

Delphi Solid State Relays (SSRs)

Delphi Solid State Relays (SSRs) provide variable load control through Pulse Width Modulation (PWM). They can be used to replace traditional electromechanical relays and fuses which are found in electrical centers and other devices. Because they are resettable, they provide the advantage of enabling maintenance-free circuit protection.

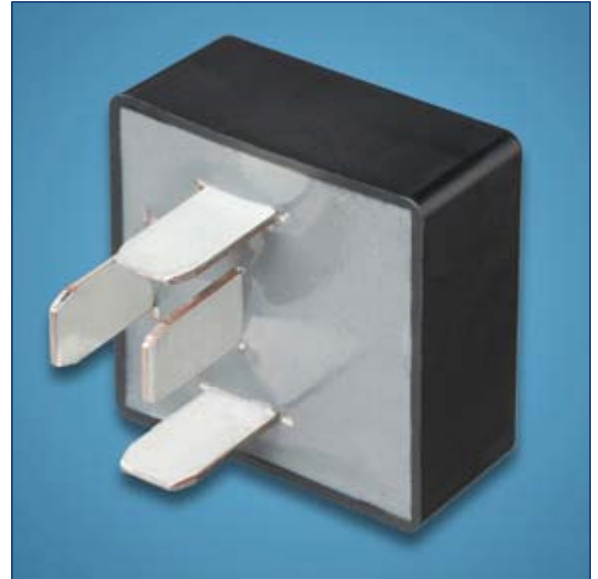
Two versions are available:

- 10 Amp SSR — for variable load control such as motor speed and dimmable lighting applications
- 40 Amp SSR (up to 120 Amp for 15 seconds) — for higher current loads such as fuel injector heater applications.
 - Load current feedback feature available

All Delphi SSRs are high side switching devices capable of driving loads using PWM. A low active control signal applied to the relay input pin activates the SSR, turning on the load connected to the output pin.

► Benefits

- Eliminates traditional fuses and relays and discrete circuits
- No mechanical parts to wear out
 - Pluggable device is easily integrated and serviceable
- Supports PWM
- Optimized static electromagnetic compatibility (EMC)
- Packaged in a modified International Organization for Standardization (ISO) power relay footprint
 - Modification enables correct assembly to help prevent plugging of standard ISO relay
- Capable of driving resistive, capacitive and inductive loads
- Thermal shutdown with restart
 - Resettable circuit protection eliminates the need to change fuses
- Solid state switching with no audible noise
- Provides protection from the following:
 - Short circuits/overloads
 - Over voltage (including load dump)
 - Loss of ground
 - Electrostatic discharge (ESD)
 - Reverse battery
- Robust for use in harsh underhood environments



Delphi 10 Amp Solid State Relay (SSR) — bottom side showing lead arrangement/blade configuration



Delphi 40 Amp Solid State Relay (SSR) — bottom side showing lead arrangement/blade configuration



Delphi 10 Amp Solid State Relay showing active components



Delphi 40 Amp Solid State Relay showing active components

► **Typical Applications**

The Delphi Solid State Relays are suited for a wide range of passenger and commercial vehicle electrical/electronic applications. They are especially suited for variable load control applications, such as those requiring PWM. Application specific versions can also be developed.

► **Availability**

Delphi Solid State Relays are fully validated. Production for the Delphi Solid State Relays is targeted for the 2012 vehicle model year. Contact Delphi for more details.

► **Specifications**

	10 Amp SSR	40 Amp SSR (up to 120 Amp for 15 seconds)
Operating voltage	<ul style="list-style-type: none">V_{bb} (on) 5.5 to 62 V	<ul style="list-style-type: none">V_{bb} (on) 5 to 34 V
On-state resistance	<ul style="list-style-type: none">R_{ON} 25 mΩ	<ul style="list-style-type: none">R_{ON} 2.5 mΩ
Nominal current	<ul style="list-style-type: none">I_{Load} (nominal)6 A at 125°C10 A at 85°C	<ul style="list-style-type: none">I_{Load} (nominal)40 A at 85°C24 A at 125°C
Standby current	<ul style="list-style-type: none">36 μA	<ul style="list-style-type: none">50 μA

► **The Delphi Advantage**

Delphi Electrical/Electronic (E/E) Architecture delivers power and signal distribution networks for today's increasingly complex vehicles. Delphi engineers act as master architects by using proprietary design tools and software to create a virtual model of a vehicle's E/E architecture — down to the last connector, electrical center, electronic module and wiring harness.

In addition to solid state relays, Delphi can also provide connection systems, electrical centers and more, providing a comprehensive product offering from a single source. Delphi can evaluate the impact of various trade-offs to deliver a fully optimized E/E architecture system backed by Delphi technical centers and manufacturing facilities in 30 countries around the globe.