Description

The Vicor family of High Voltage BCMs are high efficiency and high-power density bus converters which provide an isolated intermediate bus voltage to power non-isolated point-of-load converters. Using the Vicor unique Sine Amplitude Converter™ topology with fixed high switching frequency and zero voltage and zero current soft switching, the MIL-COTS BCMs offer direct ratio-metric conversion from a 270V Nom input to a range of DC outputs. With millions of hours of operation in the field, the BCM has a demonstrated ability to exceed the stringent reliability requirements needed in defense-based applications. High Voltage MIL-COTS BCM products provide power system engineers superior performance with benchmark efficiency and power density and eliminates constraints of size and height in a design with smaller, lighter and low profile packages.

These products are available in multiple package options including surface-mount and through-hole VI Chips, through-hole ChiPs and chassis or PCB mount VIAs that provides design flexibility and enables multiplicity of thermal design strategies.

Features & Benefits

- High efficiency: Up to 98%
- High power density: Up to 2342W/in³
- Isolation:
  - VI Chips & ChiPs: 4242V DC
  - VIAs: 2121V DC
- Low AC impedance
  - Bulk capacitance elimination
- Thermally adept VIA and ChiP modules
  - Enables easy thermal design, possibly eliminating the need for a fan; Chassis mount version enables system chassis to be part of thermal design
- Integrated filtering to meet Class A or Class B EMI
  - Simplifies EMI and surge protection design, faster time to market
- Analog or Digital Control Interface
  - Digital PMBus® communication allows control and telemetry capability within system design
- Array capable, modular power component
  - Simple modular solution enables 270V conversion to be implemented for multiple power levels
- Voltage, current and temperature protections

Part Numbers

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Input (V)</th>
<th>Output (V)</th>
<th>Output Current (A)</th>
<th>Package</th>
<th>Operating Temperature Range (˚C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBCM270F338M235A00</td>
<td>240 – 330</td>
<td>30.0 – 41.25</td>
<td>7.3</td>
<td>Full VI Chip</td>
<td>–55 to 125</td>
</tr>
<tr>
<td>MBCM270F450M270A00</td>
<td>240 – 330</td>
<td>38.3 – 55</td>
<td>6.25</td>
<td>Full VI Chip</td>
<td>–55 to 125</td>
</tr>
<tr>
<td>BCM6123xD0G5030yzz</td>
<td>200 – 400</td>
<td>25 – 50</td>
<td>30</td>
<td>6123 ChiP</td>
<td>–55 to 125</td>
</tr>
<tr>
<td>BCM4414xD0G5030yzz</td>
<td>200 – 400</td>
<td>25 – 50</td>
<td>30</td>
<td>4414 VIA</td>
<td>–55 to 100</td>
</tr>
</tbody>
</table>

For use in a broad range of defense-based IBA power systems that can run from 270VDC MIL input voltage. Applications include airborne power, high density defense/aerospace power systems and defense/aerospace communications systems.
Typical Applications

270V(dc) (200 – 400V) → BCM → 25 – 55V → PRM → 26 – 55V → VTM → 0.7 – 55V → LOAD

270V(dc) (200 – 400V) → BCM → 25 – 50V → PRM → ZVS Buck → 20 – 55V → LOAD

270V(dc) (200 – 400V) → BCM → 25 – 50V → Digital Isolator → Digital Supervisor → PMBus® → System Processor → LOAD

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