



HELPING DESIGN YOUR NEXT GREAT PRODUCT

Power Product Guide **September 2019**



**COMMON
MODE CHOKES**



**CURRENT SENSE
MAGNETICS**



INDUCTORS



**SWITCH MODE
TRANSFORMERS**



**GATE DRIVE
TRANSFORMERS**

Core Skills

- Demonstrated design/engineering and high volume expertise
- Strong relationships with leading electronic OEM's & CEM's
- Excellent value and outstanding quality products delivered from high-volume production facilities
- Geographic proximity to customers' design and production sites
- Worldwide distribution support

Resources

- Pulse Website
 - » Application Pages
 - » Product Finder
 - » LTspice
 - » Cross Reference Tools
 - » Buy Now
 - » Sample Portal
 - » White Papers
 - » Datasheets
 - » Product & Application Support

www.power.pulseelectronics.com/resources/support



Table of Contents

Focus Markets.....	4-5
New Products.....	6-15
New Power Magnetics for Automotive Products.....	6
New High Power Magnetics.....	7
New High Efficiency Composite Core Inductors	8
New High Efficiency Molded Inductors.....	9
New SMT Power Bead Inductors	10
High Power Density Transformers.....	11
New High Voltage Isolation Transformers.....	12
New Small Form Factor Current Sense Transformers	13
New Common Mode Choke Platforms.....	14
Product Overview.....	15-17
Power Inductors.....	15
High-Frequency Switch Mode Transformers.....	15
Gate Drive Transformers.....	16
Current Sense Magnetics.....	16
Common Mode Chokes.....	17
Custom Magnetic Assemblies.....	17
Pulse Map Locations.....	18
Pulse Distributors	19

Pulse offers a complete range of magnetics for high-frequency switching power supply applications. Our experts also have the capacity to design and manufacture a wide array of custom and application specific magnetics.

Focus Markets



INDUSTRIAL MARKET

Applications

- Automation
- Process Controls
- Robotics
- Security Displays
- Smart Grid



AUTOMOTIVE MARKET

Applications

- ADAS - Advanced Driver Assistance Systems
- BMS - Battery Management Systems
- OBC - On Board Charger
- Lighting Control
- Camera and Security Systems



COMPUTING

Applications

- Servers
- Work Station
- Laptops
- Graphics Cards
- Network Attached Storage
- Hard Drives

And Applications

COMMUNICATIONS

Applications

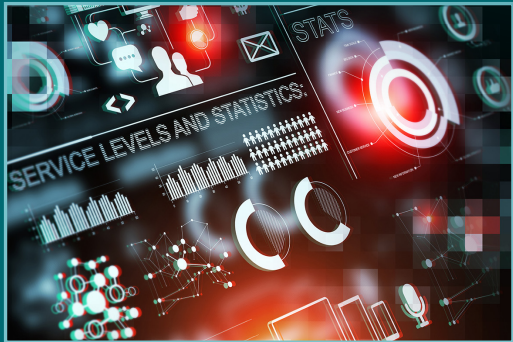
- Switches
- Routers
- Gateways
- Access Points
- Base Stations



CONSUMER

Applications

- Gateway/Router
- Security
- Home Automation
- Displays/TV's
- Lighting



ENERGY

Applications

- Smart Grid
- Solar Inverter
- Metering & Storage
- Load Control
- Security



NEW POWER MAGNETICS FOR AUTOMOTIVE PRODUCTS



- 70W DC/DC Power
- Transformers
- 17.7 x 14.5 x 14mm Max
- 9-72v input, 5-24v output

PM2160



- SMT Current Sense Transformer
- 8.38 x 7.21 x 4.95mm Max
- Multiple Turns Ratios
- 20Arms

PM2165



- Isolation Transformers
- 12.5 x 9.2 x 7.6mm Max
- Multiple Turns Ratios
- 4kVrms reinforced isolation

PM2185



FEATURES & BENEFITS

- Catalog available
- IATF/PPAP and AEC-Q200 ready
- CM Chokes, Current Sense, Isolation Transformers and Power Transformers

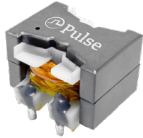
APPLICATIONS

- Hybrid, Electric and Conventional Vehicles
- Charging Stations
- Other high reliability systems

MORE PRODUCTS

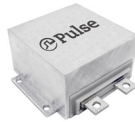
- **PM2155** Isolation Transformer, 4kVrms
- **PM217x** Current Sense, 35Arms
- **PM2175** CM Choke, Up to 5Arms
- **PM2180** Isolation Transformer, 1.5kVrms
- **PM2190** Isolation Transformer, 5.0kVrms

NEW HIGH POWER MAGNETICS



- Resonant Inductor
- 36.5 x 35 x 25mm Max
- 18uh/20Apk

PM2223



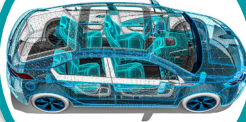
- Power Transformer
- 1.8kW, 12 to 1:1 ratio
- 86 x 71 x 34mm Max

PM2224



- Output Inductor
- 63 x 47.5 x 28.5mm Max
- 2.1uH/170Apk

PM2225



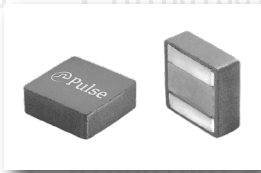
FEATURES & BENEFITS

- Resonant Inductor, Transformer and Output Inductor for Phase Shifted Full Bridge
- Optimized to minimize AC losses and maximize overall efficiency
- Standard Magnetics ready for implementation

APPLICATIONS

- Hybrid and Electric Vehicles
- EV Charging Stations
- 400v to 14v/1.8kW Systems

NEW HIGH EFFICIENCY COMPOSITE CORE INDUCTORS



Industry Size	Pulse Part Number		Footprint (Max)	Height (Max)
	Commercial	Automotive		
	-40C to 125C	-55C to 155C AEC-Q200		
4020	PA5001	PM2201	4.3mm x 4.3mm	2.1mm
5020	PA5002	PM2202	5.7mm x 5.5mm	2.1mm
5030	PA5003	PM2203	5.7mm x 5.5mm	3.1mm
5050	PA5175	PM5175	5.7mm x 5.5mm	5.0mm
6030	PA5004	PM2204	6.8mm x 6.6mm	3.1mm
6050	PA5005	PM2205	6.8mm x 6.6mm	5.0mm
7020	PA5006	PM2206	8.1mm x 7.8mm	2.1mm
7030	PA5007	PM2207	8.1mm x 7.8mm	3.1mm
7070	PA2240	PM2240	8.1mm x 7.8mm	7.0mm
1510	PA2247	PM2247	16.4mm x 15.4mm	10.0mm
1513	PA2248	PM2248	16.4mm x 15.4mm	13.0mm



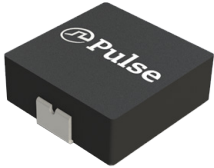
FEATURES & BENEFITS

- No Thermal Aging
- Industry Standard footprint
- Soft Saturation
- Highest Energy Storage Density (uJ/cm³) of any available inductor

APPLICATIONS

- HEV, EV and conventional vehicles
- Telecom and Data-com Gear
- Consumer Applications
- Industrial Control and Automation

NEW HIGH EFFICIENCY MOLDED INDUCTORS



Industry Size	Pulse Part Number			Footprint (Max)	Height
	Commercial	Automotive			
	-55C to 125C	-55C to 155C	155C to 155C		
1212AB	PA5400	PM5400		3.8mm x 3.4mm	1.2mm
1212AE	PA4547	PM4547		3.8mm x 3.4mm	1.5mm
1212BZ	PA5401	PM5401		3.8mm x 3.4mm	2.0mm
1616AB	PA4546	PM4546		4.7mm x 4.3mm	1.2mm
1616BZ	PA5402	PM5402		4.7mm x 4.3mm	2.0mm
2020AB	PA5403	PM5403		6.0mm x 5.4mm	1.2mm
2020BZ	PA4345	PM4345	PA4345A	6.0mm x 5.4mm	2.0mm
2020CZ	PA4340	PM4340	PA4340A	6.0mm x 5.4mm	3.0mm
2525AH	PA5447	PM5447		6.0mm x 5.4mm	1.8mm
2525BD	PA4548	PM4548		6.0mm x 5.4mm	2.4mm
2525CZ	PA4341	PM4341	PA4341A	7.4mm x 6.8mm	3.0mm
3232CZ	PA5448	PM5448			
3232DZ	PA5449	PM5449			
4040DZ	PA4342	PM4342	PA4342A	11.3mm x 10.3mm	4.0mm
5050CE	PA5405	PM5405		14.0mm x 12.8mm	3.5mm
5050EZ	PA4346	PM4346	PA4346A	14.0mm x 12.8mm	5.0mm
5050FD	PA4343	PM4343	PA4343A	14.0mm x 12.8mm	6.5mm
6767GZ	PA4344	PM4344	PA4344A	17.7mm x 17.2mm	7.0mm
8787MZ			PA4349A	24.0mm x 22.3mm	

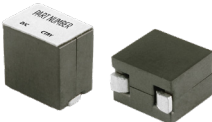
FEATURES & BENEFITS

- Multiple Competitive Cross References
- Shielded construction, Reduced Flux Leakage for better EMI
- Handles high transient current spikes without saturation
- Corrosion Resistant Surface
- Sealed Construction for low audible noise

APPLICATIONS

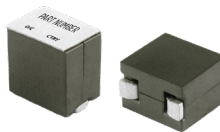
- Industrial
- Automotive
- Consumer
- Communications
- Computing

NEW SMT POWER BEAD INDUCTORS



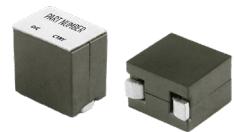
- SMT Power Inductor
- 7.2x6.7x11.0 mm Max
- 120-330nH
- 75Apk

PA5041



- SMT Power Inductor
- 10 x 6 x 12 mm Max
- 100-330nH
- 125Apk

PA4990



- SMT Power Inductor
- 10 x 6.4 x 9.6mm
- 70-150nH
- * 125Apk

PA5161



FEATURES & BENEFITS

- Designed for leading DC/DC multi-phase power solutions and PoL Power
- Automated construction for high reliability
- Thin form factor to minimize board space

APPLICATIONS

- Server, Storage, Graphics Cards, High Power ASICs and FPGAs
- Memory and Processor Power

MORE PRODUCTS

- **PA4499** 10 x 8 x 10mm

HIGH POWER DENSITY TRANSFORMERS



- 24W Transformer, EP13R
- 17.7x13.5x16.5mm Max
- Reinforced Insulation
- 5kVrms Isolation

PA5000, PA5111, PA5112



- 30W Transformer, EP7+
- 13.2x11.5x15.0mm Max
- Functional Insulation
- 2.25kVrms Isolation

PA5099, PA5100



- 40W Transformer, EP10+
- 15.1x13.0x15.0mm Max
- Functional Insulation
- 2.25kVrms Isolation

PA5130, PA5131



FEATURES & BENEFITS

- Industry Standard Footprint
- >2x power density than competing solutions
- Multiple turns ratios available for a wide range of input and output voltages
- Designed for flyback and forward applications



APPLICATIONS

- Power Over Ethernet
- Data-com
- Computing
- Security Cameras
- Industrial



MORE PRODUCTS

- **PH9585** 3W Flyback

NEW HIGH VOLTAGE ISOLATION TRANSFORMERS



- High Isolation Transformer
- 16.7 x 16.5 x 14.2mm Max
- Reinforced Insulation
- 5kVrms Isolation

PH9400



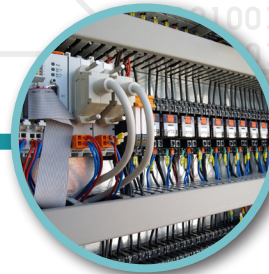
- Push Pull Transformer
- 16 x 16 x 7.4mm Max
- Basic Insulation
- 4kVrms

PH9385



- High Isolation Transformer
- 13 x 10 x 12.5mm Max
- Reinforced Insulation
- 5kV Isolation

PH9185



FEATURES & BENEFITS

- Multiple Competitive Cross References
- High Energy Storage Density
- Corrosion Resistant Finish
- Reduced Flux Leakage for improved EMI
- Automated Manufacturing Processes
- Outstanding Quality

APPLICATIONS

- Industrial products
- AC/DC and DC/DC power supplies
- Energy storage products

MORE PRODUCTS

- **PH9184** Isolation
- **PG1427** Composite Inductors
- **PH9184** 4kVrms, Basic
- **PG1427** 2.7kVdc, Functional
- **PH9084** 1.5kVrms, Functional
- **PH9085** 2.5kVrms, Functional
- **PH9384** 4.0kVrms, Reinforced

NEW SMALL FORM FACTOR CURRENT SENSE TRANSFORMERS



- EE8 Current Sense
- 12.8 x 9.7 x 7.2mm Max
- 30Arms
- 2250Vrms, Functional

PH9494



- EP10 SMD Platform
- 13.6 x 12.8 x 14.4mm Max
- 30Arms
- 3000 Vrms, Reinforced

PH9505



FEATURES & BENEFITS

- Low DCR primary winding to minimize losses
- Robust construction for high vibration environments
- Small form factor to improve power density

APPLICATIONS

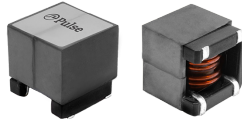
- SMPS
- Datacom
- Telecom
- Home Automation
- Smart Grid

NEW COMMON MODE CHOKE PLATFORMS



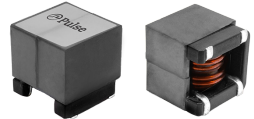
- SMT Common Mode Choke
- 7.5 x 6.5 x 3.8mm Max
- Up to 9A

PA4339



- EP18 Platforms
- 18 x 19 x 19mm Max
- Up to 21A (140 μ H)
- 1000Vrms

PA5140



- EP22 Platforms
- 23 x 23 x 23mm Max
- Up to 32A (140 μ H)
- 1000Vrms

PA5141



FEATURES & BENEFITS

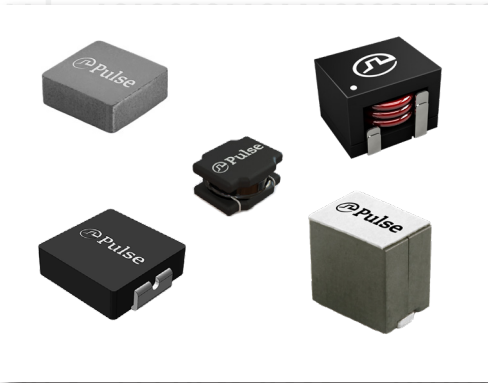
- High Current in Compact SMT Packages
- Suitable for high switching frequency applications
- Improve EMI performance

APPLICATIONS

- LED Lighting
- DC/DC Power Supply
- Industrial Control
- Data-com/Telecom
- Renewable/Solar Power

PRODUCT OVERVIEW

POWER INDUCTORS



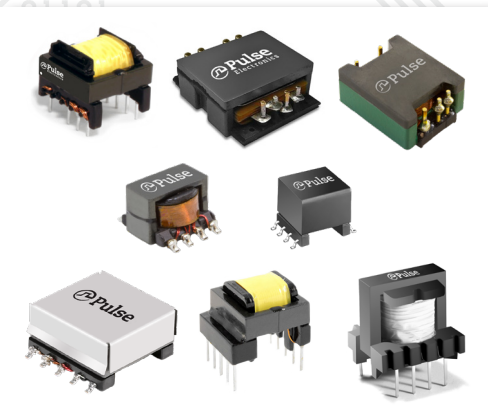
SURFACE MOUNT (SMT)

- Unshielded Drum Core Inductors (up to 30 A)
- Shielded Drum Core Inductors (up to 17 A)
- Power Bead Inductors (up to 71 A)
- Molded Powder Inductors (up to 55 A)
- Composite core inductors (up to 60A)
- Planar and Round Wire Coil Inductors (up to 73 A)
- Toroid Inductors (up to 40 A)

THROUGH HOLE (THT)

- Toroid Inductors (up to 48 A)

HIGH-FREQUENCY SWITCH MODE TRANSFORMERS



SURFACE MOUNT (SMT)

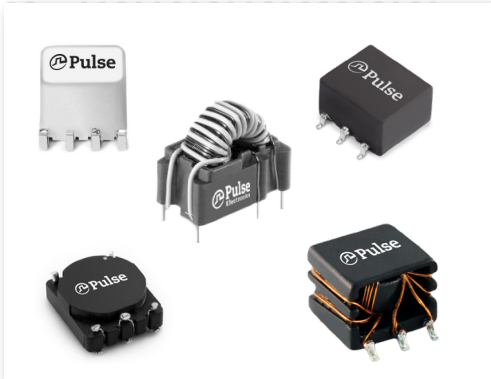
- Planar Transformers (150 W, 300 W, 800W)
- Wirewound Transformers (Up to 200 W)
- High Isolation Transformers (up to 5kVrms)
- Custom transformers available upon request

THROUGH HOLE (THT)

- Wirewound Transformers (Up to 1.8kW)
- Custom transformers available upon request

PRODUCT OVERVIEW

GATE DRIVE TRANSFORMERS



SURFACE MOUNT (SMT)

- Functional, Basic and Reinforced Insulation, up to 5kVrms Isolation

THROUGH HOLE (THT)

- Reinforced Insulation for AC/DC Applications (4000 Vrms)

CURRENT SENSE MAGNETICS



SURFACE MOUNT (SMT)

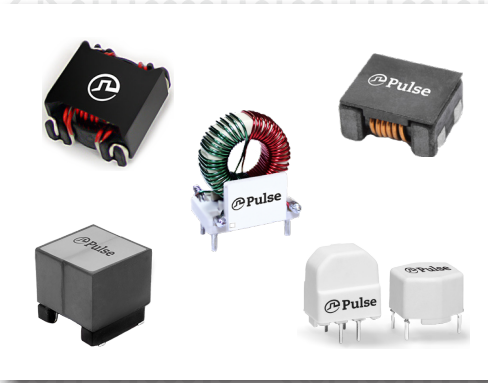
- Functional, Basic and Reinforced Insulation, up to 4kVrms Isolation
- Multiple package sizes and current ratings (4A to 35A)

THROUGH HOLE (THT)

- Reinforced Insulation (3000 Vrms)
- Multiple platforms (up to 30 A)

PRODUCT OVERVIEW

COMMON MODE CHOKES



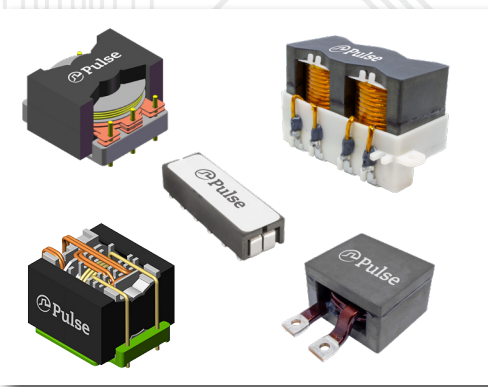
SURFACE MOUNT (SMT)

- Up to 30Arms
- 500Vrms and 1500Vrms Isolation
- Multiple package sizes and form factors
- Custom designs available upon

THROUGH HOLE (THT)

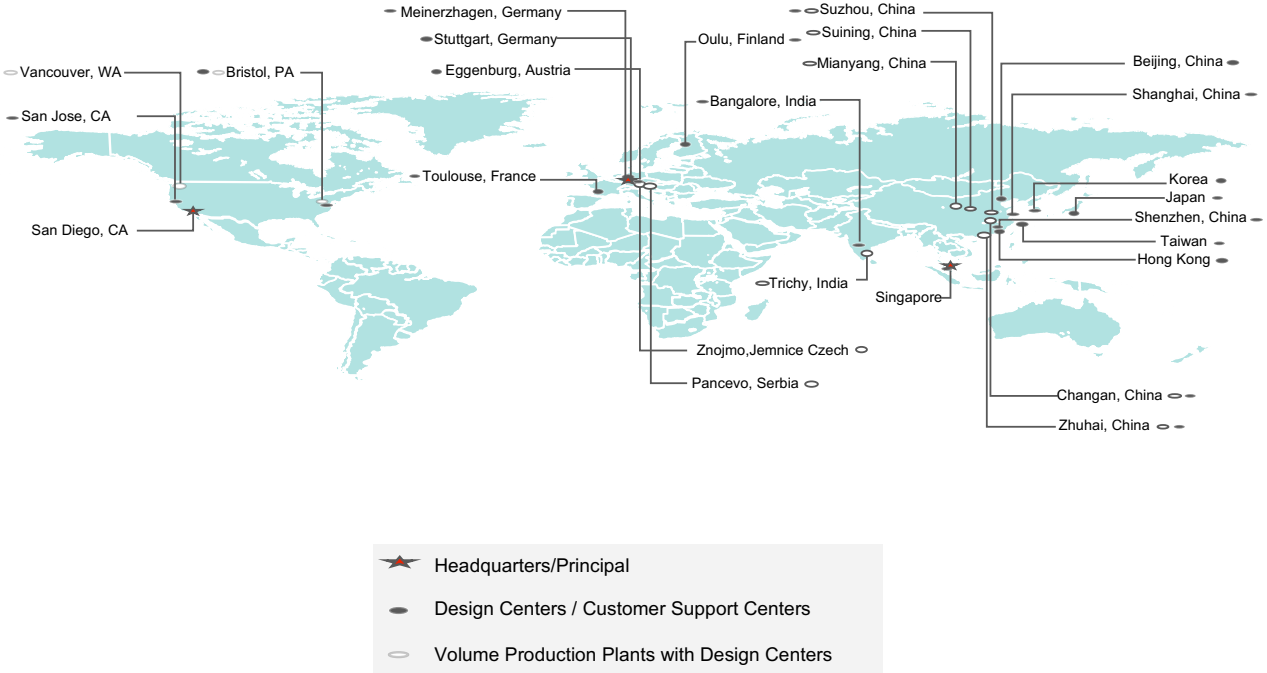
- Up to 23 A
- 3000 Vrms Isolation
- Multiple package sizes available

CUSTOM MAGNETIC ASSEMBLIES



- Pulse offers a wide range of customized magnetic solutions for automotive, industrial, communications and computing applications

PULSE LOCATIONS



■ Visit the Pulse Electronics website to view a wide range of technical papers
www.power.pulseelectronics.com

■ LT Spice Models, 3D Step Files, Qualification Data and Reliability Numbers are all available upon request



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Helping Design Your
Next Great Product



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