

Photocouplers Shrink Designs For Industrial Automation And Solar Inverters

[Renesas'](#) RV1S92xxA and RV1S22xxA photocouplers are being introduced as the world's smallest isolation devices for industrial automation and solar inverter applications. The five 8.2-mm creepage photocouplers help designers shrink equipment size, increase robot axes, improve factory floor productivity, and meet the needs of the zero-energy house that requires smaller solar equipment for more installations in limited space. At the same time, these photocouplers adhere to stringent industrial safety requirements (see the figure).

Designed for dc-ac power inverters, ac servo motors, programmable logic controllers, robotic arms, solar inverters, and battery storage and charging systems, the RV1S92xxA and RV1S22xxA offer designers a variety of functions and the layout flexibility to significantly shrink equipment size and maximize factory floorspace.

They feature a 2.5-mm package width, which reduces PCB mounting area by 35% compared to competitive couplers, according to Renesas. They also have a 2.1-mm package height, which allows them to be directly mounted on the backside of a PCB and frees up space for topside-mounted components.

Other benefits of these photocouplers include three times infrared reflow soldering, providing maximum flexibility; electric isolation and high CMR noise rejection (50 kV/μs), protecting low-voltage microcontrollers and I/O devices from high-voltage circuits when transferring high-speed signals.

The RV1S9260A is a 15-Mbps communications coupler and the RV1S9213A is an intelligent power module driver. These parts are described as the first photocouplers to use tiny LSS05 packages with a 0.65-mm pin pitch, which is said to be half the pitch of conventional packages. The RV1S2281A and RV1S2211A are dc input and low-dc input, transistor-output photocouplers, and the RV1S2285A is an ac-input, transistor-output coupler. They come in LSSOP packages with a 1.30-mm pin pitch.

All five photocouplers deliver 5000-Vrms reinforced isolation and high-temperature operation to withstand harsh operating environments. The five devices adhere to the strict UL61800-5-1 standard for motor drive equipment, and the UL61010-2-201 standard for control devices such as PLCs, enabling manufacturers to design a new generation of high-voltage systems for their smart factories.

The RV1S92xxA and RV1S22xxA photocouplers are available now from Renesas Electronics' worldwide distributors. In quantities of 1000, unit pricing is \$0.17 for the RV1S2281A and RV1S2211A, \$0.40 for the RV1S2285A, \$0.53 for the RV1S9213A, and \$0.64 for the RV1S9260A. For more information about Renesas photocouplers, see the Optoelectronics [page](#) or see the [RV1S9260A](#), [RV1S9213A](#), [RV1S2281A](#), [RV1S2211A](#) and [RV1S2285A](#) product pages.



Figure. The RV1S92xxA and RV1S22xxA 8.2-mm creepage photocouplers help designers shrink equipment size, increase robot axes, improve factory floor productivity, and meet the needs of the zero-energy house that requires smaller solar equipment. They feature a 2.5-mm package width, which is said to reduce PCB mounting area by 35% compared to competing couplers.