



## Motor Drives



800.348.5580  
630.208.2200



[rellpower@rell.com](mailto:rellpower@rell.com)  
[rellpower.com](http://rellpower.com)

Richardson Electronics has partnered with top-tier suppliers to bring you high-quality power components that you can trust for your motor drive solutions. We focus on providing power electronics components to electronic AC and DC motor controllers and drives. As a global operation, our company has grown to include a team of experts with diverse backgrounds that can guide you with your motor drive solution. Serving our customers is a value infused in the company culture, and we stand behind every component we deliver.

## What We Do Best



Identify & Design-in New,  
Disruptive Technologies



Industry Leader in  
Power & Microwave  
Technologies



Provide Technical  
Expertise & Engineered  
Solutions



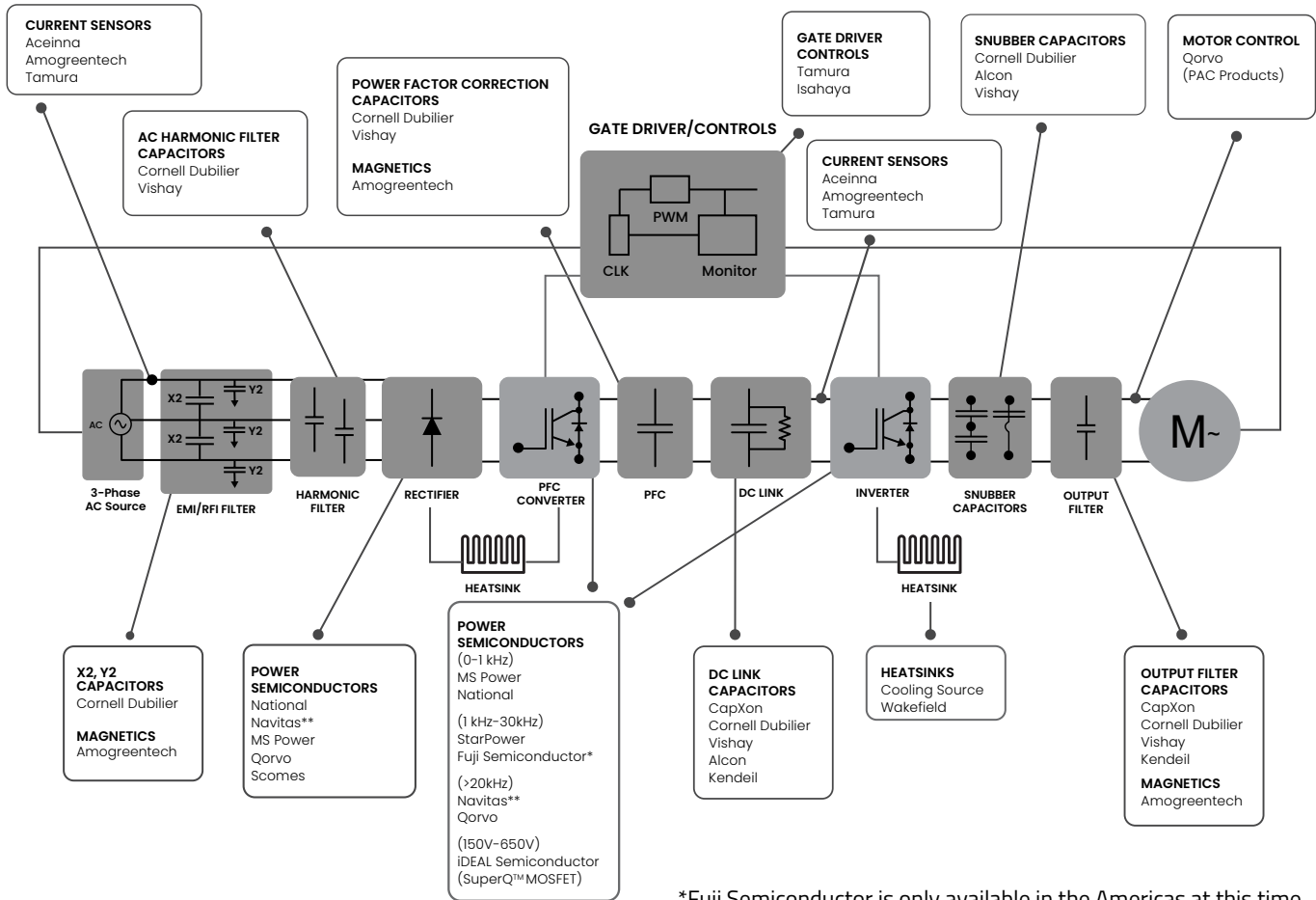
Provide Exceptional  
Global Support



Provide High Quality  
Products for Over 75 Years

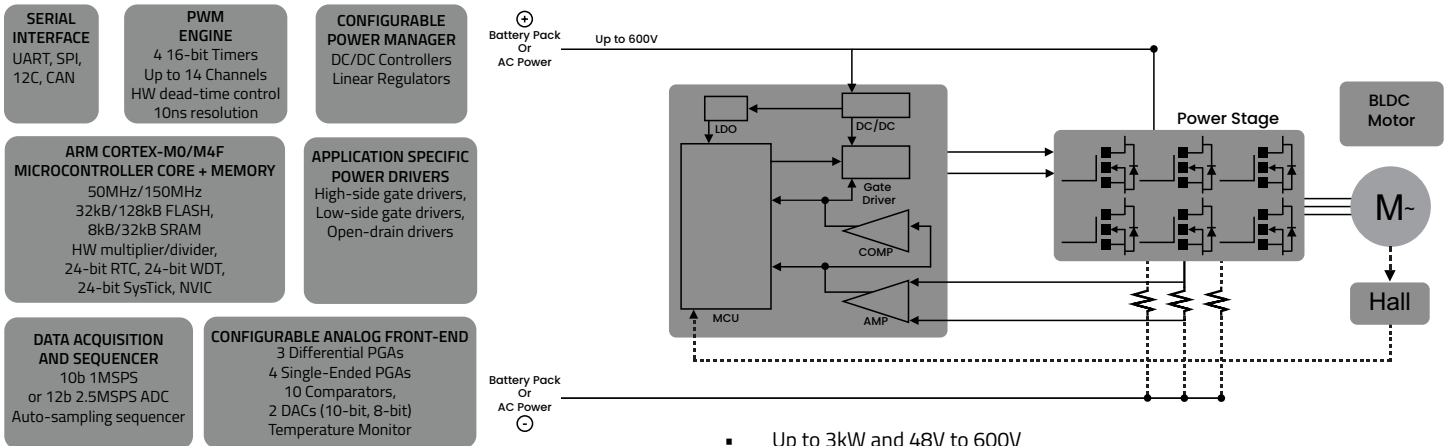
At Richardson Electronics, our team of experts have created comprehensive block diagrams to help provide a schematic of the components necessary for power management. These block diagrams provide a high-level overview of required components and important working relationships – making them valuable tools for design engineers to make the right choice for their component selection.

**MOTOR DRIVES - BLOCK DIAGRAM**



\*Fuji Semiconductor is only available in the Americas at this time  
\*\*Navitas is only available in North America at this time

**QORVO PAC™ POWER APPLICATION CONTROLLER FOR BLDC MOTORS**



- Up to 3kW and 48V to 600V
- PAC Solution has Higher Reliability and lower BOM cost Due to Component Reduction

Power Semiconductor		
Product	Product Ranges	Suppliers
Diode   Rectifier   Discrete   Module	12A-13,500A, 200V-6500V	Scoms   MS Power   National
SCR   Thyristor   Discrete   Module	16A-6500A, 200V-8500V	MS Power   National
IGBT   IPM   DIPIPM   PIM	10A-3600A, 600V-1700V	Fuji Semiconductor   Starpower
Superjunction MOSFET	8A-95A, 600V	Fuji Semiconductor
SuperQ™ MOSFET	150V-650V, RDS <sub>ON</sub> : 3 - 160mohm	iDEAL Semiconductor
SiC Cascode   SiC MOSFET   Discrete	7-1000mohm, 650-6500V	Navitas   Qorvo
SiC Cascode   SiC MOSFET   Module	40A-400A, 1200V-1700V	Navitas   Qorvo
SiC JFET	25-1100mohm, 650V-1700V	Qorvo
SiC Diode   Discrete   Module	1-300A 650-3300V	Navitas   Qorvo
DC Link Capacitors (Aluminum Electrolytic & Power Film)		
Product	Product Ranges	Suppliers
Aluminum Electrolytic   Solid Conductive Polymer   Hybrid Conductive Polymer	.47uf-1.5F, 5V-600V	CapXon   Cornell Dubilier   Kendeil   Alcon
Terminal Type: Axial   Radial   Flatpack   Snap   Screw   SMD		
Power Film	1uf-100,000uf, 1uf-50,000uf	Cornell Dubilier   Kendeil   Alcon   Vishay
Terminal Type: Box   Screw   Low Profile   Module   Custom		
AC Filter/Harmonic Film Capacitors		
Product	Product Ranges	Suppliers
Configurations: Oil   Dry	1uf-4000uf, 240VAC-1400VAC	Cornell Dubilier   Vishay
Cases: Box   Oval   Cylindrical   Welded		
Output Type: Single Phase   Three Phase		
PFC (Power Factor Correction) Film Capacitors		
Product	Product Ranges	Suppliers
Configurations: Oil   Dry	.5KVAR-325KVAR, 240VAC-4800VAC	Cornell Dubilier   Vishay
Cases: Cylindrical   Welded		
Output Type: Single Phase   Three Phase		
EMI/RFI Capacitors		
Product	Product Ranges	Suppliers
X1/X2 Film Capacitors   Y1/Y2 Film Capacitors	1nf-40uf, 240VAC-480VAC	Cornell Dubilier   Vishay
Terminal Type: Box		
Snubber Capacitors		
Product	Product Ranges	Suppliers
Polypropylene Film	1nf-45uf, 160V-3000V	Cornell Dubilier   Alcon   Vishay
Terminal Types: Axial   Box   Oil Filled   Direct Mount		
DC Output Capacitors (Aluminum Electrolytic & AC Film)		
Product	Product Ranges	Suppliers
Aluminum Electrolytic   Solid Conductive Polymer   Hybrid Conductive Polymer	33uf-2.7F, 10V-600V	CapXon   Cornell Dubilier   Kendeil   Alcon
Terminal Type: Axial   Radial   Snap   Screw   SMD		
AC Film	1uf-4000uf, 240VAC-1400VAC	Cornell Dubilier   Alcon   Vishay
Terminal Types: Box   Screw		

Current Sensors		
Product	Product Ranges	Suppliers
Flux Gate	6A-150A	Amogreentech   Tamura
Hall Effect Open	3A-1500A	
Hall Effect Closed	6A-2000A	
Split Type (Ferrite)	60A-400A	
High Accuracy & Low Ratio Error (Nanocrystalline)	5A-120A	
Excellent Linearity & Precision (Amorphous Nanocrystalline)	40A-120A	Aceinna
Advanced AMR Current Sensors	±5A-65A	
Gate Driver   DC-DC Converters   Hybrid IC's		
Product	Product Ranges	Suppliers
DC-DC Converter (for customers to design own gate drive)   Gate Driver Module (need to add gate resistors)   Gate Driver complete solution   IGBT Mountable Type	15A-3600A Class IGBT & SiC Modules	Isahaya   Tamura
Thermal Management		
Product	Suppliers	
Board Level   Extrusion   Bonded Fin   Folded Fin   Skived Fin   Swaged Fin   Stamped Fin   Heat Pipe Assembly   CPU Coolers   Liquid Cold Plates   Die Casting   Fabricated Complete Solution   Thermal Analysis Capabilities   Thermal Interface Material (TIM)   Thermal Grease   SCR & Diode Clamp Systems   Custom Fabrication	Amogreentech   Cooling Source   National   Wakefield	
Magnetics		
Product	Suppliers	
Materials: Fe Amorphous   Nanocrystalline   Fe Based Metal Cores	Amogreentech	
Components: Inductor   AC Choke   DC Choke   Common Mode Choke   PFC Choke   Output Choke   EMI Filter   Reactor		
Filter Design: Inductor   CMC   Capacitor		
Power Application Controllers		
Product	Product Ranges	Suppliers
Power Application Controller (PAC)	50-128MHz Cortex 32-128kB Flash 8kB-32kB SRAM Fully integrated 3 HS/3 LS Gate Drivers (up to 600V) Configurable for 5V-600V DC applications (120-240AC) QFN Packaging	Qorvo

Richardson Electronics, Ltd. provides solutions and add value through design-in support, systems integration, prototype design, manufacturing, testing, and logistics. Contact us or find the products you need for your design at [rellpower.com](http://rellpower.com).

Richardson Electronics has been an industry-leader in providing high-quality products and outstanding engineering support for over 75 years. Our extensive global distribution network and world-class partners provide our customers with innovative technologies, products and services.

## CORPORATE HEADQUARTERS

40W267 Keslinger Road  
LaFox, IL 60147-0393  
United States  
Phone: (630) 208 2200  
Phone: (800) 348 5580  
Fax: (630) 208 2550  
Email: sales@rell.com

## NORTH AMERICA

Arizona  
Phone: (800) 348 5580  
Fax: (818) 594 5550  
Email: sales@rell.com

Arkansas  
Phone: (800) 348 5580  
Fax: (630) 208 2550  
Email: sales@rell.com

California  
Phone: (800) 348 5580  
Fax: (630) 208 2550  
Email: sales@rell.com

Colorado  
Phone: (800) 348 5580  
Fax: (630) 208 2550  
Email: sales@rell.com

Florida  
Phone: (800) 348 5580  
Fax: (630) 208 2550  
Email: sales@rell.com

Massachusetts  
Phone: (800) 348 5580  
Fax: (630) 208 2550  
Email: sales@rell.com

New Hampshire  
Phone: (800) 348 5580  
Fax: (630) 208 2550  
Email: sales@rell.com

New York  
Phone: (800) 348 5580  
Fax: (630) 208 2550  
Email: sales@rell.com

North Carolina  
Phone: (800) 348 5580  
Fax: (630) 208 2550  
Email: sales@rell.com

Texas  
Phone: (800) 348 5580  
Fax: (630) 208 2550  
Email: sales@rell.com

## CANADA

Phone: (630) 208 2200  
Email: canada@rell.com

## LATIN AMERICA

São Paulo, Brazil  
Phone: +55 (11) 5186 9655  
Fax: +55 (11) 5186 9678  
Email: brazil@rell.com

Mexico City, Mexico  
Phone: +(52) 55 5514 0503  
Email: mexico@rell.com

## EMEA

Paris, France  
Phone: +33 (01) 78 95 87 90  
Email: france@rell.com

Puchheim, Germany  
Phone: +49 (89) 81 89 12 80  
Fax: +49 (89) 81 89 12 81 0  
Email: germany@rell.com

Florence, Italy  
Phone: +39 (055) 420 83 1  
Fax: +39 (055) 421 07 26  
Email: italy@rell.com

Milan, Italy  
Phone: +39 (039) 653 145  
Fax: +39 (039) 653 835  
Email: italy@rell.com

Madrid, Spain  
Phone: +34 (91) 528 3700  
Fax: +34 (91) 467 5468  
Email: spain@rell.com

Lincoln, England  
Phone: +44 (0) 1522 548598  
Email: uk@rell.com

Stockholm, Sweden  
Phone: +46767913333  
Email: sweden@rell.com

Hoofddorp, Netherlands  
Phone: +31 (0) 85 487 8287  
Email: netherlands@rell.com

Ramat Gan, Israel  
Phone: +972 54 3226306  
Email: israel@rell.com

## ASIA

Beijing, China  
Phone: +86 138 1095 6824  
Email: china@rell.com

Nanjing, China  
Phone: +86 25 8315 8416  
Fax: +86 25 8315 9416  
Email: china@rell.com

Shanghai, China  
Phone: +86 21 6209 0286  
Fax: +86 21 6259 6972  
Email: china@rell.com

Shenzhen, China  
Phone: +86 1382 655 8535  
Fax: +86 21 6259 6972  
Email: china@rell.com

Mumbai, India  
Phone: +91 77 7704 2682  
Email: india@rell.com

Tokyo, Japan  
Phone: +81 3 6380 8441  
Fax: +81 3 6380 8438  
Email: japan@rell.com

Seoul, Korea  
Phone: +82 2 539 4737  
Fax: +82 2 556 4734  
Email: southkorea@rell.com

Singapore, Singapore  
Phone: +65 6 846 9241  
Fax: +65 6 846 1065  
Email: singapore@rell.com

Taipei, Taiwan  
Phone: +886 (2) 2698 1688  
Fax: +886 (2) 2698 1652  
Email: taiwan@rell.com

Bangkok, Thailand  
Phone: +66 (2) 318 8937  
Fax: +66 (2) 318 8939  
Email: thailand@rell.com

Ho Chi Minh City, Vietnam  
Phone: +60 123 223 096  
Email: vietnam@rell.com

Oceania  
Phone: +61 3 9874 8292  
Fax: +61 3 9874 8248  
Email: anz@rell.com

Melbourne, Australia  
Phone: +61 3 9874 8292  
Fax: +61 3 9874 8248  
Email: anz@rell.com

New Zealand  
Phone: +61 3 9874 8292  
Fax: +61 3 9874 8248  
Email: anz@rell.com