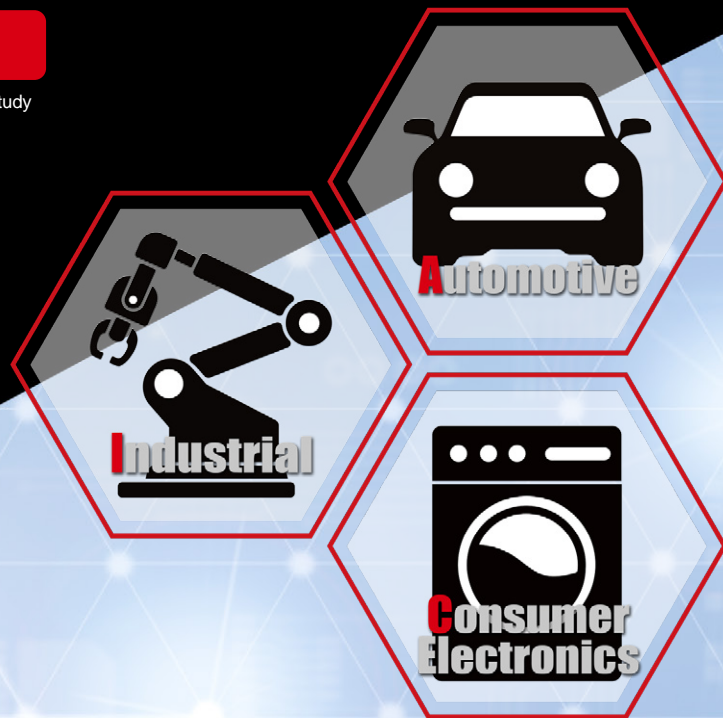


**Industry-leading\* load response characteristics**

\* ROHM January 2024 study

# QuiCur™ High-speed Load Response 45V LDO Regulators

BD9xxM5EFJ-C, BD9xxM5WEFJ-C



The BD9xxM5EFJ-C and BD9xxM5WEFJ-C are 45V withstand voltage LDO regulators utilizing original QuiCur™ High-speed response technology. This makes them ideal not only for automotive systems, but also applications requiring stable operation against input voltage and load current fluctuations.

## Features

- **Delivers exceptional stability in applications requiring high performance, high-speed operation**

QuiCur™ technology provides industry-leading\* response characteristics

- Response performance to output load current fluctuations:  $\Delta V \leq 100\text{mV}$  (load current fluctuation  $0\text{mA} \Leftrightarrow 500\text{mA}$   $T_r/T_f = 1\mu\text{s}$ )
- Response performance to input voltage fluctuations:  $\Delta V \leq 10\text{mV}$  (input voltage fluctuation  $8\text{V} \Leftrightarrow 16\text{V}$   $T_r/T_f = 8\mu\text{s}$ )

- **Balanced performance and broad lineup supports a wide range of applications**

- 9.5 $\mu\text{A}$  quiescent current
- Select from among a wide range of packages, from the compact HTSOP8-J8 to high heat dissipation TO252/HRP5, depending on the operating environment

\*ROHM January 2024 study



**HTSOP-8 Package**  
(JEDEC 8pin SOIC equivalent)  
4.90 × 6.00 × 1.00mm



**TO252-3 Package**  
6.50 × 9.50 × 2.50mm



**HRP5 Package**  
9.395 × 10.540 × 2.005mm



**TO252-5 Package**  
6.50 × 9.50 × 2.50mm



QuiCur™ and ComfySIL™ are trademarks or registered trademarks of ROHM Co., Ltd.

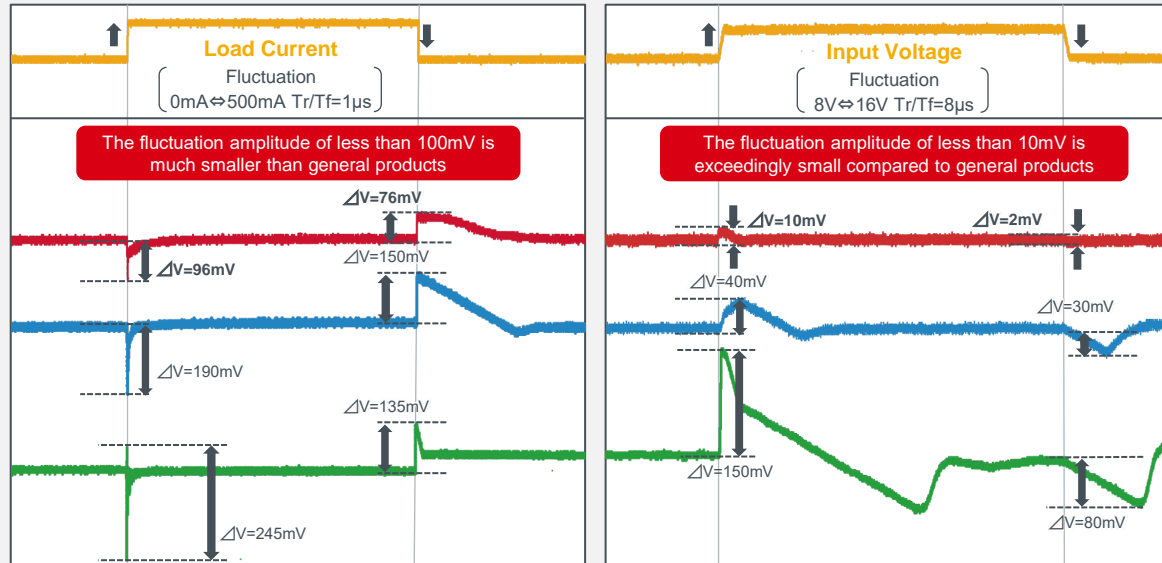
# Delivers Exceptional Stability in Applications Requiring High Performance, High-Speed Operation

## Response Performance Comparison: BD9xxM5-C vs General Products (500mA Output LDO Regulators for Automotive Primary Power Supplies)

Prerequisites: 5V output voltage, 2.2 $\mu$ F output capacitance

### Graph of Response Performance to Load Current Fluctuation

### Graph of Response Performance to Input Voltage Fluctuation

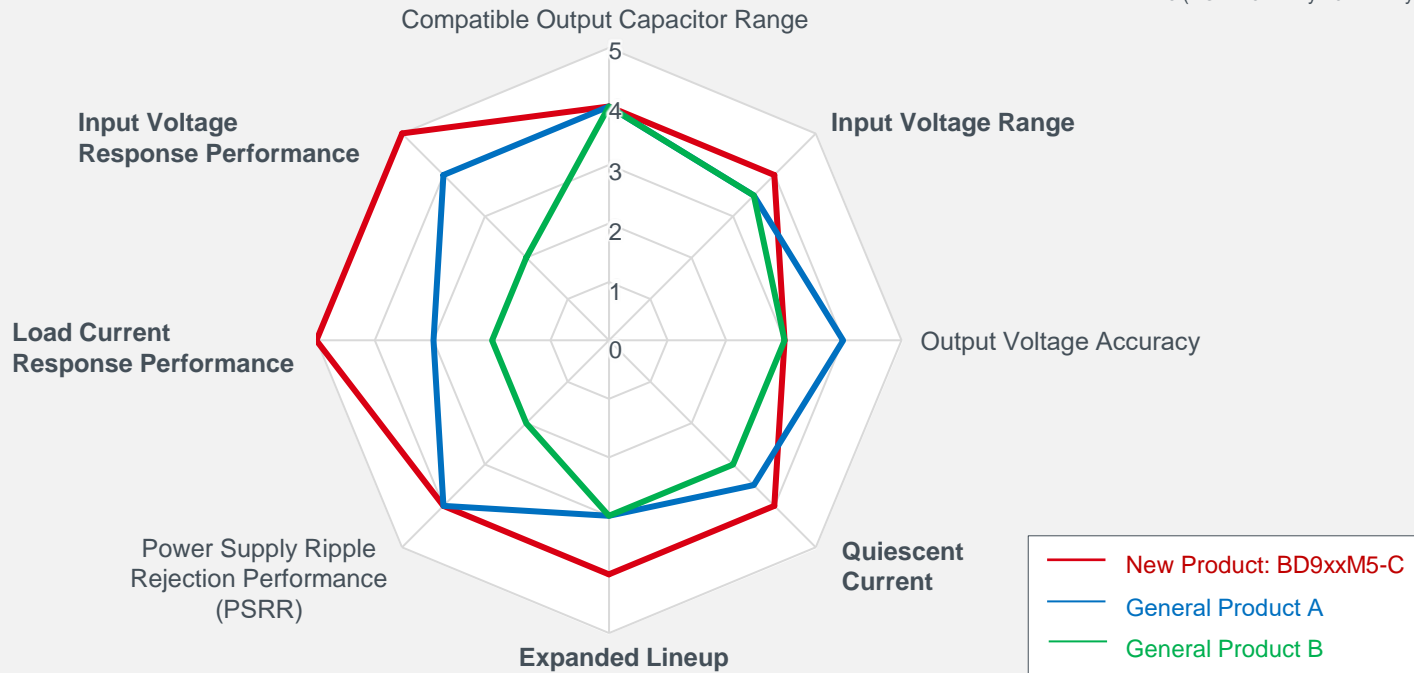


**Ultra-stable operation using QuiCur™ technology supports the construction of high reliability applications**

\* ROHM January 2024 study

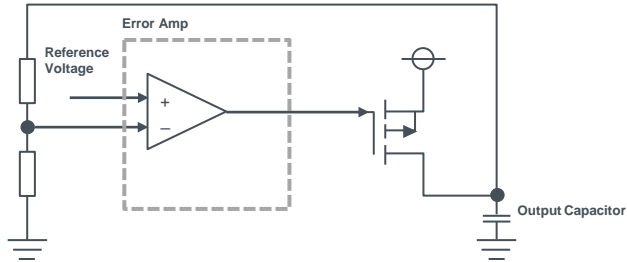
## Performance Comparison: BD9xxM5-C vs General Products (500mA Output LDO Regulators for Automotive Primary Power Supplies)

\*Standard value set at 3 (ROHM January 2024 study)



**Balanced performance supports a wide range of applications**

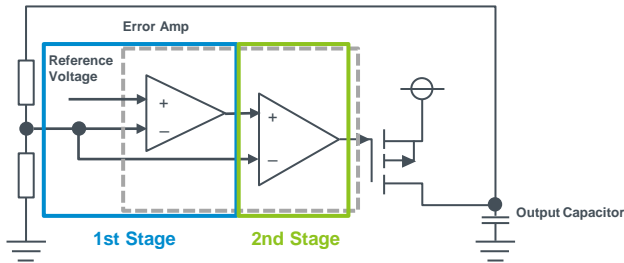
## Conventional Technology



A single error amp handles signals for both the control and correction systems, making it necessary to design the power supply circuit with sufficient margin after considering the trade-off between response performance and operation stability



## QuiCur™ High-Speed Load Response Technology

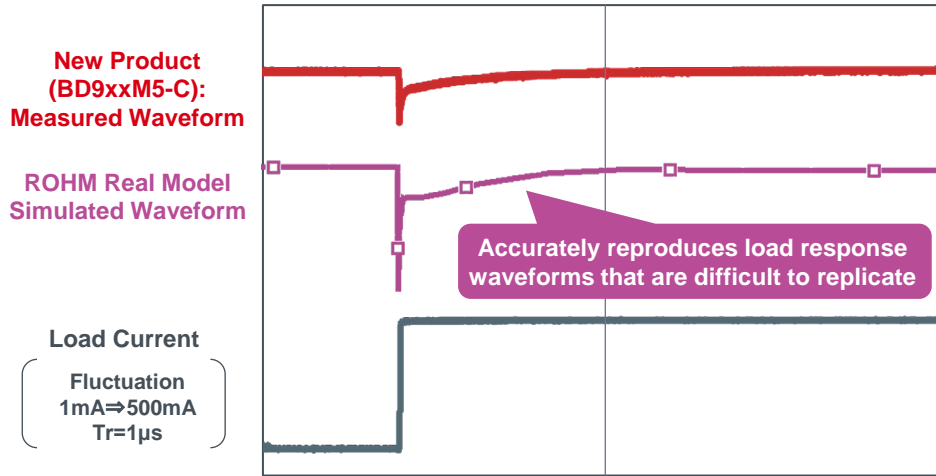


**Two error amp stages are used to precisely allocate the processing of control and correction signals, reducing the design load for power circuits by achieving superior responsiveness and stability**

ROHM Real Models are now available that make it possible to achieve a perfect match between actual IC and simulated values

## Verification of Response Performance of Actual Device/ SPICE to Load Current Fluctuation

Output Voltage Load Transient Response Characteristics  
( $V_{IN}=13.5V$ ,  $C_{OUT}=2.2\mu F$ ,  $T_a=25^\circ C$ )



- SPICE models are now available on ROHM's website

**SPICE Models**  
**(ROHM Real Models)**

**Reliable verification contributes to efficient application development**

- **Automotive** (AEC-Q100 qualified, ComfySIL™ compatible)

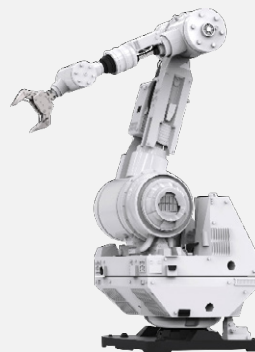
- **Primary power supplies for 12V batteries**

- Powertrain systems such as Fuel Injection (FI) and Tire Pressure Monitoring (TPMS)
- Body systems (e.g. body control modules)
- Infotainment systems (instrument clusters, Head-Up Displays (HUDs), etc.)



- **Industrial**

24V/36V power supplies for industrial robots, etc.



- **Consumer**

General household appliances



**Ideal for applications with significant input voltage and load current fluctuations**

# QuiCur™ Equipped 45V LDO Lineup

Click on the icon to access the product page and the icon to view the datasheet on ROHM's website.

Part No.	Input Voltage Range [V]	Output Voltage [V]	Output Current (Max) [A]	Output Voltage Accuracy (%)	Quiescent Current (Typ) [μA]	Shutdown Switch	Operating Temperature Range T <sub>j</sub> [°C]	Package	ComfySIL™ Functional Safety Category	Automotive Grade (AEC-Q100)
<b>New</b> BD900M5EFJ-C	3 to 42	Adjustable (1 to 16)	0.5	±2.0	9.5	—	-40 to +150	HTSOP-J8	FS supportive*	YES
<b>New</b> BD933M5EFJ-C		3.3				—		HTSOP-J8		YES
<b>New</b> BD950M5EFJ-C		5.0				—		HTSOP-J8		YES
<b>New</b> BD900M5WEFJ-C		Adjustable (1 to 16)				✓		HTSOP-J8		YES
<b>New</b> BD933M5WEFJ-C		3.3				✓		HTSOP-J8		YES
<b>New</b> BD950M5WEFJ-C		5.0				✓		HTSOP-J8		YES
☆ BD900M5FP-C		Adjustable (1 to 16)				—		TO252-5		YES
☆ BD933M5FP-C		3.3				—		TO252-3		YES
☆ BD950M5FP-C		5.0				—		TO252-3		YES
☆ BD900M5WFP-C		Adjustable (1 to 16)				✓		TO252-5		YES
☆ BD933M5WFP-C		3.3				✓		TO252-5		YES
☆ BD950M5WFP-C		5.0				✓		TO252-5		YES
☆ BD900M5HFP-C		Adjustable (1 to 16)				—		HRP5		YES
☆ BD933M5HFP-C		3.3				—		HRP5		YES
☆ BD950M5HFP-C		5.0				—		HRP5		YES
☆ BD900M5WHFP-C		Adjustable (1 to 16)				✓		HRP5		YES
☆ BD933M5WHFP-C		3.3				✓		HRP5		YES
☆ BD950M5WHFP-C		5.0				✓		HRP5		YES

☆ Under Development

\*FS Supportive: A product that has been developed for automotive use and is capable of supporting safety analysis with regard to the functional safety.



## Notice

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