DC-DC converters for healthcare applications

Designed for safety and reliability
Murata’s range of DC-DC converters for healthcare applications offer various levels of medical safety agency recognition – in consideration of both the safety of the patient and the operator. They also feature low barrier capacitance to serve the medical application requirement of low leakage current.

**Applications**

- MRI
- X-Ray
- Ultrasound
- Blood pressure monitors
- Telehealth and remote health monitoring systems
- Infusion pumps
- CPAP machines
- Equipment cable isolation
- Robotics

**Features**

**NXJ1**

- 3.3V, 5V & 12V inputs
- 3.3V, 5V, 12V & 15V outputs
- Patent protected
- UL60950 recognised
  - Reinforced insulation to a working voltage of 200Vrms
  - Basic insulation to a working voltage of 250Vrms
- ANSI/AAMI ES60601-1 recognised
  - 1 MOPP to a working voltage of 250Vrms
- Isolation test voltage 4.2kVDC
- Up to 110°C operating temperature
- Short circuit protection
- Substrate embedded transformer
- Low profile
- Industry standard footprint
- Halogen free

**NXJ2**

- 5V, 12V & 24V inputs
- 5V, 12V & 15V outputs
- Patent protected
- UL60950 recognised
  - Reinforced insulation to a working voltage of 250Vrms
- ANSI/AAMI ES60601-1 recognised
  - 1 MOPP & 2 MOOP to a working voltage of 250Vrms
- Isolation test voltage 5.2kVDC
- Up to 95°C operating temperature
- Short circuit protection
- Substrate embedded transformer
- Low profile
- Industry standard footprint
- Halogen free
NXE1 & NXE2

Features
• 3.3V, 5V & 12V inputs
• 3.3V, 5V, 12V & 15V outputs
• Patent protected
• UL60950 recognised
  - Reinforced insulation to a working voltage of 125Vrms
  - Basic insulation to a working voltage of 250Vrms
• ANSI/AAMI ES60601-1 recognised
  - 1 MOPP to a working voltage of 250Vrms
• Isolation test voltage 3kVDC
• Up to 100°C operating temperature
• Short circuit protection
• Substrate embedded transformer
• Automated manufacture
• Low profile
• Industry standard footprint
• Halogen free

MGJ1

Features
• 5V, 12V, 15V & 24V inputs
• +15V/-3V, +15V/-5V, +15V/-9V & +19V/-5V outputs
• Patent protected
• UL60950 recognised
  - Reinforced insulation to a working voltage of 250Vrms
• ANSI/AAMI ES60601-1 recognised
  - 2 MOPP to a working voltage of 250Vrms
• Continuous barrier withstand voltage 3kVDC
• Isolation test voltage 5.7kVDC
• Up to 105°C operating temperature
• Optimised bipolar output voltages for IGBT/SiC & MOSFET gate drives
• Isolation capacitance 3pF
• Creepage and clearance 9mm

MGJ6 half, full and 3-phase

Features
• 5V, 12V & 24V inputs
• 24V output
• Patent protected
• UL60950 recognised
  - Reinforced insulation to a working voltage of 250Vrms
• ANSI/AAMI ES60601-1 recognised
  - 2 MOPP to a working voltage of 250Vrms
• Continuous barrier withstand voltage 3kVDC
• Isolation test voltage 5.7kVDC
• 105°C operating temperature
• Optimised bipolar output voltages for IGBT/SiC & MOSFET gate drives
• Isolation capacitance 15pF
• Creepage and clearance 8mm

MGJ6 SIP/DIP & Low profile

Features
• 5V, 12V & 24V inputs
• +15V/-3V, +15V/-5V, +15V/-9V & +20V/-5V outputs
• Patent protected
• UL60950 recognised
  - Reinforced insulation to a working voltage of 250Vrms
• ANSI/AAMI ES60601-1 recognised
  - 2 MOPP to a working voltage of 250Vrms
• Continuous barrier withstand voltage 3kVDC
• Isolation test voltage 5.7kVDC
• 105°C operating temperature
• Optimised bipolar output voltages for IGBT/SiC & MOSFET gate drives
• Isolation capacitance 15pF
• Creepage and clearance 8mm
NXF1

Features
- 3.3V & 5V inputs
- 3.3V & 5V outputs
- Patent protected
- UL60950 recognised
  - Reinforced insulation to a working voltage of 125Vrms
  - Basic insulation to a working voltage of 250Vrms
- ANSI/AAMI ES60601-1 recognised
  - 1 MOPP/2 MOOP to a working voltage of 125Vrms
  - 1 MOOP to a working voltage of 250Vrms
- Isolation test voltage 3kVDC
- Up to 105°C operating temperature
- Short circuit protection
- Substrate embedded transformer
- Low profile

MEJ1 & MEJ2

Features
- 3.3V, 5V, 12V, 15V & 24V inputs
- 3.3V, 5V, 9V, 12V & 15V outputs
- ±3.3V, ±5V, ±9V, ±12V & ±15V dual outputs
- Patent protected
- UL60950 recognised - basic/supplementary insulation to a working voltage of 200Vrms
- ANSI/AAMI ES60601-1 recognised
  - 1 MOOP to a working voltage of 200Vrms
- Isolation test voltage 5.2kVDC
- 85°C operating temperature
- Internal SMD construction
- Industry standard SIP package style
- Fully encapsulated with toroidal magnetics
- Pin compatible with the MEV, NMV, NMK, MEJ2 & NMJ

MTC1 & MTC2

Features
- 2:1 input range with nominals of 5V, 12V & 24V
- 3.3V, 5V & 12V outputs
- Patent protected
- UL60950 recognised
  - Reinforced insulation to a working voltage of 250Vrms
- ANSI/AAMI ES60601-1 recognised
  - 1 MOPP & 2 MOOP to a working voltage of 250Vrms
- Isolation test voltage 3kVAC
- Up to 105°C operating temperature
- Short circuit protection
- Remote on/off pin
- No electrolytic capacitors
- Creepage and clearance 5mm
- Output voltage trim

NCM6

Features
- Wide 4:1 input range with nominals of 5V & 12V
- 5V, 12V & 15V outputs
- ±5V, ±12V & ±15V dual outputs
- Patent protected
- UL60950 recognised
  - Reinforced insulation to a working voltage of 250Vrms
- ANSI/AAMI ES60601-1 recognised
  - 1 MOPP & 2 MOOP to a working voltage of 250Vrms
- Isolation test voltage 5.2kVDC
- 85°C operating temperature
- Typical efficiency to 88%
- Encapsulated for superior thermal performance
- Power density 0.94W/cm²
- Under voltage lockout
- Control pin option
Designed for safety

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<th>MOPP</th>
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3. Medical equipment
4. Traffic signal equipment
5. Data-processing equipment
6. Aerospace equipment
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