



PerihelionDesign.com



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PowerSchottky Advanced Bus-Protection Schottky Diode [Rev. A]

“Heck, there’s nothing wrong with using conventional P/N junction diodes if your airplane runs on 100 Volts!”

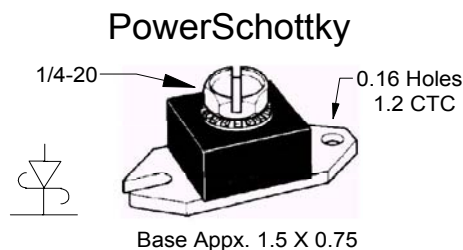
Schottky diodes were developed for lower voltages common to battery applications. They have much lower forward voltage drop. This means lower rectification losses, greater efficiency, less heat and smaller (or no) heat sinks required.

Let’s face it—you could use a P/N diode with a *Honk’n-Big* heat sink or even one leg of a full-wave-bridge from your local friendly Radio Shack; but why would you want to? Your cellphone doesn’t use P/N diodes because they waste too much power, why should you use them in your airplane?

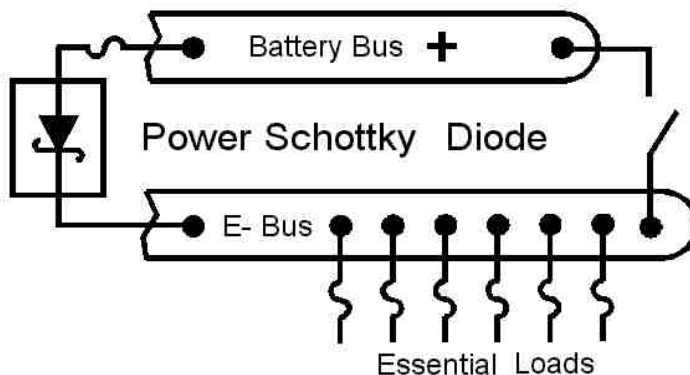
The PowerSchottky preserves the most precious electricity you’ll ever use—the electrical power you have to generate in your own airplane.

Basic Specifications:

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Dimensions: 1.50" X 0.75" X 0.60" (without connectors)
Weight: Less than one ounce (26 g)
Connectors: 1/4-20 bolt and M4 holes
Forward Voltage at 150°C
10A 0.18V; 15A 0.19V; 20A 0.22V
Max Reverse Voltage =30 VDC
Maximum Allowable Continuous Current=60A with proper heatsinking
Maximum 5 μS sine current 22500A



12.7V@ 8A	Schottky	P/N Jct.
Fwd Volts	0.20 VDC	1.00 VDC
Bus Volts	12.50 VDC	11.70 VDC
Pwr Wasted	1.60 W	8.00 W



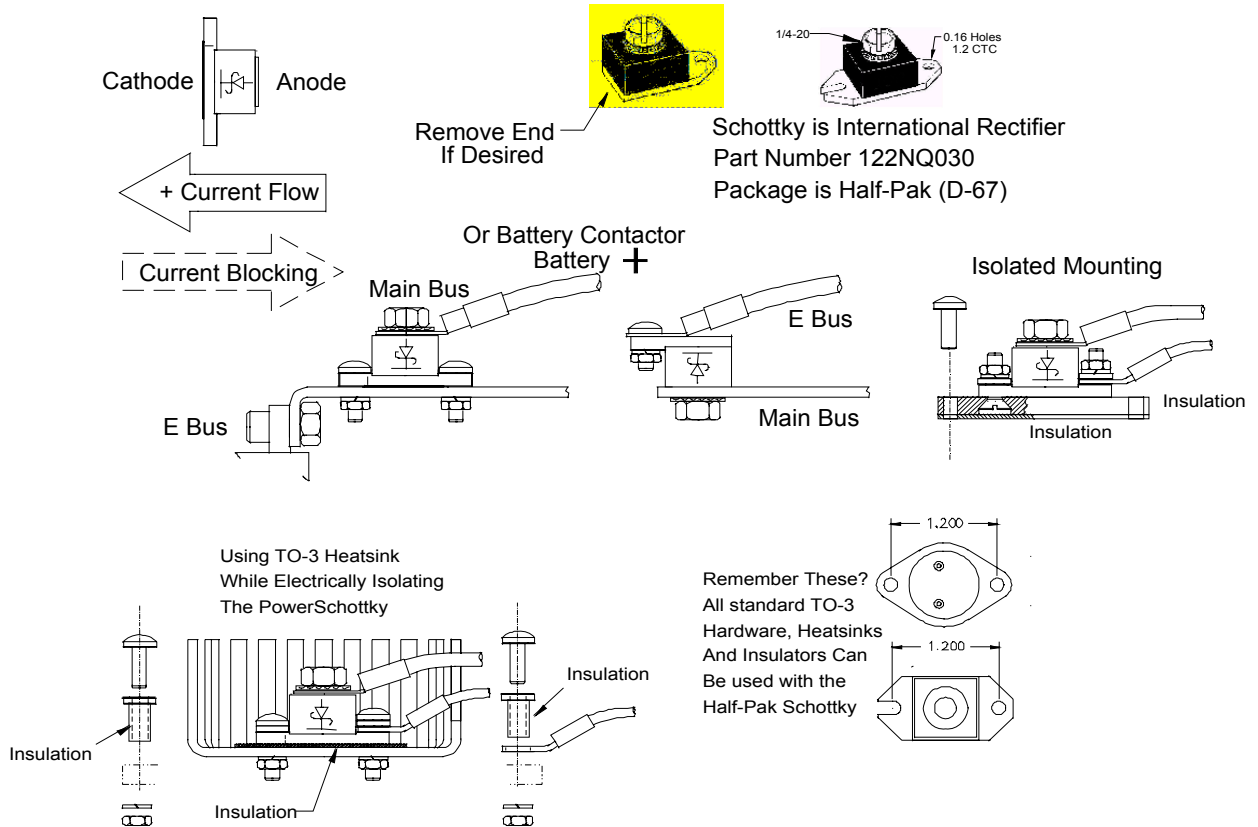
US\$29.99. Free Shipping to US-Mex-Can

FOR USE IN EXPERIMENTAL AIRCRAFT ONLY.

Installation: The installation details vary with each installation. Locate clean heat-conductive flat metal power bus, mark and drill 8-32 (or 4 mm or 5/32" rivet) attachment screw holes 1.2" center-to-center. Attach to prepared location; fasten with screws or 5/32" rivets. Attach electrical leads in proper orientation. Test.

Specifying exactly how to mount this PowerSchottky is different in each case due to the differences in construction that each homebuilder uses. However, the following can be used as a general guide.

60A PowerSchottky Details and Notes



How much current can you run through this PowerSchottky? Probably more than you can generate in your aircraft; and yes, they can be paralleled for even more current. Some heatsinking is suggested at higher currents.

Watts (heat to be dissipated) = Average Current X Forward Voltage (voltage drop)

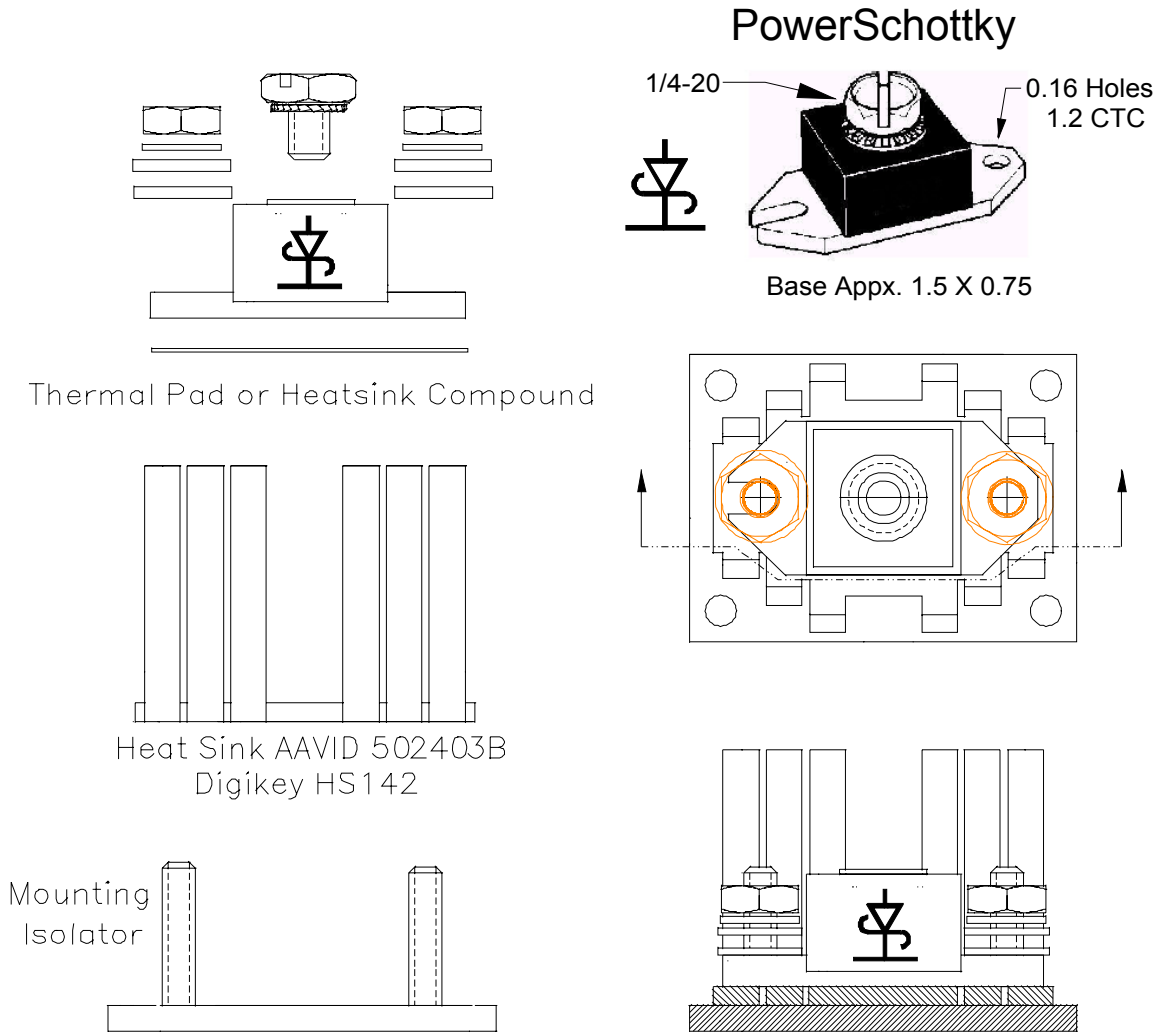
Average Current	Forward Volts
10A	0.18V
15A	0.19V
20A	0.22V
See IR Spec Sheets for complete data	

So at 20 amps this *PowerSchottky* will dissipate only about 4.4 Watts— A standard TO-3 heatsink like Wakefield 635-10B2 without a cooling fan will only rise to about 60 °C and with a little effort, no heatsink at all would be necessary. While using a standard P/N diode would dissipate about 20 Watts and thus require a substantially larger and more expensive heatsink even to stay under a scorching 110 °C.

The watts dissipation is power made and spent for no purpose. The forward voltage (voltage drop) is subtracted from what you start with, so it is in your best interest to keep this small. The *PowerSchottky* is the ideal part for aircraft and portable power uses.

PowerSchottky Isolator and/or Heat Sink:

One of the peculiarities of the PowerSchottky package is that the base is the electrical cathode. Although mounting the PowerSchottky on the power bus can be done, you can also completely isolate the PowerSchottky from surrounding metal by making a small insulator. The heat sink is required for 30 amps to 60 amps current.



Installation notes—

The holes in the base can be enlarged if required. Attach connectors to either or both M4 studs (use #8 ring-tongue terminals) between the two brass washers. Do not over-tighten. Attach the ring tongue lead to the 1/4"-20 bolt and fasten to the center of the PowerSchottky. Add a drop of locking paint to all terminals when finished.

Heat Sink \$5
Isolator and hardware \$10
Available on the Perihelion Design website