, datacom/telecom systems, distributed bus architectures (DBA), programmable logic and mixed voltage systems. The converters have input voltage ranges of 4.5 to 5.5Vdc (MYMGK1R806FRSR) or 8.0 to 14.0Vdc (MYMGK00506ERSR) and a maximum output current of 6A.

PRODUCT FEATURES

- Settable output voltage range
 - MYMGK1R806FRSR: 0.7 to 1.8Vdc
 - MYMGK00506ERSR: 0.7 to 5.0Vdc
- Up to 6A output current
- Quick response to load change
- Ultra-small surface mount package
9.0 x 7.5 x 5.0mm
- High efficiency of 95%
- Outstanding thermal derating performance
- Over-current protection
- On/off control (positive logic)
- Power good signal
- RoHS-6 hazardous substance compliance
- High reliability / heat shock testing 700 cycle (-40 to +125°C)
- Meets CISPR 22 class B conducted emissions
- Under voltage lock out (UVLO)
- Output short circuit protection
- 20A output current version available in
10.5 x 9.0 x 5.6mm

IRH series DC-DC converters



The 150 Watt IRH series from Murata provides market-leading power conversion efficiency, in an industry-standard half-brick pinout, using the latest component and packaging technologies in a fixed-frequency switching power supply architecture.

The encapsulated DC-DC converters have been designed specifically for use in industrial and railway applications

FEATURES AND BENEFITS

- Encapsulated circuit design makes them shock- and vibration-tolerant and improves EMI and thermal performance
- Meets the requirements of the EN50155 standard for railway applications for a nominal VIN of 96 VDC and 110 VDC
- Delivers 5V, 12V or 24Vout with 3,000Vrms input to output isolation

APPLICATIONS

- Railway
- Industrial
- Transportation
- Power - grid

IRQ series DC-DC converters



The advanced electrical and mechanical design of the IRQ series modules provides high reliability power conversion in the most demanding rail and industrial applications. The industry-standard quarter brick offers packaging and pin configuration options that allow the system designer to choose the most effective solution for cooling and power delivery. Additional features include On/Off control options, reinforced insulation, 3KVdc isolation, and options for mounting a heat sink or cold wall application.

FEATURES AND BENEFITS

- DC input range: 57.6-160V (covers both 96V and 110V input range)
- Encapsulated circuitry for optimal thermal/vibration performance
- Regulation: $\pm 0.3\%$ from no load to full load
- High efficiency
- Maximum baseplate operating temperature: 100°C, full load

APPLICATIONS

- Railway transportation
- Embedded "on board" rolling stock applications.
- Displays
- Lighting

IRS-Q12/Q48 series 1/16th brick DC-DC converters



The 50 watt IRS-Q12/Q48 modules provide market leading efficiency using the latest technology for fixed frequency power supply architectures, in an industry standard 1/16th brick pinout. The electrical and mechanical design incorporates proprietary technology providing shock & vibration tolerance that meets or exceeds EN 61373:1999 Category 1, Class B, Body Mounted requirements.

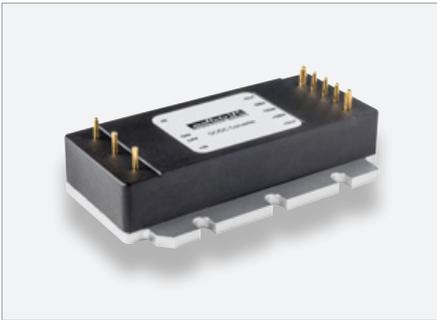
FEATURES AND BENEFITS

- Industry standard DOSA "brick" format and pinout
- 2250 volt basic input/output isolation
- 9-36 volts/18-75 volts DC wide input range with 3.3, 5, 12 and 24V for output voltage
- Baseplate cooling

APPLICATIONS

- Rail ecosystem including, but not limited to:
- Mobile communications signalling
 - Lighting
 - Signs
 - Computing

IRE series 120W – encapsulated 1/8th brick DC-DC converters



The IRE range of isolated DC-DC converters feature a single 120W isolated o/p, from an i/p V range of 9V – 36V DC in an industry standard eighth brick package. Two base plate options are available including "standard" for minimal board space consumption, and flanged for mechanical fixing to a heatsink surface. Positive and negative logic on/off variants also available. The IRE range is ideal for applications in the industrial/transportation area, and ideally suited to accept I/P from 12V or 24V batteries. The IRE o/p can be trimmed +/-10% while delivering fast settling to transient step loads and no adverse effects from higher capacitive loads. The IRE also incorporates self-protection features including under-voltage lockout, over temperature shutdown, current limit and short circuit protection.

FEATURES AND BENEFITS

- Input voltage range: 9V – 36V
- Single output: 5V, 12V, 24V, 48V
- High efficiency: Up to 92% @ full load
- Adjustable output trim ($\pm 10\%$)

APPLICATIONS

- Displays
- Lighting
- Air conditioning
- Rail transportation

IRV300 series 300W DC-DC converters



The IRV300 series is a 300W stand alone, system level, chassis mount isolated DC-DC converter. The converter features an ultra wide input designed to accept battery voltages of 24V, 36V, 48V, 72V and 110V in a single design. The IRV300 is ideally suited for railway applications, meeting EN50155 standard in a single package. The output voltage has a wide trim range up to +15% of V_{nom} , and features a constant current output profile ideally suited for high inductive/capacitive loading. There is a programmable undervoltage lockout feature to prevent deep discharge of input batteries, remote ON/OFF and DC open collector output power good signal including a visual LED as standard. The IRV300 features additional options of "hold up" for keeping the output uninterrupted during input interruption for no less than 10mS, "ORING FET" for dual redundancy/power share incorporating droop voltage. There are protection features including overvoltage protection, current limit/short circuit protection and over temperature protection to ensure safe reliable power delivery.

FEATURES AND BENEFITS

- Chassis mount: 184mm x 116mm x 40mm
- 16V – 160V DC I/P. (10:1 ratio range).
- Single o/p 300W
- 12V, 24V, 48V o/ps – (+15% adj range)
- Programmable undervoltage lockout

APPLICATIONS

- Displays
- Lighting
- Air conditioning
- Railway transportation

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