



Simple integration
for 12 V automotive
applications

NXP® Mantis® CAN Transceiver Family

Offering an optimized feature set, benchmark emissions performance (even without a common-mode choke), multi-sourced manufacturing base, and high-end variants for CAN FD, the Mantis product family delivers everything you need in a CAN transceiver.

NXP's standalone Mantis HS-CAN transceivers are the natural evolution of our third-generation transceivers, the TJA1042 and TJA1051. In a market where basic CAN functions are becoming standardized, there remains a relentless demand for performance and innovation. The Mantis family provides the ideal solution. The family includes two pairs of transceivers, the TJA1044GT and TJA1057GT, each available with a VIO pin option for simple interfacing to 3V3 microcontrollers.

FEATURES

- ▶ Optimized for use in 12 V automotive systems
- ▶ Very low-current standby mode with host and bus wake-up capability
- ▶ Available in SO8 and leadless HVSON8 package with wettable flanks for easy AOI

- ▶ Excellent EMC performance even without a common mode choke
- ▶ Multi-Sourcing: reliable supply chain; single ordering code in two wafer fabs, supporting business continuity programs
- ▶ CAN FD bit timing guaranteed at 5 Mbit/s acc. ISO11898-2:2016
- ▶ TJA1044GT(K)/3 only: supports fast wake-up pattern filter, max 1.8 μs

TARGET APPLICATIONS

- ▶ 12 V automotive applications
- ▶ Industrial applications

	Standard device		V _{IO} Pin	
	SO8 Package	HVSON Package	SO8 Package	HVSON8 Package
Basic HS-CAN transceiver	TJA1057GT	TJA1057GTK	TJA1057GT/3	TJA1057GTK/3
HS-CAN with Standby Mode	TJA1044GT	TJA1044GTK	TJA1044GT/3	TJA1044GTK/3



MANTIS: ALL YOU NEED TODAY

The TJA1044GT (standby HS-CAN transceiver) and TJA1057GT (basic HS-CAN transceiver) provide an optimized feature set for HS-CAN transceivers.

Continuing NXP's heritage of high performance, the Mantis transceiver family also features even further improved EMC performance, meeting current emissions targets for CAN transceivers, even when operated without a common-mode choke.

To support use in CAN FD (flexible data rate) applications, Mantis transceivers also fulfill emission requirements at bus speeds of 2 Mbit/s, demonstrating that even with faster data rates, EMC can be controlled.

The TJA1044GT and TJA1057GT transceivers have fully deterministic behavior over the complete voltage and temperature range. NXP produces these transceivers in high-quality ABCD mixed-signal processes to ensure reliability, quality and robustness in the application.

MANTIS: READY FOR CAN FD

Mantis transceivers additionally guarantees that critical parameters are tested in production to ensure robust communications at higher data rates, making these transceivers an ideal choice for CAN FD networks.

CAN FD permits the network to operate at higher data rates and longer cable lengths. When increasing the bus speed, the loop delay symmetry (the robustness of the transitions from dominant to recessive and recessive to dominant) needs to be preserved to maintain the integrity of CAN communications.

CAN FD also enables the use of longer cables in an application. When using longer cables, the propagation delay becomes a critical parameter. Mantis devices guarantee, via inline testing, an improved propagation delay of 210 ns, to ensure continued reliability of communications at these longer cable lengths.

MULTI-SOURCE STRATEGY

NXP's **quad-sourcing strategy** extends its In-Vehicle Networking (IVN) team's dual-sourced diffusion with **dual-sourced backend assembly**.

This strategy helps to build an agile, robust industrial base that can reliably service the forecasted long-term market growth of IVN products based on NXP's global business continuity management process.

All products announced for dual-sourced backend assembly are mandated to be dual-sourced in frontend diffusion, and are, therefore, "quad-sourced."

The Mantis family is dual sourced from two fabs: ICN8 Nijmegen and SSMC Singapore. Each family member has a single ordering code, supplied by both manufacturing locations, providing a continuous and secure supply chain for customers.

Feature	TJA1057GT(K)/(3)	TJA1044GT(K)/(3)
V _{cc} suppl. voltage	5 V +/- 5%	5 V +/- 5%
V _{cc} bus fault current	max. 110 mA	max. 110 mA
Low power current	n/a	15 µA/16.5 µA
ESD IEC 61000-4-2	+/- 8 kV	+/- 8 kV
ESD SAE J2962-2	+/- 15 kV	+/- 15 kV
SAE J2284-1 to -5 compliance	YES	YES
Common mode voltage range	+/- 12 volt	+/- 12 volt
Bus robustness	+/- 42 volt	+/- 42 volt
Loop delay	max. 210 ns	max. 210 ns
Quad sourced	YES	YES

