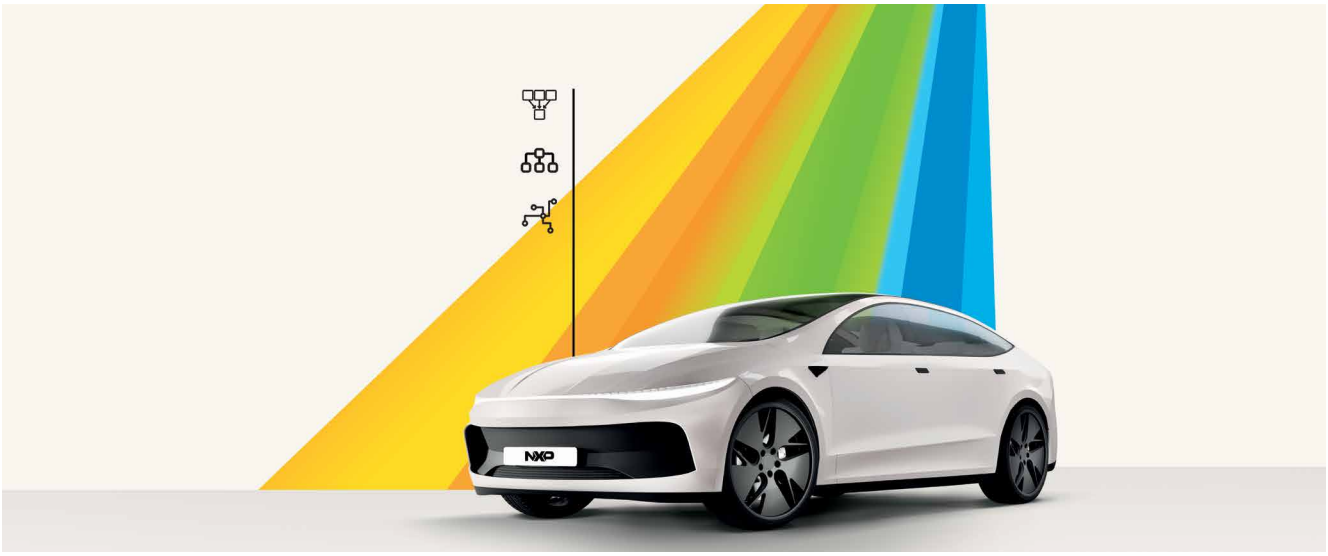
Next-generation CAN SIC transceivers

TJA1464, TJA1467 and TJA1468



Back in 2019, NXP introduced the first generation of CAN SIC transceivers (TJA1462 and TJA1463) and initiated the standardization process within CiA 601 4. Working closely with the global automotive industry, CAN SIC has since been fully adopted and is now specified in **ISO 11898 2:2024 (third edition)**. Furthermore, both the **C&S CAN SIC IOPT tests** and the **IBEE EMC tests** use NXP's TJA1462/63 as reference implementation, underscoring their role as industry benchmarks.

A brief recap on CAN SIC

SIC stands for **Signal Improvement Capability**. Its primary purpose is to accelerate the recessive transition edge to significantly reduce signal ringing on the CAN network. This improvement allows robust CAN FD communication at **5 Mbit/s** even in large or complex network topologies. In addition, the SIC devices feature substantially improved **bit timing symmetry**, enabling CAN FD data rates up to **8 Mbit/s**.

After establishing the golden reference baseline for the industry, NXP's CAN SIC transceivers have been widely adopted by customers worldwide and deployed across various automotive domains including **ADAS, powertrain, chassis systems, and zonal controllers**. Following this broad market success, NXP is now developing the next-generation CAN SIC family with enhanced features and improved cost competitiveness.

Next-generation CAN SIC portfolio

The next generation introduces three new devices:

- **TJA1464:** Standby CAN SIC (pin to pin compatible with TJA1462)
- **TJA1467:** Sleep CAN SIC (pin to pin compatible with TJA1463)
- **TJA1468:** Dual standby CAN SIC (pin to pin compatible with TJA1448)

The new devices maintain the same pinout as the first generation to ensure smooth and effortless migration for existing designs.

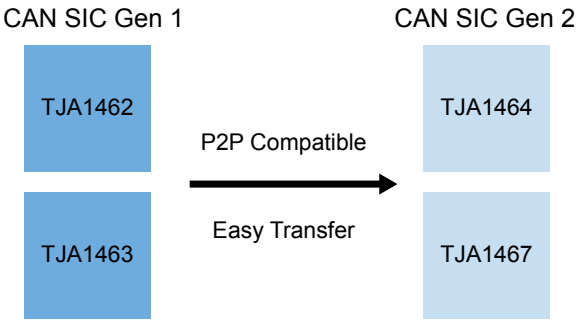
Key improvements in the new generation

The next-generation CAN SIC transceivers introduce several important enhancements:

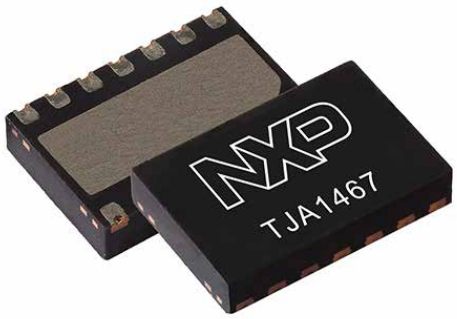
- **Extended Vbat range: 4.5 V–40 V**
  Provides greater robustness under battery fault conditions and enhances overall system reliability.
- **Broader MCU supply support on TJA1467A: 1.8 V–5 V**
  Ensures compatibility with modern MCUs and SoCs that operate at lower I/O voltages.
- **CAN XL ready**
  - Supports wake-up pattern timing of **0.5 µs–1.45 µs**
  - Supports extended bus load range of **45 Ω–65 Ω**

    These features ensure compatibility with CAN XL messaging, which offers up to **2 Mbytes payload** (while maintaining an 8 Mbit/s data phase limit).

Migration path



- **Targeting ISO 26262 ASIL B**
  Designed for functional safety critical automotive applications.
- **Four step wake-up pattern (WUP)**
  Implements the updated four step pattern defined in ISO 11898 2:2024. This replaces the three step mechanism in generation 1, providing a more robust wake-up scheme and better immunity against unintended wake-ups.
- **Additional MCU time out (TJA1467)**
  Ensures reliable system wake-up behavior and improved diagnostic handling.



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