

SIC-1200-620 MCU

Suitable for hybrid and electric vehicles in automotive, motorsport and aerospace, the current platform of Silicon Carbide (SiC) MOSFET Motor Control Units are a combination of technologies which have been developed and validated through R&D so that they can be applied with high confidence to new projects.

High DC bus voltage capability coupled with advanced liquid cooling allows for high power, phase current and switching frequency in a very compact and lightweight unit.

The unit is self-contained, and designed to be sited adjacent to a high voltage battery assembly, and can

Key Features

- Extremely compact and robust structure
- High Power to Weight and Power to Volume Ratios
- High power capability
- Liquid cooled with water/glycol mixture
- High ingress protection rating
- Suitable for applications across automotive, motorsport and off-highway
- SPM & IPM motors supported
- Torque demand supplied through vehicle CAN link
- Delivered torque derived from motor currents and transmitted through vehicle CAN link
- Field weakening supported
- Capacitive discharge circuit included

Specification

LV Electrical

- Supply voltage 8-16V

Inverter

- Maximum phase current 620 Arms
- Maximum DC bus voltage 950V
- DC bus input capacitance 252uF
- Variable Switching frequency up to 30kHz

Internal Diagnostics

- Two DC link voltage
- One DC link current
- Three Phase current
- Seven Inverter temperatures

be directly coupled or separated via phase cables from the Motor Generator Unit. Permanent magnet synchronous motors of surface or interior types are supported, with full synchronous closed-loop motor control via torque, speed or voltage drop requests through a CAN interface.

This unit is designed and manufactured in-house. Bespoke variants can be provided to suit client performance and package requirements.



Communications

- Vehicle CAN interface (1Mbps)
- Diagnostics CAN & XCP interface (1Mbps)
- 2 RTD machine temperature sensors (-50°C to 250°C)
- 1 Resolver
- Vehicle CAN message protocol defined according to customer requirements

Cooling

- Max inlet temperature 70°C
- Min flow-rate 13L/min (to achieve rated specification)
- Pressure drop 1bar at 13Lm
- Coolant type 90/10 water/glycol
- Max pressure 3bar

Mechanical

- Volume 4.5 Litre
- Mass 5.5Kg
- Dimensions 241 x 229 x 115mm

Environmental

- Ingress Protection to IP67

High Performance 1200V Silicon Carbide MOSFET Motor Control Unit

