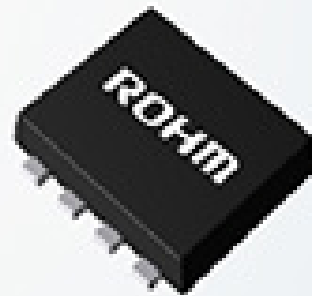


**SOP8**  
(6.0mm×5.0mm×1.75mm)



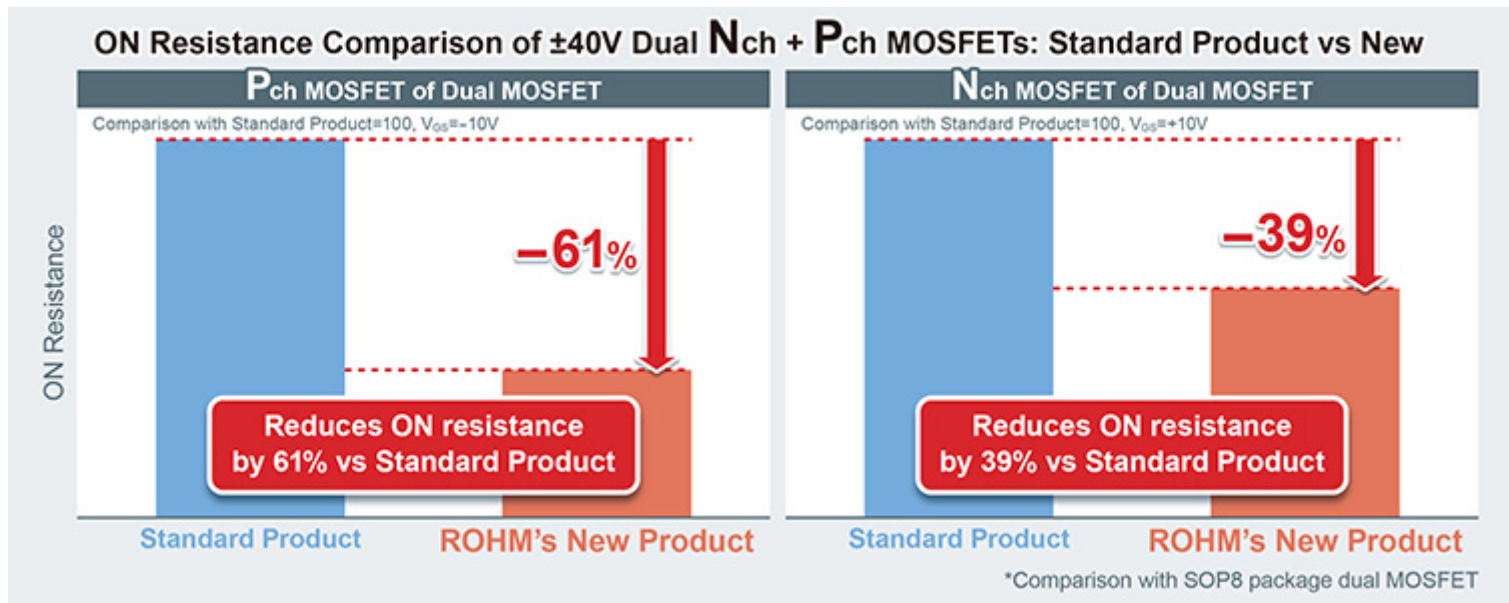
**TSMT8**  
(2.8mm×3.0mm×0.8mm)

ROHM developed dual-MOSFET products (Nch+Pch) featuring  $\pm 40\text{V}/\pm 60\text{V}$  withstand voltages, QH8Mx5/SH8Mx5 series. The devices are ideal for driving motors in base stations (cooling fans) and [industrial applications](#) such as factory automation equipment requiring 24V input.

In recent years, MOSFETs are increasingly required to ensure sufficient margin against voltage fluctuations by providing 40V and 60V withstand voltages to support 24V input required for motors used in industrial equipment and base stations. Furthermore, MOSFETs are expected to deliver higher speed switching together with lower ON resistance to further improve the efficiency and miniaturization of motors.

In response, ROHM developed its 6th generation 40V/60V MOSFETs utilizing the latest precision processes for the Nch MOSFETs, following the release of the latest generation Pch MOSFETs announced at the end of last year. This combination allows ROHM to provide class-leading dual Nch+Pch MOSFETs that deliver the  $\pm 40\text{V}/\pm 60\text{V}$  withstand voltage required for 24V input. Moreover, the company developed also the +40V/+60V QH8Kxx/SH8Kxx (Nch+Nch) series to support a wider range of needs. (12 models in total of Nch+Pch and Nch+Nch)

The QH8Mx5/SH8Mx5 series utilizes original latest processes to achieve class-leading lower ON resistance, 61% lower than the Pch MOSFETs in dual MOSFETs products in the  $\pm 40\text{V}$  class. This contributes to significantly lower power consumption in a variety of applications. Furthermore, integrating 2 devices into a single package contributes to miniaturize applications by reducing mounting area and decrease the workload required for component selection (combining Nch and Pch).



Next, ROHM will continue to expand the lineup to include 100V and 150V products for industrial equipment that demands higher voltages, contributing to the market requirements for lower power consumption and size reduction of a wide variety of applications.

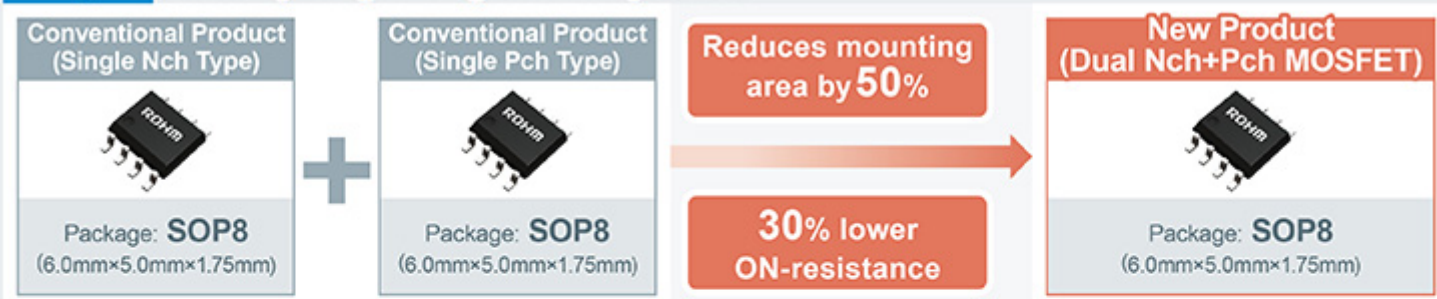
## Key Features

### 1. Achieves class-leading low ON resistance

Utilizing the latest processes allows us to develop best-in-class dual MOSFETs that reduce ON resistance by up to 61% and 39% in the Pch and Nch MOSFETs, respectively, compared with competitor  $\pm 40\text{V}$  products. This contributes to significantly lower power consumption in a variety of applications.

**2. Dual-product configuration contributes to greater miniaturization while reducing design load** Integrating two MOSFETs in a single package reduces application size along with the design load required for device selection. In terms of miniaturization, replacing existing dual Nch+Pch SOP8 products with these new TSMT8 models decreases mounting area by up to 75%.

### Example 1 When replacing 2 × single-element products



### Example 2 When replacing standard dual-element products



Combine with a pre-driver IC to achieve the optimal motor drive solution



Combining these new products with ROHM's market-proven pre-driver ICs for single-/three-phase brushless motors makes it possible to consider even smaller motors with lower consumption and quieter drives. By providing total support for peripheral circuit design that marries our dual-MOSFET series with pre-driver ICs, ROHM is able to offer the best motor drive solution for customer needs.

## Solution Examples

- QH8MC5 (±60V Nch+Pch Dual MOSFET) + [BD63001AMUV](#) (3-Phase Brushless Motor Pre-driver IC)
- SH8KB6 (+40V Nch+Nch Dual MOSFET) + [BM62300MUV](#) (3-Phase Brushless Pre-driver IC)
- SH8KB6 (+40V Nch+Nch Dual MOSFET) + [BD63002AMUV](#) (3-Phase Brushless Pre-driver IC)



## Product Lineup

### Nch+Pch Dual MOSFETs

| Part No.                         | Polarity<br>(ch) | V <sub>DSS</sub><br>(V) | I <sub>D</sub><br>(A) | P <sub>D</sub><br>(W) | Ron Max(mΩ)<br>*V <sub>GS</sub> =10V | Datasheet | Spice<br>Model | Package                                                                                                                                   |
|----------------------------------|------------------|-------------------------|-----------------------|-----------------------|--------------------------------------|-----------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <div>New</div> <div>SH8MB5</div> | N+P              | 40                      | 8.5                   | 2                     | 19.4                                 | ✓         | ✓              | <div></div> <div>SOP8<br/>(6.0m×5.0mm×1.75mm)</div>  |
| -40                              |                  | -8.5                    | 16.8                  |                       |                                      |           |                |                                                                                                                                           |
| <div>New</div> <div>SH8MC5</div> |                  | 60                      | 6.5                   |                       | 32                                   | ✓         | ✓              |                                                                                                                                           |
| -60                              |                  | -7                      | 33                    |                       |                                      |           |                |                                                                                                                                           |
| <div>New</div> <div>QH8MB5</div> |                  | 40                      | 4.5                   | 1.5                   | 44                                   | ✓         | ✓              | <div></div> <div>TSMT8<br/>(2.8mm×3.0mm×0.8mm)</div> |
| -40                              |                  | -5                      | 41                    |                       |                                      |           |                |                                                                                                                                           |
| <div>New</div> <div>QH8MC5</div> |                  | 60                      | 3                     |                       | 90                                   | ✓         | ✓              |                                                                                                                                           |
|                                  |                  |                         |                       |                       |                                      |           |                |                                                                                                                                           |

| Part No. | Polarity<br>(ch) | V <sub>DSS</sub><br>(V) | I <sub>D</sub><br>(A) | P <sub>D</sub><br>(W) | Ron Max(mΩ)<br>*V <sub>GS</sub> =10V | Datasheet | Spice<br>Model | Package |
|----------|------------------|-------------------------|-----------------------|-----------------------|--------------------------------------|-----------|----------------|---------|
|          |                  | -60                     | -3.5                  |                       | 91                                   |           |                |         |

Nch+Nch Dual MOSFETs

| Part No.              | Polarity<br>(ch) | V <sub>DSS</sub><br>(V) | I <sub>D</sub><br>(A) | P <sub>D</sub><br>(W) | Ron Max(mΩ)<br>*V <sub>GS</sub> =10V | Datasheet | Spice<br>Model | Package                                                                                                                       |
|-----------------------|------------------|-------------------------|-----------------------|-----------------------|--------------------------------------|-----------|----------------|-------------------------------------------------------------------------------------------------------------------------------|
| <div>New</div> SH8KB7 | N+N              | 40                      | 13.5                  | 2                     | 8.4                                  | ✓         | ✓              |  <div>SOP8<br/>(6.0mm×5.0mm×1.75mm)</div>  |
| <div>New</div> SH8KB6 |                  |                         | 8.5                   |                       | 19.4                                 | ✓         | ✓              |                                                                                                                               |
| <div>New</div> SH8KC7 |                  | 60                      | 10.5                  |                       | 12.4                                 | ✓         | ✓              |                                                                                                                               |
| <div>New</div> SH8KC6 |                  |                         | 6.5                   |                       | 32                                   | ✓         | ✓              |                                                                                                                               |
| <div>New</div> QH8KB6 |                  | 40                      | 8                     | 1.5                   | 17.7                                 | ✓         | ✓              |  <div>TSMT8<br/>(2.8mm×3.0mm×0.8mm)</div> |
| <div>New</div> QH8KB5 |                  |                         | 4.5                   |                       | 44                                   | ✓         | ✓              |                                                                                                                               |
| <div>New</div> QH8KC6 |                  | 60                      | 5.5                   |                       | 30                                   | ✓         | ✓              |                                                                                                                               |
| <div>New</div> QH8KC5 |                  |                         | 3                     |                       | 90                                   | ✓         | ✓              |                                                                                                                               |