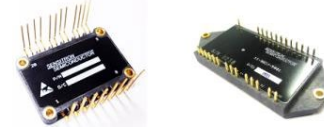




Power Modules

Sensitron Power Modules use a **patented void-less soldering process** to support operation at high current while maintaining adequate current sharing for paralleled switching devices within recommended SOA curves. The optimized internal layout is designed to minimize stray inductances and support high power switching often required in advanced aerospace and defense electrical systems.



Selectable Features/Benefits

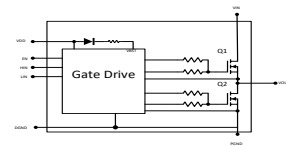
- Si MOSFET or IGBT
- SiC or FET
- GaN or FET
- Si or SiC co-packaged diode
- Standard and custom bridge configurations (Full, Half, 3Ph, T-Type)

Lightweight Power Bridge Modules, **SPM10xx Series**

- Lightweight, fully isolated package
- Si or SiC
- High voltage up to 1200V, 15A to 150A
- Available in various bridge configurations
- Available with high performance baseless format, or with a choice of baseplate materials



1" x 0.66" x 0.14"



Intelligent Power Modules, **SPM6 Series**

- MOSFETs: 30V to 600V, Up to 100A
- IGBTs: 600V to 1200V, Up to 250A
- Most have isolated signal I/O, and report temperature and current
- Most have overtemp, overcurrent, and de-saturation protection
- Operating temp: -40°C to 150°C



GaN Half Bridge IPM, **SPG025N035P1B**

- 350V rated 20A
- 500Khz Switching
- Integrated Gate Drive
- Top Side cooling for optimal thermal performance
- 200V, rated 50A (In development)



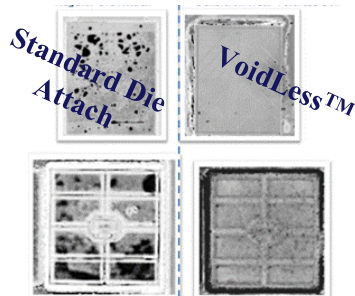
Power "Bricks", **SBM1001, SBM1002**

- Hi-rel version of industrial style power "brick"
- IGBT: 600V to 1200V, up to 200A
- Integrated Gate Drive
- Fully isolated, available with or without current sense

Custom Bridge Configurations and Packaging

- Application specific bridge configuration and power die selection
- IGBT, Si MOSFET, SiC, GaN
- 100V to 1700V, 30A to 1200A
- Integrated gate drive, current sense and enable

Power Modules



Standard Die Attach vs Sensitron's Patented VoidLess™ Solder Process

Sensitron's patented VoidLess™ Solder technique is used for standard and large die, ensuring **the best possible connection of power die to the baseplate**. This technique enhances power dissipation and safe paralleling for high power modules, and thermal modeling of power dissipation **maximizes current handling capacity** and guarantees the high power capability.



Ultra Lightweight Power Bridge Modules

Sensitron's modules in advanced lightweight packages have superior thermal performance and lower overall weight compared to traditional copper base plate modules. The SPM1 Series of Power Bridges are ideal for airborne applications where size and weight are critical to mission success.

Ultra Lightweight Three Phase IGBT or MOSFET Bridges with SiC Diodes

- Ultra-lightweight, fully isolated package.
- 600V & 1200V, 15A to 150A
- -55°C to 150°C
- Options for integrated gate resistors, brake switches, brake resistors, thermistors
- Superior fatigue resistance & superior temperature cycling
- Integrated G-E & G-S resistors for higher ESD immunity
- Integrated brake resistor with direct heat transfer to base
- RTD to monitor module temperature
- Available in various bridge configurations



Dimensions (in): 3.2 x 1.60 x 0.46

| P/N | PIV, 25°C | I _o , 25°C | Switch | Switch R _{θJC} | Features | Package Base |
|---------|-----------|-----------------------|--------|-------------------------|--|--------------|
| SPM1002 | 600 | 30 | IGBT | 1.0 | 3-Ph IGBT Bridge w/SiC Diodes, Brake FET, Int Rbrake | AlSiC |
| SPM1001 | 600 | 50 | IGBT | 0.75 | 3-Ph IGBT Bridge w/SiC Diodes, Brake FET, Int Rbrake | AlSiC |



Dimensions (in): 4.6 x 3.365 x 0.8

| P/N | PIV, 25°C | I _o , 25°C | Switch | Switch R _{θJC} | Features | Package Base |
|---------|-----------|-----------------------|--------|-------------------------|---|--------------|
| SPM1003 | 1200 | 150 | IGBT | 0.24 | 3-Ph IGBT Bridge, Brake IGBT + Inrush SCR, G-S zener protection | AlSiC |



Dimensions (in): 1.90 x 1.25 x 0.19

| P/N | PIV, 25°C | I _o , 25°C | Switch | Switch R _{θJC} | Features | Package Base |
|----------|-----------|-----------------------|--------|-------------------------|---|--------------|
| SPM1014 | 600 | 75 | IGBT | 0.49 | High Current 3-ph IGBT Bridge with Ultrafast Diodes | AIN |
| SPM1018 | 900 | 90 | SiC | 0.30 | MOSFET Six Pack Module with SiC Diodes | AIN |
| SPM1017 | 1200 | 50 | SiC | 0.33 | SiC MOSFET Full Bridge w/SiC Diodes, RTD | AIN |
| SPM1013A | 1200 | 60 | SiC | 0.36 | SiC MOSFET Full Bridge with SiC Diodes | AIN |
| SPM1015 | 1200 | 90 | SiC | 0.33 | 3-Ph SiC MOSFET Bridge w/SiC Diodes, RTD | AIN |
| SPM1016 | 1200 | 90 | SiC | 0.33 | SiC MOSFET Full Bridge w/SiC Diodes, RTD | AIN |



Dimensions (in): 1.90 x 1.05 x 0.22

| P/N | PIV, 25°C | I _o , 25°C | Switch | Switch R _{θJC} | Features | Package Base |
|----------|-----------|-----------------------|--------|-------------------------|---|--------------|
| SPM1005 | 600 | 30 | IGBT | 1.0 | Low Loss Ultrafast IGBT 3-Ph Bridge w/SiC Freewheeling Diodes | AIN |
| SPM1009A | 600 | 30 | IGBT | 1.0 | Low Loss Ultrafast IGBT 3-Ph Bridge, Ultrafast Diodes | AIN |
| SPM1006 | 600 | 60 | IGBT | 0.7 | Low Loss Ultrafast IGBT 3-Ph Bridge Module | AIN |
| SPM1007 | 1200 | 29 | SiC | 1.0 | 3-Ph SiC MOSFET Bridge with SiC Diodes, Hi Temp | AIN |
| SPM1008 | 1200 | 30 | SiC | 1.0 | 3-Ph SiC MOSFET Bridge | AIN |
| SPM1011A | 1200 | 36 | SiC | 0.35 | SiC MOSFET Full Bridge with 2 SiC Diodes | AIN |
| SPM1011B | 1200 | 40 | SiC | 0.43 | SiC MOSFET Full Bridge with 2 SiC Diodes | AIN |
| SPM1011C | 1200 | 60 | SiC | 0.35 | SiC Full Bridge with 2 SiC Diodes | AIN |



Dimensions (in): 1.95 x 1.08 x 0.19

| P/N | PIV, 25°C | I _o , 25°C | Switch | Switch R _{θJC} | Features | Package Base |
|---------|-----------|-----------------------|--------|-------------------------|------------------------|--------------|
| SPM1019 | 1200 | 30 | FET | 0.61 | SiC MOSFET Full Bridge | AIN |