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Alps Alpine Co., Ltd.

Alps Alpine Launches SPVQK Detector Switch for 48V Power Supplies in Next-Generation EVs

- Delivering High Reliability and Simplified Circuit Design For High-Voltage Applications -

Alps Alpine Co., Ltd. (Headquarters: Ota-ku, Tokyo; Representative Director, President, and CEO: Hideo Izumi; hereinafter “Alps Alpine”) today announced the launch of the SPVQK Series, a new automotive detector switch designed to support the growing adoption of 48V electrical architectures in next-generation EVs. The new product addresses two key challenges associated with higher-voltage automotive systems: ensuring reliable switching performance under demanding electrical conditions and simplifying circuit design.



Background

As vehicles become increasingly electrified and equipped with more advanced features, the number of electronic devices installed in vehicles continues to grow, resulting in higher power consumption. To address this trend, the automotive industry is gradually transitioning from conventional 12V electrical systems, which are limited by power losses, to 48V electrical architectures that provide a more stable high-power supply while improving energy efficiency. Detector switches used in door latches, seat belt buckles, and other automotive mechanisms must also support this transition.

Product Features

1. Direct Compatibility with 48V Power Supplies

With a maximum rated voltage of 52V DC, the SPVQK Series can be used directly in 48V electrical systems without requiring voltage conversion circuitry. This simplifies circuit design while providing greater design flexibility.

2. Proprietary Contact Structure with Superior Inrush Current Capability (C-load)

Compared with SPVQ8 Series, which supports a maximum inrush current of 0.1 A peak (C-load), the SPVQK Series withstands up to 3 A peak (C-load), providing significantly greater robustness during switching. Its newly developed contact structure minimizes contact wear and degradation, ensuring stable electrical performance and long-term reliability. In addition, external current-limiting components, such as chip resistors previously required for circuit protection, are no longer necessary. This simplifies circuit design while reducing the overall component count.

3. High Durability and Environmental Resistance

The SPVQK Series delivers the high reliability required for automotive applications, withstanding overcurrent of up to 18 A for 5 minutes (typical value) and providing an operational life of 300,000 cycles. Its dust- and water-resistant construction, compliant with IP6K7, ensures stable performance even in harsh operating environments.

4. Easy Replacement with the Same Form Factor as SPVQ8

The SPVQK Series shares the same form factor as the previous SPVQ8 Series, allowing it to be adopted with minimal design changes. This enables a smooth transition from existing products.

[Product Specifications]

Poles	1
Positions	1
Terminal Type	Press-Fit (Normal Type), For Lead
Operating Force	1.4 ± 0.5 N
Circuit	N/O
Main Body Form	Boss - Single Side
Dimensions (W × D × H)	5.3 × 8.3 × 6.5 mm
Maximum Rating	0.1 A, 52 V DC
Initial Contact Resistance	500 mΩ MAX
Operating Life	300,000 cycles
Protection Structure	IP6K7

[Applications]

Designed for a broad range of detection applications, the SPVQK Series is ideal for automotive systems, including door latches, seat belt buckles, electric parking brakes (EPBs), and column shifters. It is also well suited for consumer electronics applications, such as smart locks and home appliances, including toilet seat lid detection applications.

[Product Information] <https://tech.alpsalpine.com/j/products/category/switches/sub/01/series/spvqk/>

Future Developments

Mass production of this product began in June 2026 at our Wuxi Plant (WUXI ALPS ELECTRONICS CO., LTD., China). Initially, the product will be deployed primarily as a replacement for existing detector switches used in automotive mechanical components, such as door latches and seat belt buckles. Going forward, Alps Alpine aims to expand the use of the SPVQK Series in other vehicles equipped with 48V power systems, including next-generation EVs. In addition to the automotive applications, we will also pursue opportunities in a wide range of mobility applications that use higher-voltage systems, as well as in consumer products that require high reliability.

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