VRPower® INTEGRATED CIRCUITS

SiC620R
Dual Cooled VRPower® Device Enables 95 % Efficiency and 70 A Current

SiC789
VRPower Device Offers Industry Best Efficiency in DrMOS 4.0 Footprint

SiC620
VRPower Device in MLP5x5 Offers 95 % Efficiency and 60 A

SiC521
Industry's Smallest DrMOS Offers 25 A in < 16 mm²

www.vishay.com
The Next Generation VRPower® Power Stage

Vishay’s newest family of VRPower modules offers an integrated MOSFET and driver power stage with unsurpassed performance. The flagship device, SiC620R, is capable of 70 A and achieves more than 95 % efficiency in a typical multiphase buck converter design. The device has several package enhancements that enable it to offer superior MOSFET dynamic performance. Combined with Vishay’s state-of-the-art Gen IV MOSFET technology, these enhancements enable 3 % better efficiency and over 50 °C lower operating temperatures compared to previous generation DrMOS devices, while shrinking the footprint by 33 %.

Unique Features

- High-frequency operation up to 1.5 MHz
- Capable of up to 70 A
- 95 % peak efficiency
- 5 V or 3.3 V PWM logic compatible
- Internal zero current detection for light load efficiency improvement
- Low PWM propagation delay (< 20 ns)
- Under-voltage lockout (UVLO)
- Thermal warning flag

Package Enhancements

- Large PGND pad improves electrical and thermal performance
- A flipped low-side MOSFET enables a single clip to form the switch node connection resulting in reduced package parasitics and improved switching performance. The clip is exposed to allow top side cooling

Applications

- Servers and workstations
- Telecom ASIC power
- High-performance notebooks
- Game consoles
- POL modules
- Graphics cards
- Bitcoin mining hardware

Efficiency (%) vs Load (A)

![Efficiency vs Load Graph](image)
# Focus Products

## Product Family

<table>
<thead>
<tr>
<th>Package</th>
<th>Device</th>
<th>Dual Cooled</th>
<th>$V_{IN}$</th>
<th>Max. Current</th>
<th>PWM Level</th>
<th>Gate Drive</th>
<th>Light Load Modes</th>
<th>Protection Features</th>
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<td>UVLO, THWn</td>
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Advantages of Vishay VRPower® Integrated Circuits

• Three compact footprint options
• Industry-leading efficiency
• Lower temperatures improve reliability

For the Following Applications

• Servers and workstations
• Telecom ASIC power
• High-performance notebooks
• Game consoles
• POL modules
• Graphics cards
• Bitcoin mining hardware

Keep your datacenters and server farms running cool with the highly efficient dual cooled SiC620R

Use our compact 3.5 x 4.5 VRPower devices with < 3 µA shutdown current in your ultrabook designs and save battery life

Useful Links

• VRPower (DrMOS) web tables
  www.vishay.com/power-ics/integrated-drmos/
• ThermaSim thermal simulation tool
  www.vishay.com/mosfets/thermasim/