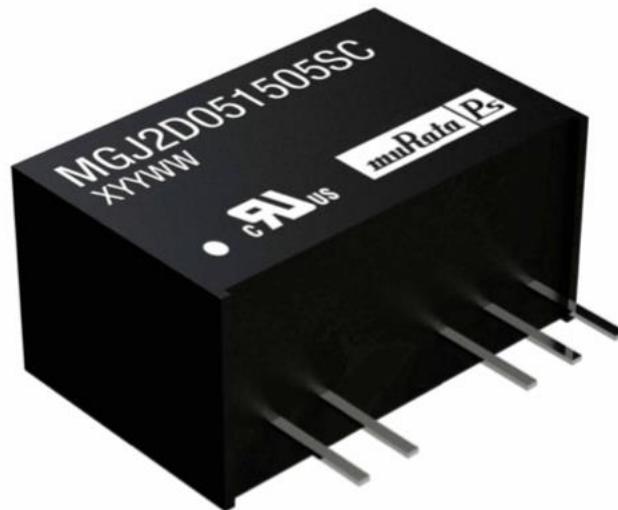


High-Isolated IGBT DC Module for the Installation of Industrial Application Power Solutions

In the industrial application environment, electronic equipment is exposed to complicated electromagnetic interference, and the stability of the equipment will be affected which eventually caused system failure. The High-Isolated IGBT DC module unveiled by Murata is an option for the design of high-isolated power supply products in this essay.

High-Isolation Enhance system performance and efficiency



Murata unveils a series of High-Isolated IGBT DC module developed by its Murata Power Solutions. The MGJ series wide and low-profile module featured 14 mm creepage and clearance distance are suitable for the high isolation industrial power supply system with reinforced-rated isolated-gate driver power supply application. These products provide optimized voltage to yield the best system performance and efficiency. When this MGJ High-Isolated IGBT DC module is at 6W of rated power, the dual output converter provides wide-ranged 2:1 input voltage at rated voltage of 5, 12, and 24V. The output voltage could allow for dual output power supply voltage at +15V/-10V, +20V/-5V, and +15V/-5V. The output end supported multiple purposes and fits for parallel connection and series connection. The MGJ includes new clear SIP and DIP parts and surface mount options.

The half-bridge, full-bridge and three-phase module of MGJ were mainly designed for driving the IGBT high-side and low-side gate driver circuit and are applicable to electrical control application and the silicon and silicon carbide MOSFET of the bridge circuit installed for industrial power supply. The options of asymmetric output voltage allow for the realization of the optimal driver level of power and the best system efficiency and EMI. The MGJ series conforms to the high-isolation and dv/dt requirements commonly found in the bridge circuit used in electrical driver and inverter.

The MGJ components featured 2, 3, and 4 independent outputs is installed easily with simple circuit for supplying positive and negative voltage for gate-driver power supply externally. Only 1 component supplies power to all the gate-drivers in bridge application to save space substantially from 33% to 50%. For example, in a three-phase module, a 4 output MGJ63P could supply isolated power to 3 high-side converting driver, and 1 shared power rail can supply 3 low-side switching driver, and even replace up to 6 discrete DC-DC converters.

The MGJ series are suitable for DC chain power supply at high voltage of 3kVDC. The asymmetric output can provide the best driving power level, which allows for high system efficiency under low EMI. With the use of its band synchronization function and very low coupling capacitor (usually at 13pF), it can easily achieve the EMC specification.

The compact design of the MGJ converter condensed the circuit board space and time for development. The 80kV/microsecond dv/dt interference resistance gives confidence for the users in prolonged operation. Its built-in planar magnetic components help to enhance product reliability and repletion of performance. The MGJ is suitable for the gate-driver circuit which demands for supplying power to IGBT under high-isolation and high efficiency. Typical applications are motor driver/motion control, photovoltaic power inverter, UPS, power transforming station, substitute energy (wind power generator), high power AC-DC conversion, traction motor, EV/HEV and welding. In medical care, it could be used in X-ray devices, CT and MRI, ultrasound device, defibrillator. It also may be used in railway and industrial application.

The working temperature of the MGJ series converters ranged from -40 to 105°C with de-rates higher than 90°C. The standard feature of the patent protected converter includes the protection of pin, short circuit and overloading, and the simplification of EMC filter design frequency for synchronization with the pin.

The MGJ series is in the process of IEC 61800-5-1 approval. The approval aims at the maximum load between the primary and secondary voltage. The approval of the UL 60950 in UL fortification of insulation is also in process of application to reinforce the working voltage of 690Vrms for reducing the overall

cost of system approval. Furthermore, application for approval of ANSI/AAMI ES60601-1,2xMOOP and the 2xMOPP voltage levels of different systems is also in progress. After the completion of approval of all, the approval process of medical application in the system could be simplified.

The MGJ is structured with high-isolation feature and is a solution for high performance electronic components and planar electromagnetic component applications. No other manufacturers have launched this type of products so far, and MGJ is the best choice for your development of high-isolation equipment.