

Next Generation of Power Semiconductors using Mitsubishi Silicon Carbide



Applications

- PV inverters
- UPS
- High speed motor drives
- Induction heating
- Welding
- Aerospace power converters
- Medical imaging amplifiers
- Electric vehicle
- Boost converters

Product Advantages

- Significant reduction in switching losses
- Increased system efficiency
- High temperature operation
- Higher operating frequency
- Reduced cooling requirements
- Low parasitic inductance
- Reduced system size / high power density

Overview

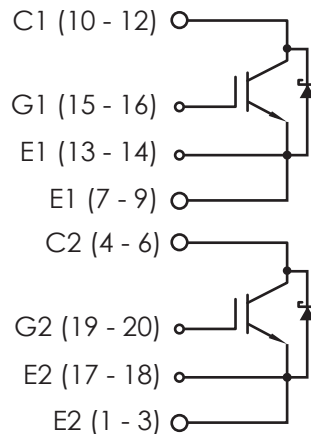
Large bandgap energy and high field breakdown are two primary characteristics of silicon carbide (SiC) which have been leveraged to create a new generation of power semiconductors with zero reverse recovery charge, significantly lower switching losses and the opportunity for higher temperature operation.

Powerex packages SiC MOSFETs and Schottky barrier diodes from Mitsubishi into high performance all SiC modules or with high frequency silicon IGBTs into hybrid Si / SiC modules. The new low profile split dual package features low inductance and either a standard copper or AlSiC baseplate for high thermal cycling applications.

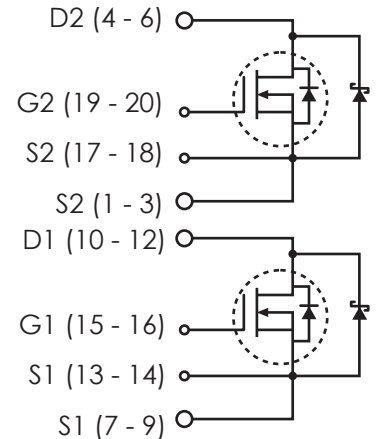
Diodes in both the MOSFET or hybrid version are Mitsubishi Silicon Carbide (SiC) Schottky diode chips.

Package Configuration

Hybrid QID1210007 and QID1215003

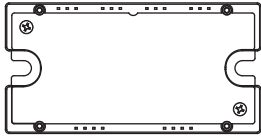


All SiC QJD1210SA1 and QJD1210SA2



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109.9mm x 56.1mm

Line-up Table

| Part Number | Package Configuration | V _{CEs} (V) | I _C (A) |
|-----------------------------------|-----------------------|----------------------|--------------------|
| Split Dual Hybrid Si / SiC | | | |
| QID1210007 - Cu Baseplate | Split Dual | 1200 | 100 |
| QID1215003 - Cu Baseplate | Split Dual | 1200 | 150 |
| All SiC | | | |
| QJD1210SA1 - Cu Baseplate | Split Dual MOSFET | 1200 | 100 |
| QJD1210SA2 - AlSiC Baseplate | Split Dual MOSFET | 1200 | 100 |

Features

QID1210007, QID1215003

- Low ESW(off)
- Aluminum Nitride Isolation
- Discrete Super-Fast Recovery Free-Wheel Silicon Carbide Schottky Diode, 75A or 150A
- High Frequency Silicon from Mitsubishi using NFH IGBT Technology
- Automated Assembly Assures High Reliability
- Low Internal Inductance
- 2 Individual Switches per Module
- Isolated Baseplate for Easy Heat Sinking
- AlSiC Baseplate Available upon Request

QJD1210SA1, QJD1210SA2

- Low Internal Inductance
- Industry Leading R_{DS(on)}
- High Speed Switching
- Low Switching Losses
- Low Capacitance
- Low Drive Requirement
- Fast 75A Free Wheeling Schottky Diode
- High Power Density
- Isolated Baseplate
- Aluminum Nitride Isolation
- 2 Individual Switches per Module
- RoHS Compliant



POWEREX

For more information:

visit: <http://www.pwr.com/summary/SiC-Modules>

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phone: 724-925-7272, Option 3 (Applications Engineering Assistance)

