PLANAR Magnetics DESIGN

PARTNER | SOLVE | DELIVER™

WE MATTER.™
www.standexmeder.com
WHAT WE DO
Our team has been providing solutions through high-performing products since the 1950’s. Through growth, acquisition, strategically partnering with customers, and applying the latest engineering designs to the needs of our ever-changing world, our technology has infused transforming results into an array of customer’s needs – ultimately providing quality results to the end-user. Our approach that fuels this is achieved by:

1. Partnering with the customer
2. Confronting a challenge to solve
3. Delivering solutions and products that address your needs as a business.

WHAT WE BELIEVE
Our values and what we believe align to the partner, solve, and deliver approach. We produce parts but we are more than that. Connecting with your team as a strategic partner, listening to your challenges, and arriving at ways to solve your complex problems through our solutions are why we exist. Whether it’s custom or standard we have capabilities that address your needs. Our team leverages our dynamic and diverse engineering expertise and other resources such as our global facilities for logistics and production.

CAPABILITIES
Standex-Meder Electronics has a commitment to absolute customer satisfaction and customer-driven innovation, with a global organization that offers premier sales support, engineering capabilities, and technical resources worldwide. At Standex-Meder Electronics, customer-specific product development has never been a problem. With our expert engineering staff and cutting-edge manufacturing capabilities, we are well-equipped to produce unique solutions for just about any environment or application.

**MANUFACTURING**
- Auto AT Switch Sorting
- Bobbin and Toroidal Winding
- Auto Termination
- Coil Molding & Packaging
- Insert and Thermoset Molding
- Laser Welding
- Low Pressure Molding (Hot Melt)
- Pick & Place – Vision & Camera System
- Plasma Surface Treatment
- Plastic Injection Molding
- Potting - 2 Component
- Progressive Stamping
- Reflow Oven – Multiple Zone Convection
- Reed Switch Manufacturing
- Reed Relay Design and Manufacturing - SMD, Low Thermal, High Insulation, High Voltage, High Frequency, Latching and ATEX, Selective Soldering
- Stainless Steel Fabrication

**QUALITY / LAB CAPABILITIES**
- Certifications: AS9100, ITAR, ISO9000, TS16949, IP67
- SPC Data Collection
- Fully Equipped Certified Test Labs
- Burn-in and Life Testing
- Complete In-House Machine Shop
- Corona Discharge Testing Capabilities
- Mechanical and Thermal Shock
- Microscopic Investigation / DPA
- Moisture Resistance and Seal Testing
- Radiographic Salt Fog and Solderability
- Scott T Angular Accuracy
- Terminal Strength
- Thermal Cycling
- Temperature Rise and Vibration

**TESTING & TOOLING**
- Automated Assembly and Test Systems
- Environmental and Durability Testing
- Life Testing
- Specialized Lab Testing Equipment including but not limited to: Network Analyzers, Fluxmeters, Nanovoltmeters, Picocammeters, Destructive Pull Testers, Gauss / Testameters

**ENGINEERING**
- Electronic sensor engineering
- Circuit Design and PCB Layout
- Patented Conductivity Sensors
- Patented Inductive Sensors
- 3-D CAD Modeling
- 3-D Magnetic Sensor Mapping
- EMS Software
- PCB Prototyper
- Quick Turn Samples, 3-D Printing

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Fill out a design request today! | meder.com/planartransformers.html
“CUSTOM IS STANDARD” - Why SME Planar Transformers & Inductors?

As more and more industries begin to feel the push toward higher efficiency and performance along with miniaturization, the planar transformer continues to emerge as an alternative to wire-wound transformers, making it ideal in certain application “sweet spots”. This solution makes so much sense for today’s applications, and when you combine planar transformers with excellent engineering, you can get a solution that not only saves you space, time, and costs, but suits your needs uniquely and specifically. We are your “Application Engineering Experts”.

The unique P025 - P1100 product line of planar transformers come in standard sizes and with hundreds of lead frames and PCB windings in stock, they can be quickly customized often without start-up or tooling costs for many power topologies, including soft switching, single or multiple outputs, different switching frequencies, and different input/output voltages as well as multi-winding inductors. Refer to the below Custom Design Guide Overview.

### STANDEX-MEDER UNIQUE ADVANTAGES

- Patented (U.S. PAT. 7,129,809) header and terminal (U.S. PAT. 7,460,002) design yielding superior thermal management
- Direct thermal contact between bottom of ferrite core and heat dissipating substrate
- Can attach to a substrate/heatsink with controlled temperature
- Stable and precise co-planarity of terminals on both sides
- Excellent solderability characteristics
- Planar turn surface in direct contact core backwall, thus greatly improving thermal conductivity and reducing EMI
- Flexible, low impedance terminations
- Able operate without any air flow for cooling
- Meets required min. 8mm clearance and creepage

### ELECTRICAL & MECHANICAL SPECS

- **Height** - low profile
- **Low leakage inductance**
- **Repeatable leakage inductance, capacitance**
- **Volumetric efficiency (small size)**
- **Low turns count improves Cu loss**
- **Optimized core cross section lowers core loss**
- **Low turns count improves Cu loss**
- **Large core surface promotes heat transfer**
- **Low loss, reliable PCB construction**
- **AC Resistance and Proximity Cu Loss Minimized**

### APPLICATIONS

- AC-DC resonant designs
- Aerospace & Military (high reliability/repeatability)
- **Appliance**
- **Automotive, Electric and Hybrid Vehicles**
- **Battery Charging (12V, 24V, 48V, 1-10 KW)**
- **DC-DC Converters (100W-1200W) in distributed power systems**
- **Distributed Isolated Power**
- **Feedback Control**
- **High Current POL Converters**
- **High Power LED Lighting, Industrial Power, Welding**
- **Isolated Inverters**
- **Isolated (non-regulated) Bus Converter (Vout 9-12V)**
- **Renewable Energy - Wind & Photovoltaic Power System**
- **Server – Data Centers (400VDC)**
- **Telecom Applications (“Sweet Spot” 36-72 Vin 40-250W)**
- **Welding, Lasers, Test Equipment**

### Planar Magnetics Custom Design Guide

<table>
<thead>
<tr>
<th>Size #</th>
<th>Power Range</th>
<th>Current Rating</th>
<th>Topology</th>
<th>Frequency Range</th>
<th>Dimensions</th>
<th>Isolation Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>P025 (3)</td>
<td>6</td>
<td>10W - 50W</td>
<td>20A (2)</td>
<td>Forward, Flyback</td>
<td>300 - 500</td>
<td>17.0 x 15.7 x 6.3</td>
</tr>
<tr>
<td>P035 (3)</td>
<td>7</td>
<td>20W - 150W</td>
<td>30A (2)</td>
<td>Half Bridge, Forward, Flyback</td>
<td>200 - 400</td>
<td>22.9 x 19.8 x 7.6</td>
</tr>
<tr>
<td>P055 (3)</td>
<td>8</td>
<td>50W - 200W</td>
<td>50A</td>
<td>Half Bridge, Forward, Flyback</td>
<td>175 - 300</td>
<td>24.1 x 21.8 x 9.1</td>
</tr>
<tr>
<td>P075 (3)</td>
<td>9</td>
<td>100W - 500W</td>
<td>50A (2)</td>
<td>Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull, Flyback</td>
<td>150 - 300</td>
<td>35.0 x 26.3 x 10.2</td>
</tr>
<tr>
<td>P110 (3)</td>
<td>10</td>
<td>150W - 700W</td>
<td>60A (2)</td>
<td>Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull</td>
<td>100 - 250</td>
<td>39.9 x 28.4 x 12.7</td>
</tr>
<tr>
<td>P135</td>
<td>11-12</td>
<td>300W - 1.2kW</td>
<td>100A</td>
<td>Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull</td>
<td>100 - 250</td>
<td>44.4 x 32.0 x 15.2</td>
</tr>
<tr>
<td>P220</td>
<td>13-14</td>
<td>1kW - 3.0kW</td>
<td>250A</td>
<td>Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull</td>
<td>60 - 200</td>
<td>50.8 x 40.6 x 20.3</td>
</tr>
<tr>
<td>P350</td>
<td>15-16</td>
<td>2kW - 6kW</td>
<td>300A</td>
<td>Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull</td>
<td>40 - 150</td>
<td>58.4 x 50.8 x 25.4</td>
</tr>
<tr>
<td>P560</td>
<td>17-18</td>
<td>3kW - 10kW</td>
<td>400A</td>
<td>Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull</td>
<td>40 - 125</td>
<td>71.1 x 64.0 x 30.5</td>
</tr>
<tr>
<td>P900</td>
<td>19-20</td>
<td>10kW - 20kW</td>
<td>500A</td>
<td>Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull</td>
<td>40 - 125</td>
<td>118.1 x 110.7 x 43.9</td>
</tr>
<tr>
<td>P1100</td>
<td>21</td>
<td>10kW - 30kW</td>
<td>600A</td>
<td>Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull</td>
<td>20 - 125</td>
<td>144.8 x 94.0 x 38.1</td>
</tr>
</tbody>
</table>

1) Length (L) may vary depending on terminals. Height (H) may vary depending on input / output requirements
2) Current rating is 30% higher for through hole applications
3) Available in both SMD and through hole versions
DESIGN GUIDE | Planar Transformers & Inductors

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**SURFACE MOUNT DESIGN**

**PCB Pad Layout**

- All Pad dimensions tolerance +/- 0.1

**Notes:**
1. Dimensions are in mm
2. Drawing not to scale
3. Tolerance +/- 2% unless noted
4. Header: LCP, natural color
5. Pins: Copper
6. Pin Finish: Tin (Sn) over Nickel (Ni)

**Highlights**
- Patented (U.S. PAT. 7,129,809) design with superior thermal management
- High efficiency (low losses), ultra compact, low-profile
- Great co-planarity of terminals due to patented header offering repeatable height
- Excellent solderability (Pb-free or Pb/Sn Solder)
- Standard sizes / customer configurations
- Quick custom turn-around often without start-up or tooling costs
- Inductors available for design in all packages

**Customize beyond these examples!**
- Rated power 20W-150W / Frequency range 200-400KHz
- Surface mount (SMD) or through hole (TH)
- Topology - Half-Bridge, Forward (w/active rest), Flyback
- Current rating max. SMD=30A, TH = +30%
- Isolation voltage pri-sec/pri-core 500-2,000VDC
- Soft switching, single or multiple outputs
- Different switching frequencies, input/output voltages
- Primary turns - other number (no fractions)
- Secondary Ns1, Ns2 / Ns3 turns 1-8 (no fractions)
- Thermal solutions heat sinks, etc.
**CUSTOM IS STANDARD**

**SURFACE MOUNT DESIGN**

**PCB Pad Layout**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.0</td>
<td>±0.1</td>
</tr>
<tr>
<td>6.0</td>
<td>±0.1</td>
</tr>
<tr>
<td>3.0</td>
<td>±0.1</td>
</tr>
<tr>
<td>C/L</td>
<td>±0.1</td>
</tr>
<tr>
<td>3.0</td>
<td>±0.1</td>
</tr>
<tr>
<td>6.0</td>
<td>±0.1</td>
</tr>
<tr>
<td>9.0</td>
<td>±0.1</td>
</tr>
</tbody>
</table>

Notes:
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4. Header: LCP, natural color
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**CUSTOM IS STANDARD**

*Application Engineering Experts*

**POWER RANGE 50W-200W**

**SIZE P055**

**Highlights**
- Patented (U.S. PAT. 7,129,809) design with superior thermal management
- High efficiency (low losses), ultra compact, low-profile
- Great co-planarity of terminals due to patented header offering repeatable height
- Excellent solderability (Pb-free or Pb/Sn Solder)
- Standard sizes / customer configurations
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- Inductors available for design in all packages

**DESIGN EXAMPLES:**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1250-1</td>
<td>36 - 75</td>
<td>8</td>
<td>2.2</td>
<td>50</td>
<td>1</td>
<td>9.1 (0.360&quot;)</td>
</tr>
<tr>
<td>1250-2</td>
<td>18 - 36</td>
<td>4</td>
<td>2.2</td>
<td>50</td>
<td>1</td>
<td>9.1 (0.360&quot;)</td>
</tr>
<tr>
<td>1250-3</td>
<td>36 - 75</td>
<td>12</td>
<td>3.3</td>
<td>35</td>
<td>2</td>
<td>9.6 (0.380&quot;)</td>
</tr>
<tr>
<td>1250-4</td>
<td>18 - 36</td>
<td>6</td>
<td>3.3</td>
<td>40</td>
<td>2</td>
<td>9.6 (0.380&quot;)</td>
</tr>
<tr>
<td>1250-5</td>
<td>36 - 75</td>
<td>8</td>
<td>5</td>
<td>30</td>
<td>2</td>
<td>9.6 (0.380&quot;)</td>
</tr>
<tr>
<td>1250-6</td>
<td>18 - 36</td>
<td>4</td>
<td>5</td>
<td>30</td>
<td>2</td>
<td>9.6 (0.380&quot;)</td>
</tr>
<tr>
<td>1250-7</td>
<td>36 - 75</td>
<td>8</td>
<td>12</td>
<td>12.5</td>
<td>5</td>
<td>9.6 (0.380&quot;)</td>
</tr>
<tr>
<td>1250-8</td>
<td>18 - 36</td>
<td>4</td>
<td>12</td>
<td>12.5</td>
<td>5</td>
<td>9.6 (0.380&quot;)</td>
</tr>
<tr>
<td>1250-9</td>
<td>200-350</td>
<td>48</td>
<td>28</td>
<td>5</td>
<td>12</td>
<td>10.7 (0.420&quot;)</td>
</tr>
<tr>
<td>1250-10</td>
<td>200-350</td>
<td>48</td>
<td>48</td>
<td>2.5</td>
<td>24</td>
<td>10.7 (0.420&quot;)</td>
</tr>
</tbody>
</table>

**P055 ALTERNATE DESIGNS**

<table>
<thead>
<tr>
<th>Design Part #</th>
<th>Input Voltage (VDC)</th>
<th>Pri. Np Sec. Out.</th>
<th>Sec. Ns1 (Pins)</th>
<th>Sec. Ns2 (Pins)</th>
<th>Height (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1284-1</td>
<td>36 - 75</td>
<td>10</td>
<td>-</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>1284-2</td>
<td>18 - 36</td>
<td>5</td>
<td>-</td>
<td>15</td>
<td>2</td>
</tr>
</tbody>
</table>

Notes: Full electrical, thermal, and efficiency calculations available upon request. 1) Length (L) may vary depending on terminals. Height (H) may vary depending on input / output requirements. 2) Estimated value for normal conditions. Current rating can be up to 30% higher for through hole applications. 3) Ns2 / Ns3 max. load current output after rectification by (turns) as follows: (8) = 2.5 A each, (7) = 3.0 A each, (6) = 3.5 A each, (5) = 4.5 A each, (4) = 5.75 A each, (3) = 7.5 A each, (2) = 10.0 A each

**Design Input**
- Primary voltage (VDC)
- Secondary voltage (VDC)
- Number of primary turns (Pins)
- Number of secondary turns (Pins)
- Height (mm)

**Notes**
1. Dimensions are in mm
2. Drawing not to scale
3. Tolerance ±2% unless noted
4. Header: LCP, natural color
5. Pins: Copper
6. Pin Finish: Tin (Sn) over Nickel (Ni)

**SURFACE MOUNT DESIGN**

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**SURFACE MOUNT DESIGN**

**DESIGN EXAMPLES:**

<table>
<thead>
<tr>
<th>Design Example Part #</th>
<th>Input Voltage VDC</th>
<th>Pri. No. TURNS (Pins)</th>
<th>Sec. Sec1 VDC Out. (2) Max. ADC</th>
<th>Sec. No.2 (Pins)</th>
<th>Sec. Ns1</th>
<th>Sec. Ns2</th>
<th>Height mm (in) (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1235-1 36 - 75 6 3.3 30</td>
<td>1 15 5 10.2 (0.400&quot;)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1235-2 36 - 75 6 5 26</td>
<td>2 15 6 10.2 (0.400&quot;)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1235-3 36 - 75 6 12 10</td>
<td>4 15 5 10.2 (0.400&quot;)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1235-4 36 - 75 6 15 7.8</td>
<td>5 15 5 10.2 (0.400&quot;)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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**PCB Pad Layout**

All Pad dimensions tolerance +/- 0.1

- 10.2
- 6.8
- 3.4
- C/L
- 3.4
- 6.8
- 10.2

Notes:
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- Inductors available for design in all packages

**CUSTOM IS STANDARD**

"Application Engineering Experts"

**SIZE P075**

**Power Range 100W-500W**

**Rated power 100W-500W / Frequency range 150-300kHZ**
- Surface mount (SMD) or through hole (TH)
- Topology - Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull, Flyback
- Current rating max. SMD=50A, TH = +30%
- Isolation voltage pri-sec/pri-core 500-5,000VDC
- Soft switching, single or multiple outputs
- Different switching frequencies, input/output voltages
- Primary turns - other number (no fractions)
- Secondary Ns1, Ns2 / Ns3 turns 1-8 (no fractions)
- Thermal solutions heat sinks, etc.

**SURFACE MOUNT DESIGN**

**Customize beyond these examples!**

- Design Input Pri. Np Sec. I Out. Sec. Sec. Height mm (in)
- Example Voltage Turns Ns1 Sec. Sec. Height mm (in)
- Part # VDC (Pins) VDC ADC (Pins) VDC Turns Typ.
- 1235-1 36 - 75 6 3.3 30 1 15 5 10.2 (0.400")
- 1235-2 36 - 75 6 5 26 2 15 6 10.2 (0.400")
- 1235-3 36 - 75 6 12 10 4 15 5 10.2 (0.400")
- 1235-4 36 - 75 6 15 7.8 5 15 5 10.2 (0.400")

Notes: Full electrical, thermal, and efficiency calculations available upon request. 1) Length (L) may vary depending on terminals. Height (H) may vary depending on input/output requirements. 2) Estimated value for normal conditions. Current rating can be up to 30% higher for through hole applications.

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**Custom IS Standard**

**SURFACE MOUNT DESIGN**

**PCB Pad Layout**

All Pad dimensions tolerance +/- 0.1

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- Standard sizes / customer configurations
- Quick custom turn-around often without start-up or tooling costs
- Inductors available for design in all packages

---

**Customize beyond these examples!**

Rated power 150W-700W / Frequency range 150-250kHz
Surface mount (SMD) or through hole (TH)
Topology - Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull, Flyback
Current rating max. SMD=60A, TH = +30%
Isolation voltage pri-sec/pri-core 500-5,000VDC
Soft switching, single or multiple outputs
Different switching frequencies, input/output voltages
Primary turns - other number (no fractions)
Secondary Ns1, Ns2 / Ns3 turns 1-8 (no fractions)
Thermal solutions heat sinks, etc.

---

**DESIGN EXAMPLES ::**

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1240-1 190-350 16</td>
<td>2.2 15(^{\circ})</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>12.7(0.500&quot;)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1240-2 190-350 24</td>
<td>2.2 27(^{\circ})</td>
<td>2</td>
<td>24</td>
<td>4</td>
<td>12.7(0.500&quot;)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1240-3 190-350 28</td>
<td>3.3 46</td>
<td>1</td>
<td>15</td>
<td>3</td>
<td>12.7(0.500&quot;)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1240-4 190-350 16</td>
<td>3.3 10(^{\circ})</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>12.7(0.500&quot;)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1240-5 190-350 20</td>
<td>5 27(^{\circ})</td>
<td>2</td>
<td>15</td>
<td>2</td>
<td>12.7(0.500&quot;)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. Dimensions are in mm
2. Drawing not to scale
3. Tolerance +/- 2% unless noted
4. Header: LCP, natural color
5. Pins: Copper
6. Pin Finish: Tin (Sn) over Nickel (Ni)

Notes: Full electrical, thermal, and efficiency calculations available upon request.

1) Length (L) may vary depending on terminals.
2) Height (H) may vary depending on input/output requirements.
3) Estimated value for normal conditions. Current rating can be up to 30% higher for through hole applications.

---

**These models are for reference only and may NOT exactly match the design examples provided.**
**SIZE P135**

**Power Range 300W-1.2kW**

**Highlights**
- High efficiency (low losses), ultra compact, low-profile
- Excellent solderability (Pb-free or Pb/Sn Solder)
- Standard sizes / customer configurations
- Quick custom turn-around often without start-up or tooling costs
- Inductors available for design in all packages
- Large secondary pins reduce temperature rise on terminals

**Customize beyond these examples!**

- Rated power 300W-1,2kW / Frequency range 100-250kHz
- Topology - Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull
- Current rating max. SMD=100A, TH = +30%
- Soft switching, single or multiple outputs
- Different switching frequencies, input/output voltages
- Primary turns - other number (no fractions)
- Secondary Ns1, Ns2 / Ns3 turns 1-8 (no fractions)
- Thermal solutions heat sinks, etc.

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<table>
<thead>
<tr>
<th>Specification</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total output power 600W</td>
<td>Pri-sec turns ratio 20:1+1</td>
</tr>
<tr>
<td>(12VDC@50A)</td>
<td></td>
</tr>
<tr>
<td>Operating frequency 200 kHz</td>
<td>Dielectric strength</td>
</tr>
<tr>
<td>Input voltage range 370-410 VDC</td>
<td>Pri-sec/pri-core 4,000 VDC</td>
</tr>
<tr>
<td>Topology Full Bridge ZVS</td>
<td>Isolation sec-core 500 VDC</td>
</tr>
<tr>
<td>Max volt-µsec product 1216</td>
<td>Ambient temperature 60 °C</td>
</tr>
<tr>
<td>Duty cycle 66 %</td>
<td>Total losses 6.0 W</td>
</tr>
<tr>
<td>Primary current 2.9 Arms</td>
<td>Hot spot temperature 108 °C</td>
</tr>
<tr>
<td>Secondary current 35.4 Arms</td>
<td>Approx. Weight 100 grams</td>
</tr>
</tbody>
</table>

Notes: Assumes transformer is cooled by airflow only @ 200°C LFM

**:: DESIGN EXAMPLE ::**

**THROUGH HOLE / J-HOOK MOUNT**

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Fill out a design request today! | meder.com/planartransformers.html
**SIZE P135**

**Power Range 300W-1.2kW**

**Highlights**
- Anodized aluminum heatsinks offering high thermal conductivity and removing heat from windings
- High efficiency (low losses), ultra compact, low-profile
- Excellent solderability (Pb-free or Pb/Sn Solder)
- Standard sizes / customer configurations
- Quick custom turn-around often without start-up or tooling costs
- Inductors available for design in all packages
- Large secondary pins reduce temperature rise on terminals

**CUSTOM IS STANDARD**

**:: DESIGN EXAMPLE ::**

**THROUGH HOLE / J-HOOK MOUNT**

- Total output power: 1.2kW (12VDC@100A)
- Operating frequency: 120 kHz
- Input voltage range: 380-410 VDC
- Topology: Full Bridge
- Max volt-µsec product: 2564
- Duty cycle: 82%
- Primary current: 4.1 Arms
- Secondary current: 70.7 Arms

**Notes:** Assumes transformer is cooled by a coldplate @ 75°C max.

**Highlights**

- Anodized aluminum heatsinks offering high thermal conductivity and removing heat from windings
- High efficiency (low losses), ultra compact, low-profile
- Excellent solderability (Pb-free or Pb/Sn Solder)
- Standard sizes / customer configurations
- Quick custom turn-around often without start-up or tooling costs
- Inductors available for design in all packages
- Large secondary pins reduce temperature rise on terminals

**Customize beyond these examples!**

- Rated power: 300W-1.2kW / Frequency range: 100-250kHz
- Topology: Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull
- Current rating max. SMD=100A, TH = +30%
- Soft switching, single or multiple outputs
- Different switching frequencies, input/output voltages
- Primary turns - other number (no fractions)
- Secondary Ns1, Ns2 / Ns3 turns 1-8 (no fractions)
- Thermal solutions heat sinks, etc.

---

Fill out a design request today! [meder.com/planartransformers.html]
SIZE P220
Power Range 1kW-3kW

Highlights
• High efficiency (low losses), ultra compact, low-profile
• Excellent solderability (Pb-free or Pb/Sn Solder)
• Standard sizes / customer configurations
• Quick custom turn-around often without start-up or tooling costs
• Inductors available for design in all packages
• Large secondary pins reduce temperature rise on terminals

Customize beyond these examples!
Rated power 1KW-3kW / Frequency range 60-200kHz
Topology - Full Bridge, Half Bridge, Full Bridge ZVS, Push Pull
Current rating max. 250A
Isolation voltage pri-sec/pri-core 500-5,000VDC
Soft switching, single or multiple outputs
Different switching frequencies, input/output voltages
Primary turns - other number (no fractions)
Secondary Ns1, Ns2 / Ns3 turns 1-8 (no fractions)
Thermal solutions heat sinks, etc.

:: DESIGN EXAMPLE ::

THROUGH HOLE / J-HOOK MOUNT

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---

**THROUGH HOLE / J-HOOK MOUNT**

---

**SIZE P220**

**Power Range 1kW-3kW**

---

**Highlights**

- Anodized aluminum heatsinks offering high thermal conductivity and removing heat from windings
- High efficiency (low losses), ultra compact, low-profile
- Excellent solderability (Pb-free or Pb/Sn Solder)
- Standard sizes / customer configurations
- Quick custom turn-around often without start-up or tooling costs
- Inductors available for design in all packages
- Large secondary pins reduce temperature rise on terminals

---

**Customize beyond these examples!**

- Rated power 1kW-3kW / Frequency range 60-200kHZ
- Topology - Full Bridge, Half Bridge, Full Bridge ZVS, Push Pull
- Current rating max. 250A
- Isolation voltage pri-sec/pri-core 500-5,000VDC
- Soft switching, single or multiple outputs
- Different switching frequencies, input/output voltages
- Primary turns - other number (no fractions)
- Secondary Ns1, Ns2 / Ns3 turns 1-8 (no fractions)
- Thermal solutions heat sinks, etc.

---

:: DESIGN EXAMPLE ::

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**:: DESIGN EXAMPLE ::**

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**SIZE P350**

**Power Range 2kW-6kW**

**CUSTOM IS STANDARD**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total output power</td>
<td>3.6kW (28VDC@130A)</td>
</tr>
<tr>
<td>Operating frequency</td>
<td>200 kHz</td>
</tr>
<tr>
<td>Input voltage range</td>
<td>500-800 VDC</td>
</tr>
<tr>
<td>Topology</td>
<td>Full Bridge, LLC Resonant</td>
</tr>
<tr>
<td>Max volt-µsec product</td>
<td>2017</td>
</tr>
<tr>
<td>Duty cycle</td>
<td>81 %</td>
</tr>
<tr>
<td>Primary current</td>
<td>9.3 Arms</td>
</tr>
<tr>
<td>Secondary current</td>
<td>92 Arms</td>
</tr>
<tr>
<td>Pri-sec turns ratio</td>
<td>14:1+1</td>
</tr>
<tr>
<td>Dielectric strength</td>
<td></td>
</tr>
<tr>
<td>Pri-sec/pr-core</td>
<td>3,000 VDC</td>
</tr>
<tr>
<td>Isolation sec-core</td>
<td>1,000 VDC</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>85 °C</td>
</tr>
<tr>
<td>Total losses</td>
<td>23.4 W</td>
</tr>
<tr>
<td>Hot spot temperature</td>
<td>120 °C</td>
</tr>
<tr>
<td>Approx. Weight</td>
<td>270 grams</td>
</tr>
</tbody>
</table>

**Notes:** Assumes transformer is cooled by a coldplate @ 75°C max.

:: DESIGN EXAMPLE ::

**BUS BAR TERMINATION**

**Highlights**
- Anodized aluminum heatsinks offering high thermal conductivity and removing heat from windings
- Patented (U.S. Patent 7,460,002) terminals offer mechanical strength and very low resistance
- High efficiency (low losses), ultra compact, low-profile
- Excellent solderability (Pb-free or Pb/Sn Solder)
- Standard sizes / customer configurations
- Quick custom turn-around often without start-up or tooling costs
- Inductors available for design in all packages
- Large secondary pins reduce temperature rise on terminals
- Various terminal options available (SMD, Thru-hole, screw terminals)

**Customize beyond these examples!**

- Rated power 2kW-6kW / Frequency range 40-150kHz
- Topology - Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull
- Current rating max. 300A
- Isolation voltage pri-sec/pr-core 500-5,000VDC
- Soft switching, single or multiple outputs
- Different switching frequencies, input/output voltages
- Primary turns - other number (no fractions)
- Secondary Ns1, Ns2 / Ns3 turns 1-8 (no fractions)
- Thermal solutions heat sinks, etc.

---

*These models are for reference only and may NOT exactly match the design examples provided.*

---

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<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total output power</td>
<td>5.0kW (15VDC@300A)</td>
</tr>
<tr>
<td>Operating frequency</td>
<td>50 kHz</td>
</tr>
<tr>
<td>Input voltage range</td>
<td>220-320 VDC</td>
</tr>
<tr>
<td>Topology</td>
<td>Full Bridge</td>
</tr>
<tr>
<td>Max volt-sec product</td>
<td>3085</td>
</tr>
<tr>
<td>Duty cycle</td>
<td>71 %</td>
</tr>
<tr>
<td>Primary current</td>
<td>29.7 Arms</td>
</tr>
<tr>
<td>Secondary current</td>
<td>196.3 Arms</td>
</tr>
</tbody>
</table>

**Highlights**
- Anodized aluminum heatsinks offering high thermal conductivity and removing heat from windings
- Patented (U.S. Patent 7,460,002) terminals offer mechanical strength and very low resistance
- High efficiency (low losses), ultra compact, low-profile
- Excellent solderability (Pb-free or Pb/Sn Solder)
- Standard sizes / customer configurations
- Quick custom turn-around often without start-up or tooling costs
- Inductors available for design in all packages
- Large secondary pins reduce temperature rise on terminals
- Various terminal options available (SMD, Thru-hole, screw terminals)

**BUYER’S GUIDE**

- **DESIGN EXAMPLE**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage range</td>
<td>220-320 VDC</td>
</tr>
<tr>
<td>Topology</td>
<td>Full Bridge</td>
</tr>
<tr>
<td>Max volt-sec product</td>
<td>3085</td>
</tr>
<tr>
<td>Duty cycle</td>
<td>71 %</td>
</tr>
<tr>
<td>Primary current</td>
<td>29.7 Arms</td>
</tr>
<tr>
<td>Secondary current</td>
<td>196.3 Arms</td>
</tr>
</tbody>
</table>

**Notes:** Assumes transformer is cooled by a coldplate @ 75°C max.

**CUSTOM IS STANDARD**

**BUS BAR TERMINATION**

- Power Range 2kW-6kW
- Operating frequency 50 kHz
- Topology - Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull
- Current rating max. 300A
- Isolation voltage pri-sec/pri-core 500-5,000VDC
- Soft switching, single or multiple outputs
- Different switching frequencies, input/output voltages
- Primary turns - other number (no fractions)
- Secondary Ns1, Ns2, Ns3 turns 1-8 (no fractions)
- Thermal solutions heat sinks, etc.

**DESIGN EXAMPLE**

-rated power 2kW-6kW / Frequency range 40-150kHz
- Topology - Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull
- Current rating max. 300A
- Isolation voltage pri-sec/pri-core 500-5,000VDC
- Soft switching, single or multiple outputs
- Different switching frequencies, input/output voltages
- Primary turns - other number (no fractions)
- Secondary Ns1, Ns2, Na3 turns 1-8 (no fractions)
- Thermal solutions heat sinks, etc.

**BUS BAR TERMINATION**

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**DESIGN GUIDE | Planar Transformers & Inductors**

**CUSTOM IS STANDARD**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total output power</td>
<td>3.1kW (31VDC@100A)</td>
</tr>
<tr>
<td>Operating frequency</td>
<td>50 kHz</td>
</tr>
<tr>
<td>Input voltage range</td>
<td>405-495 VDC</td>
</tr>
<tr>
<td>Topology</td>
<td>Full Bridge</td>
</tr>
<tr>
<td>Max volt-µsec product</td>
<td>5081</td>
</tr>
<tr>
<td>Duty cycle</td>
<td>63 %</td>
</tr>
<tr>
<td>Primary current</td>
<td>10.7 Arms</td>
</tr>
<tr>
<td>Secondary current</td>
<td>56.1 Arms</td>
</tr>
</tbody>
</table>

**Highlights**

- Patented (U.S. Patent 7,460,002) terminals offer mechanical strength and very low resistance
- High efficiency (low losses), ultra compact, low-profile
- Excellent solderability (Pb-free or Pb/Sn Solder)
- Standard sizes / customer configurations
- Quick custom turn-around often without start-up or tooling costs
- Inductors available for design in all packages
- Large secondary pins reduce temperature rise on terminals
- Various terminal options available (SMD, Thru-hole, screw terminals)

**BUS BAR TERMINATION**

*These models are for reference only and may NOT exactly match the design examples provided.*

**SIZE P560**

**Power Range 3kW-10kW**

- Rated power 3kW-10kW / Frequency range 40-125kHZ
- Topology - Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull
- Current rating max. 400A
- Isolation voltage pri-sec/pri-core 500-5,000VDC
- Soft switching, single or multiple outputs
- Different switching frequencies, input/output voltages
- Primary turns - other number (no fractions)
- Secondary Ns1, Ns2 / Ns3 turns 1-8 (no fractions)
- Thermal solutions heat sinks, etc.

**:: DESIGN EXAMPLE ::**

**U.S. PAT. 7,460,002**

**Notes:** Assumes transformer is cooled by a coldplate @ 75°C max.

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**SIZE P560**

**Power Range 3kW-10kW**

**Highlights**
- Anodized aluminum heatsinks offering high thermal conductivity and removing heat from windings
- Patented (U.S. Patent 7,460,002) terminals offer mechanical strength and very low resistance
- High efficiency (low losses), ultra compact, low-profile
- Excellent solderability (Pb-free or Pb/Sn Solder)
- Standard sizes / customer configurations
- Quick custom turn-around often without start-up or tooling costs
- Inductors available for design in all packages
- Large secondary pins reduce temperature rise on terminals
- Various terminal options available (SMD, Thru-hole, screw terminals)

**CUSTOM IS STANDARD**

<table>
<thead>
<tr>
<th>Total output power</th>
<th>8.4kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>(28VDC@300A)</td>
<td></td>
</tr>
<tr>
<td>Operating frequency</td>
<td>50 kHz</td>
</tr>
<tr>
<td>Input voltage range</td>
<td>380-410 VDC</td>
</tr>
<tr>
<td>Topology</td>
<td>Full Bridge</td>
</tr>
<tr>
<td>Max volt-µsec product</td>
<td>5785</td>
</tr>
<tr>
<td>Duty cycle</td>
<td>77 %</td>
</tr>
<tr>
<td>Primary current</td>
<td>28 Arms</td>
</tr>
<tr>
<td>Secondary current</td>
<td>186 Arms</td>
</tr>
</tbody>
</table>

Pri-sec turns ratio 10:1+1

Dielectric strength
Pri-sec/pri-core 3,000 VDC
Isolation sec-core 500 VDC
Ambient temperature 60 °C
Total losses 40 W
Hot spot temperature 115 °C
Approx. Weight 700 grams

Notes: Assumes transformer is cooled by a coldplate @ 75°C max.

**:: DESIGN EXAMPLE ::**

**BUS BAR TERMINATION**

- Topology - Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull
- Current rating max. 400A
- Isolation voltage pri-sec/pri-core 500- 5,000VDC
- Soft switching, single or multiple outputs
- Different switching frequencies, input/output voltages
- Primary turns - other number (no fractions)
- Secondary Ns1, Ns2 / Ns3 turns 1-8 (no fractions)
- Thermal solutions heat sinks, etc.

**These models are for reference only and may NOT exactly match the design examples provided.**
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<table>
<thead>
<tr>
<th>Total output power</th>
<th>10kW (40VDC@250A)</th>
<th>Pri-sec turns ratio</th>
<th>12.2+2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating frequency</td>
<td>30 kHz</td>
<td>Dielectric strength</td>
<td></td>
</tr>
<tr>
<td>Input voltage range</td>
<td>252-308 VDC</td>
<td>Pri-sec/pri-core</td>
<td>4,000 VDC</td>
</tr>
<tr>
<td>Topology</td>
<td>Full Bridge ZVS</td>
<td>Isolation sec-core</td>
<td>1,000 VDC</td>
</tr>
<tr>
<td>Max volt-µsec product</td>
<td>8236</td>
<td>Ambient temperature</td>
<td>60 °C</td>
</tr>
<tr>
<td>Duty cycle</td>
<td>98 %</td>
<td>Total losses</td>
<td>90 W</td>
</tr>
<tr>
<td>Primary current</td>
<td>46 Arms</td>
<td>Hot spot temperature</td>
<td>105 °C</td>
</tr>
<tr>
<td>Secondary current</td>
<td>177 Arms</td>
<td>Approx. Weight</td>
<td>550 grams</td>
</tr>
</tbody>
</table>

Notes: Assumes transformer is cooled by a heatsink @ 75°C max. and forced airflow

:: DESIGN EXAMPLE ::

**BUS BAR TERMINATION**

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<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total output power</td>
<td>15.0kW (45VDC@330A)</td>
</tr>
<tr>
<td>Operating frequency</td>
<td>70 - 100 kHz</td>
</tr>
<tr>
<td>Input voltage range</td>
<td>548-743 VDC</td>
</tr>
<tr>
<td>Topology</td>
<td>Full Bridge ZVS</td>
</tr>
<tr>
<td>Max volt-sec product</td>
<td>3.884</td>
</tr>
<tr>
<td>Duty cycle</td>
<td>96 %</td>
</tr>
<tr>
<td>Primary current</td>
<td>32 Arms</td>
</tr>
<tr>
<td>Secondary current</td>
<td>330 A</td>
</tr>
<tr>
<td>Pri-sec turns ratio</td>
<td>8:1+1</td>
</tr>
<tr>
<td>Dielectric strength</td>
<td>Dielectric strength</td>
</tr>
<tr>
<td>Pri-sec pri-core</td>
<td>4,000 VDC</td>
</tr>
<tr>
<td>Isolation sec-core</td>
<td>1,000 VDC</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>75 °C</td>
</tr>
<tr>
<td>Hot spot temperature</td>
<td>122 °C</td>
</tr>
<tr>
<td>Approx. Weight</td>
<td>950 grams</td>
</tr>
</tbody>
</table>

**Notes:** Assumptions transformer is cooled by a coldplate @ 75°C max. and forced airflow

**:: DESIGN EXAMPLE ::**

**BUS BAR TERMINATION**

**SIZE P900**

**Power Range 10kW-20kW**

**Specifications:**
- Anodized aluminum heatsinks offering high thermal conductivity and removing heat from windings
- Patented (U.S. Patent 7,460,002) terminals offer mechanical strength and very low resistance
- High efficiency (low losses), ultra compact, low-profile
- Excellent solderability (Pb-free or Pb/Sn Solder)
- Standard sizes / customer configurations
- Quick custom turnaround often without start-up or tooling costs
- Inductors available for design in all packages
- Large secondary pins reduce temperature rise on terminals
- Various terminal options available (SMD, Thru-hole, screw terminals)

**Customize beyond these examples!**

- Rated power 10KW-20kW / Frequency range 40-125kHz
- Topology - Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull
- Current rating max. 500A
- Isolation voltage pri-sec/pri-core 500-5,000VDC
- Soft switching, single or multiple outputs
- Different switching frequencies, input/output voltages
- Primary turns - other number (no fractions)
- Secondary Ns1 turns 1-4 (no fractions)
- Thermal solutions heat sinks, etc.

**Design Example:**

- **U.S. PAT. 7,460,002**

*These models are for reference only and may NOT exactly match the design examples provided.*

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**DESIGN GUIDE | Planar Transformers & Inductors**

**SIZE P1100**

Power Range 10kW-30kW

**CUSTOM IS STANDARD**

<table>
<thead>
<tr>
<th>Specification</th>
<th>P1100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total output power</td>
<td>20.0kW (400VDC@50A)</td>
</tr>
<tr>
<td>Operating frequency</td>
<td>40 kHz</td>
</tr>
<tr>
<td>Input voltage range</td>
<td>246-286 VDC</td>
</tr>
<tr>
<td>Topology</td>
<td>Full-Bridge</td>
</tr>
<tr>
<td>Max volt-µsec product</td>
<td>3884</td>
</tr>
<tr>
<td>Duty cycle</td>
<td>84 %</td>
</tr>
<tr>
<td>Secondary current</td>
<td>50 Arms</td>
</tr>
</tbody>
</table>

**Pri-sec turns ratio**: 8.8+8

**Dielectric strength**: Pri-sec/pri-core 4,000 VDC

**Isolation sec-core**: 1,000 VDC

**Ambient temperature**: 60 °C

**Total losses**: 120 W

**Hot spot temperature**: 110 °C

**Approx. Weight**: 3 lbs

Notes: Assumes transformer is cooled by a coldplate @ 60°C max. and forced airflow

**:: DESIGN EXAMPLE ::**

**BUS BAR TERMINATION**

- **Rated power**: 10kW-30kW / Frequency range 20-125kHz
- **Topology**: Full Bridge, Half Bridge, Full Bridge ZVS, Push-Pull
- **Current rating max.**: 600A
- **Isolation voltage**: pri-sec/pri-core 5,000VDC
- **Soft switching, single or multiple outputs**
- **Different switching frequencies, input/output voltages**
- **Primary turns - other number (no fractions)**
- **Secondary Ns1, Ns2 / Ns3 turns 1-8 (no fractions)**
- **Thermal solutions heat sinks, etc.**

**Highlights**

- Anodized aluminum heatsinks offering high thermal conductivity and removing heat from windings
- Patented (U.S. Patent 7,460,002) terminals offer mechanical strength and very low resistance
- High efficiency (low losses), ultra compact, low-profile
- Excellent solderability (Pb-free or Pb/Sn Solder)
- Standard sizes / customer configurations
- Quick custom turn-around often without start-up or tooling costs
- Inductors available for design in all packages
- Large secondary pins reduce temperature rise on terminals
- Various terminal options available (SMD, Thru-hole, screw terminals)

**Customize beyond these examples!**

- **Bus Bar Termination**: 37.5 mm x 133.3 mm x 110.5 mm

- **Highlights**: Anodized aluminum heatsinks offering high thermal conductivity and removing heat from windings

- **Notes**: Assumes transformer is cooled by a coldplate @ 60°C max. and forced airflow

---

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PQ STYLE | Planar Inductors

0.4-6.0µH, 80A max

Highlights
- Fixed power inductor w/ferrite core used in switching power supplies, DC/DC converters, FPGA and low/high profile current, high current POL converters, feedback control, overload sensing, load drop and shut down detection
- Applications include but are not limited to: switching power supplies, DC/DC converters in distributed power systems, FPGA and low-profile high-current, high current POL converters, feedback control, overload sensing, load drop and shut down detection

Example
PQ2007 - 0R4 - 70 - G - R

Available in Tape & Reel Packaging

PQ20 (SMT/THT)
Inductance: 0.4 - 4.4 µH
Current Range Typ: 0.7 - 2.5 A
Height Max.: 6.0 - 10.0 mm
Footprint Max.: 22.6 x 21.7 mm

PQ26 (SMT/THT)
Inductance: 1.0 µH
Current Range Typ: 42 A
Height Max.: 13.0 mm
Footprint Max.: 29.5 x 27.0mm

PQ32 (SMT/THT)
Inductance: 0.9 - 6.0 µH
Current Range Typ: 45 - 60 A
Height Max.: 11.0 - 18.0 mm
Footprint Max.: 31.7 x 32.5mm

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Planar Inductor Request Form

We meet each unique need, encompassing our global capabilities to partner, solve, and deliver custom engineered solutions for tomorrow. Complete the form below and our engineers and product specialists will review your request and respond with information targeting your application.

### Planar Inductor Specifications

<table>
<thead>
<tr>
<th>Application</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>*Operating Frequency kHz</td>
<td>kHz</td>
</tr>
<tr>
<td>Min. Ambient Temperature °C</td>
<td>°C</td>
</tr>
<tr>
<td>Max. Ambient Temperature °C</td>
<td>°C</td>
</tr>
<tr>
<td>Heatsink Temperature °C</td>
<td>°C</td>
</tr>
<tr>
<td>Airflow CFM</td>
<td>CFM</td>
</tr>
<tr>
<td>Dimensions (if needed) L mm W mm H mm</td>
<td></td>
</tr>
<tr>
<td>Target Price USD</td>
<td>USD</td>
</tr>
<tr>
<td>Winding 1 µH A</td>
<td>A</td>
</tr>
<tr>
<td>Winding 2 µH A</td>
<td>A</td>
</tr>
<tr>
<td>Winding 3 µH A</td>
<td>A</td>
</tr>
<tr>
<td>Winding 4 µH A</td>
<td>A</td>
</tr>
<tr>
<td>Winding 5 µH A</td>
<td>A</td>
</tr>
<tr>
<td>Max ACcpp Ripple Current A</td>
<td>A</td>
</tr>
<tr>
<td>Termination Style</td>
<td></td>
</tr>
<tr>
<td>Isolation Requirements Vdc Vrms</td>
<td>Vdc Vrms</td>
</tr>
<tr>
<td>Clearance/Creepage Requirements</td>
<td>mm</td>
</tr>
</tbody>
</table>

Planar Transformer Request Form

We meet each unique need, encompassing our global capabilities to partner, solve, and deliver custom engineered solutions for tomorrow. Complete the form below and our engineers and product specialists will review your request and respond with information targeting your application.

### Planar Transformer Specifications

<table>
<thead>
<tr>
<th>Application</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>*Topology</td>
<td></td>
</tr>
<tr>
<td>*Total Output Power W</td>
<td>W</td>
</tr>
<tr>
<td>*Min. Input Voltage Vdc</td>
<td>Vdc</td>
</tr>
<tr>
<td>*Max. Input Voltage Vdc</td>
<td>Vdc</td>
</tr>
<tr>
<td>Min. Duty Cycle %</td>
<td>%</td>
</tr>
<tr>
<td>Min. Duty Cycle mm</td>
<td>mm</td>
</tr>
<tr>
<td>Primary Center Tap Yes No</td>
<td>Yes No</td>
</tr>
<tr>
<td>Secondary Center Tap Yes No</td>
<td>Yes No</td>
</tr>
<tr>
<td>*Output 1 Vdc (V) Idc (A)</td>
<td>Vdc (V) Idc (A)</td>
</tr>
<tr>
<td>Output 2 Vdc (V) Idc (A)</td>
<td>Vdc (V) Idc (A)</td>
</tr>
<tr>
<td>Output 3 Vdc (V) Idc (A)</td>
<td>Vdc (V) Idc (A)</td>
</tr>
<tr>
<td>Output 4 Vdc (V) Idc (A)</td>
<td>Vdc (V) Idc (A)</td>
</tr>
<tr>
<td>Max ACcpp Ripple Current Vdc</td>
<td>Vdc</td>
</tr>
<tr>
<td>*Isolation Pri:Sec Vms</td>
<td>Vms</td>
</tr>
<tr>
<td>Ambient Temperature °C</td>
<td>°C</td>
</tr>
<tr>
<td>Heatsink Temperature °C</td>
<td>°C</td>
</tr>
<tr>
<td>Airflow CFM</td>
<td>CFM</td>
</tr>
<tr>
<td>Termination Style</td>
<td></td>
</tr>
<tr>
<td>Dimensions L mm W mm H mm</td>
<td>mm</td>
</tr>
<tr>
<td>*Turn Ratio Np/Nsec1</td>
<td></td>
</tr>
<tr>
<td>Turn Ratio Np/Nsec2</td>
<td></td>
</tr>
<tr>
<td>Turn Ratio Np/Nsec3</td>
<td></td>
</tr>
<tr>
<td>Turn Ratio Np/Nsec4</td>
<td></td>
</tr>
</tbody>
</table>
Standex-Meder Electronics dynamic capabilities allows us to strategically partner with customers, solve problems, and deliver reliable high-quality custom or standard solutions to a wide array of markets. Our diverse product families of reed based, magnetics, and fluid level sensing components can play a role in numerous applications such as appliances, security, lighting, HVAC, electronics, and more. Give us a hello@standexelectronics.com

HVAC and Plumbing
- Furnaces
- Air Conditioning Compressors
- Air Conditioning Condensers
- Dehumidifiers
- Humidifiers
- Solar Panels
- Gas Smart Meters
- Electric Smart Meters
- Instant Water Heaters
- Standard Water Heaters
- Water Meters
- Shower Pumps
- Pool and Spa Pumps
- Sprinkler System Controllers

Applications
- Dishwasher
- Range
- Oven
- Microwave
- Coffeemaker
- Refrigerator
- Ice Maker
- Washers & Dryers

Other
- Designer Lighting
- Automatic Shades
- Tablet Keyboards
- Sound Sensors for Toys
- Guitar Amplifiers
- Microphones
- Organs
- Fitness Equipment
- Garage Door Openers
- Speakers
APPLICATIONS | Automotive Market & Transportation Industry

Standex-Meder Electronics dynamic capabilities and solutions provide reed switches, relays, and sensors, magnetics, and fluid level sensing products throughout the transportation industry. Think of anything that turns on/off, opens/closes, requires power transfer, lighting, starting, measuring, or detecting — and we can play a role within that application. From read outs on the dashboard to measurement of coolant, brake, windshield, water in fuel, tire pressure, and emissions — our components perform within vital processes within automobiles, heavy-duty trucks, recreational vehicles, airplanes, trains, motorcycles, eCars, eBikes, boats, and more.

**Transportation**
- Washer Level Sensor
- Coolant Level Sensor
- Keyless Entry
- Ignition Immobilizer
- Anti Lock Brakes
- Dashboard Lighting
- Marine Lighting
- Ignition Assemblies
- Hood Latch Verification
- Dashboard Lighting

**Security**
- Security Cameras
- Door Sensors
- Window Sensors
- Security Gates
- Control Panels
- Smoke Detectors
- CO2 Detectors
- Sprinkler Systems
- Outside Lighting

**Offices & Break Rooms**
- Keyboards
- Inkjet printers
- Desk lamps
- Flashlights
- Cable / Broadband
- Time clocks
- Telephone Systems
- Cell phones
- Thermostats
- Dishwasher
- Microwave
- Coffeemaker
- Refrigerator
- Ice Maker

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APPLICATION ALLEY | Winning Examples & Expert Insights

We utilize our engineering expertise to provide customer driven innovations. Check out some of our Application Alley stories to see how we strategically partner with customers to conquer a challenge, and deliver quality solutions that positively improve our customer’s business efforts. Within these examples, you will discover the investment we make into solving a problem through listening to our customers, utilizing our Engineering, Testing, Measurement, Design, Tooling, and other expertise to provide customer driven innovation. We describe the situation, actions taken, and how our approach and processes allow for increased productivity, efficiency, functionality, and performance.

Visit our website and access our full library of Application Alley’s at standexelectronics.com/application_alley.htm
The difference planar transformers allow over traditional wire-wound transformers is the planar’s use of flat copper windings that allow for greater efficiency. The planar’s windings are built by utilizing flat copper layers (lead frames) or printed circuit boards (PCB’s) to create a laminate style winding construction. The flat wire construction allows us to keep the AC resistance at a minimum. The result is a compact high power density planar transformer that is typically 30% of the volume and weight of a traditional wire-wound transformer. This reduction in size from a bulky part eliminates design constraints.

Component Corner (Expert Insights)
Will Schellin
Standex-Meder Engineer

Our planar transformers are able to save space, time, and cost. We can custom engineer a part to operate faster, more efficiently, and that adheres to the most stringent of requirements.

Standex-Meder Customer, major automotive company

We presented Standex-Meder with a big challenge to keep our footprint, but also customize a solution for our transformer needs. They took genuine interest in our project, and delivered a high-performing planar transformer.

Component Corner (Expert Insights)
Will Schellin
Standex-Meder Engineer

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REED SWITCHES • REED RELAYS • REED SENSORS • PROXIMITY SENSORS
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INDUCTORS • CURRENT SENSE TRANSFORMERS • PLANAR TRANSFORMERS
ANTENNAS • COILS • HERMETIC CONNECTOR PRODUCTS

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