



## 22V and 40V, 3A to 20A High Density Power Modules

### PRODUCT FAMILY

XR79203	40V, 3A	8 x 8 x 4 (mm)
XR79206	40V, 6A	10 x 10 x 4 (mm)
XR79103	22V, 3A	6 x 6 x 4 (mm)
XR79106	22V, 6A	8 x 8 x 4 (mm)
XR79110	22V, 10A	10 x 10 x 4 (mm)
XR79115	22V, 15A	12 x 12 x 4 (mm)
XR79120	22V, 20A	12 x 14 x 4 (mm)

### FEATURES

- Integrated controller, drivers, bootstrap diode / capacitor, MOSFETs, inductors, capacitors
- 22V or 40V maximum input voltage
- 0.6V to 5.5V or 13.2V output voltage range
- High efficiency

### BENEFITS

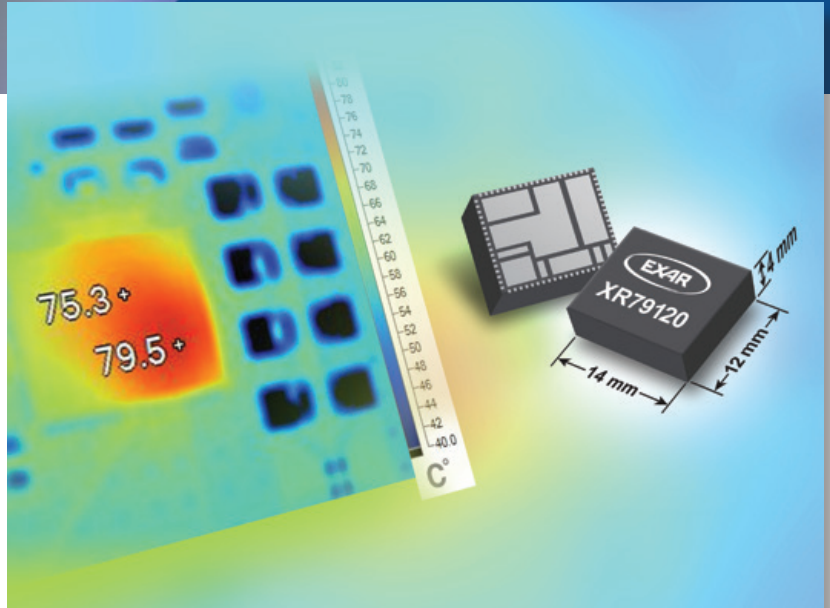
- Complete power stage allows fast time-to-market
- Easy to use
- High density

### EXAR'S DIFFERENTIATION

- Industry's smallest 20A power module
- Low profile allows mounting on backside of boards
- Exceptional thermal performance
- Patented COT control
- QFN packaging with all pins accessible allows for easier debugging
- 260° lead solder temperature easier to manufacture

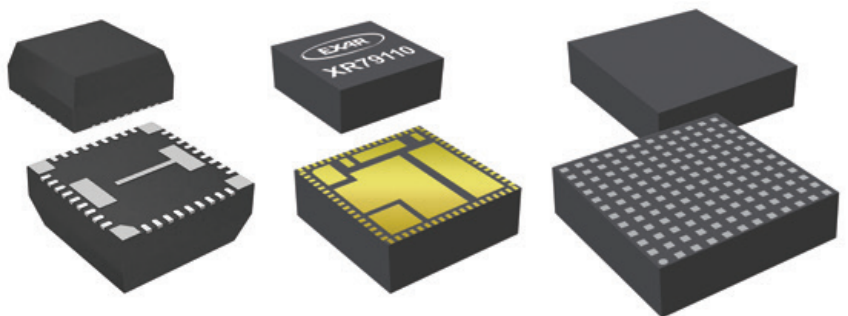
### APPLICATIONS

- FPGA, DSP and ASIC power systems
- Industrial and embedded systems
- Telecommunications
- Industrial control and automation
- Infrastructure equipment
- Drones and remote vehicles



This family of power modules addresses high-current single-channel solutions for various end applications. These synchronous step-down power modules are complete system-in-package power management solutions with fully integrated power converters including MOSFETs, inductors and internal input and output capacitors. A patented emulated current mode Constant On-Time (COT) control provides exceptional full range 0.1% line regulation and 1% output accuracy over the full temperature range. This COT control loop enables operation with ceramic output capacitors, eliminating loop compensation components. Available in a QFN package, our modules provide superior thermal performance and manufacturability. The QFN package makes visual inspection of solder joints possible and eases electrical debugging.

### Exar QFN vs. Competition

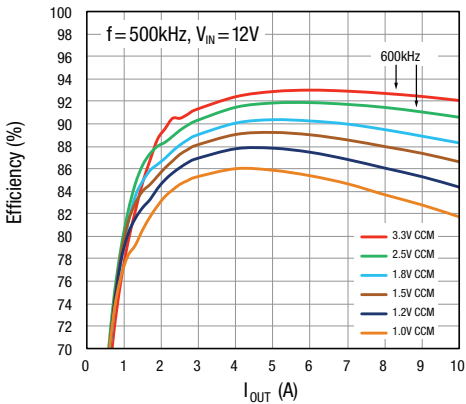


- Large pads provide better thermal performance
- All pins accessible for easier debugging and routing
- 260°C lead solder temperature vs. 245°C (LGA)

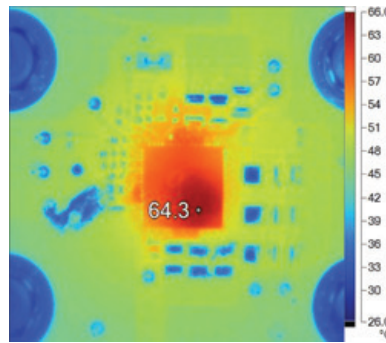
## Power Modules

Part Number	I <sub>OUT</sub> (A)	V <sub>IN</sub> (V)	V <sub>OUT</sub> (V)	Frequency (kHz)	Efficiency (%)	QFN Dimension (mm)	Features
XR79203	3	3 to 40	0.6 to 13.2	300 to 500	95	8 x 8 x 4	<ul style="list-style-type: none"> <li>UVLO</li> <li>OTP</li> <li>Soft-start</li> <li>Adjustable hiccup current limit</li> <li>Short-circuit protection</li> <li>PGOOD</li> </ul>
XR79206	6	3 to 40	0.6 to 13.2	300 to 500	95	10 x 10 x 4	
XR79103	3	3 to 22	0.6 to 5.5	600 to 800	95	6 x 6 x 4	
XR79106	6	3 to 22	0.6 to 5.5	600 to 800	95	8 x 8 x 4	
XR79110	10	3 to 22	0.6 to 5.5	400 to 600	95	10 x 10 x 4	
XR79115	15	3 to 22	0.6 to 5.5	400 to 600	95	12 x 12 x 4	
XR79120	20	3 to 22	0.6 to 5.5	400 to 600	95	12 x 14 x 4	

## Efficiency and Thermal Performance



XR79110 Efficiency



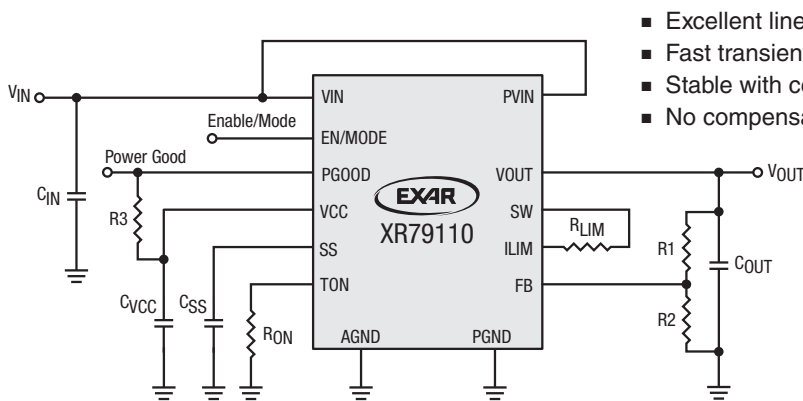
XR79110 Thermal Image



XR79110 Evaluation Board

Thermal performance based on real-world conditions  
(XR79110EVB – compact 2.5" x 2.5" 6 layer board)

## Typical Schematic



- Excellent line and load regulation
- Fast transient response
- Stable with ceramic output capacitors
- No compensation components required



www.exar.com

Exar Corporation reserves the right to make changes to the products contained in this publication in order to improve design, performance or reliability. Exar Corporation conveys no license under any patent or other right and makes no representation that the circuits are free of patent infringement. While the information in this publication has been carefully checked, no responsibility, however, is assumed for inaccuracies.

Reproduction, in part or whole, without the prior written consent of Exar Corporation is prohibited. Exar, XR and the XR logo are registered trademarks of Exar Corporation. All other trademarks are the property of their respective owners.

©2016 Exar Corporation

48760 Kato Road  
Fremont, CA 94538  
USA

Tel.: +1 (510) 668-7000  
Fax: +1 (510) 668-7001  
Email: [powertechsupport@exar.com](mailto:powertechsupport@exar.com)