ChiP and VIA Packages

DCM™ Family
Isolated, Regulated DC-DC Converter Modules


Description

The DCM is an isolated, highly efficient, regulated DC-DC converter utilizing high frequency zero-voltage switching (ZVS) topology, operating from an unregulated, wide range input to generate an isolated output. Modular DCM converters and downstream DC-DC products support efficient power distribution, providing superior power system performance and connectivity from a variety of unregulated power sources to the point of load. Leveraging the thermal and density benefits of Vicor’s ChiP packaging technology, the DCM ChiP module offers flexible thermal management options with very low top and bottom side thermal impedances while the DCM VIA module additionally provides integrated EMI filtering, tight output voltage regulation, and a secondary-referenced control interface while retaining the fundamental design benefits of the conventional brick architecture.

Features & Benefits

- Up to 600W, 43.5A continuous
- 93% peak efficiency
- Up to 1244W/in³ power density
- Up to 4,242V_{DC} isolation
- ZVS high frequency switching
- Fully operational current limit
- OV, OC, UV, short circuit and thermal protection
- Integrated filtering, remote or local sense, enhanced thermal management, and tight output voltage regulation over all lines and load conditions for DCM VIA applications

Family of DCM Products

<table>
<thead>
<tr>
<th>Nominal Input (V)</th>
<th>Package Size</th>
<th>Power (W) by Nominal Output Voltage (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3.3</td>
</tr>
<tr>
<td>300 (180 – 420)</td>
<td>4623 ChiP or 3714 VIA</td>
<td>400</td>
</tr>
<tr>
<td>290 (160 – 420)</td>
<td>4623 ChiP</td>
<td>110</td>
</tr>
<tr>
<td>275 (120 – 420)</td>
<td>4623 ChiP</td>
<td>150</td>
</tr>
<tr>
<td>270 (160 – 420)</td>
<td>4623 ChiP or 3714 VIA</td>
<td>80</td>
</tr>
<tr>
<td>100 (43 – 154)</td>
<td>3623 ChiP</td>
<td>160</td>
</tr>
<tr>
<td>48 (36 – 75)</td>
<td>3623 ChiP or 3414 VIA</td>
<td>80</td>
</tr>
<tr>
<td>42 (9 – 75)</td>
<td>3623 ChiP</td>
<td>80</td>
</tr>
<tr>
<td>30 (9 – 50)</td>
<td>3623 ChiP</td>
<td>120</td>
</tr>
<tr>
<td>28 (16 – 50)</td>
<td>3623 ChiP or 3414 VIA</td>
<td>180</td>
</tr>
<tr>
<td>24 (18 – 36)</td>
<td>3623 ChiP</td>
<td>180</td>
</tr>
</tbody>
</table>

= Also Available in VIA package
**DCM Part Numbering**

<table>
<thead>
<tr>
<th>Product Function</th>
<th>Package Length</th>
<th>Package Width</th>
<th>Package Type</th>
<th>Internal Reference</th>
<th>Product Grade (Case Temperature)</th>
<th>Option Field</th>
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</thead>
<tbody>
<tr>
<td>D C M</td>
<td>37 14</td>
<td>x</td>
<td>D H 26 26 y</td>
<td>z z</td>
<td>ChiP mm x 10</td>
<td>T = -40 to 125°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M = -55 to 125°C</td>
<td></td>
</tr>
</tbody>
</table>

**DCM = DC-DC Converter**

ChiP: mm x 10

T = Through Hole Chip

B = Board VIA

V = Chassis VIA

COUT-EXT

Internal Reference

T = -40 to 125°C

M = -55 to 125°C

C = -20 to 100°C

T = -40 to 100°C

M = -55 to 100°C

VIA

01 = Chassis/Analog

05 = Short Pin/Analog

09 = Long Pin/Analog

[a] High temperature power derating may apply.

[b] M-Grade available on selected models. Consult vicorpower.com for details.

[c] ±1% output voltage regulation accuracy on selected models. Consult vicorpower.com for details.

**Typical Application**

Single DCM37114xD2H26D7yyz in Local Sense Operation, to a non-isolated regulator, and direct to load

**Block Diagram**

Typical 24V input to point of load.