POWER-GATE[™] Solid-State Devices Dual Rectifier

up to 300 Amps

12 and 24 Volts



APPLICATIONS:

An ideal diode designed to switch and control DC. Common uses include military, aeronautic, automotive, marine, industrial machinery, photovoltaic, fleet utility.

FEATURES and BENEFITS:

- Low voltage, high current capability
- Internationally patented arrayed MOSFET technology
- Optional MIL-STD-461E Compliant
 - Optional Battery Combine Feature for Self-Jumping
 - 99.9% efficiency at max. current
- High Surge Capability
- Fully Encapsulated solid state design
- Light weight
- Dramatically smaller than conventional devices
- Market-leading, ultra-low on-state resistance
- No heat sinks or airflow required
- No de-rating required over full temperature range
- Microcontroller programmable for custom options
- Quik-turn capability
- · Recommended by top battery manufacturers



QUICK SPECIFICATIONS:

Current Rating:	100 to 300 amps
Operating Voltage:	7.5 to 36 VDC
Voltage Drop at Max Current:	30mV
Temperature Range:	-40 to +105 C
Weight:	26 ounces
Dimensions	5.83" x 3.10" x 2.13"

See full Specification Sheet on our website.

PACKAGE CHARACTERISTICS:

Electronic assembly inserted into ABS encapsulation shell then backfilled with black, flame retardent, filled epoxy specifically developed for the potting of electronic modules.

Three integrated mounting flanges pre-drilled to .250"

Mouting posts, 5/16-18 x .50" with provided brass washers and nylon insert 5/16-18 nuts. Mounting torque not to exceed 75 inch-pounds or 8.5 newton-meters.

Perfect Switch, LLC (858) 720-1339 (858) 530-8656 fax www.perfectswitch.com

POWER-GATE Dual Rectifiers allow dual batteries to be charged from a single power source like an alternator or battery charger, and discharge each battery (or bank) independently without drawing current from the opposing battery (or bank).

For example, a vehicle may have one battery dedicated to the engine (ignition, starter, EFI, etc..) while the auxiliary or "house" battery is dedicated for auxiliary equipment (lights, inverter, computer, communications, etc..) With the vehicle running, all batteries get charged to the full voltage regulation setpoint of the alternator. With the engine off, the auxiliary battery loads (lights, inverter, computer, communications, etc..) will continue to operate and discharge the dedicated auxiliary battery independent of the main battery. If a load is applied to the main battery, current draw will be limited to the main battery and not pass from the auxiliary battery.

Conventional silicon and Schottky rectifiers are attractively priced, but have significant performance issues:

- substantial voltage drop as current passes
- · conductive losses create significant heat
- batteries never get fully charged
- alternator regulators always inaccurate due to diode drop



POWER-GATE Dual Rectifier allows all batteries in the network to be charged. In Diagram 1, the alternator (or alternate charging source like DC shore power, solar array, or DC battery charger) is applying charging current to the anode (input) post of the rectifier. Current passes through two independent MOSFET arrays to Main Battery cathode and Auxiliary Battery cathode. Loads applied to the Auxiliary Battery are isolated from the Main Battery just as Main Battery loads are isolated from Auxiliary Battery.

The Violet alternator excitation circuit insures that internally regulated alternators are energized by the downstream battery during the engine cranking process, a necessity when placing an isolator between the alternator and the batteries.

The optional Battery Combine feature causes bi-directional current flow between the two batteries when the two Green wires are joined together. Should the Main Battery be discharged to a low, no-start condition, the Auxiliary Battery can be "jumped" to the Main Battery. The use of a momentary switch is recommended to insure the battery combine feature is disabled by default.



For OEM applications, military and fleet sales, special applications,

custom configurations, or general questions, please contact us at (858) 720-1339

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