Transceiver Provides NFC Capability in Cars

Automotive OEMs aggressively pursue improvements in convenience, security and intuitive interactions in the vehicle. Melexis NFC technology offers all the above at a low cost and great ease of use. MLX90132 is a 13.56MHz, fully integrated, multi-protocol RFID/NFC transceiver IC. It supports ISO/IEC protocols 18092, 14443A and B, 15693 as well as 18000-3. It has been designed to handle sub-carrier frequencies from 106 to 848 kHz and baud rates up to 848kbit/s. The digital section of the MLX90132 handles the low protocol layers from API to physical layer using advanced bit and frame decoding functions.

The MLX90132 embeds tag emulation functionality for NFC support. Enhanced tag and field detection capabilities provide significant power consumption reduction in RFID reader configuration and in NFC mode. The device offers 2 modes and 6 different states of operation allowing ultra low power consumption of the whole system. In hibernate state power consumption is less than 10uA, while in NFC target the device consumes only 2.5mA.

The MLX90132's 256 byte buffer can handle buffering an entire RFID frame. The SPI/UART communication ports guarantee easy interface with the majority of microcontrollers, especially the low cost ones. Major use cases for the MLX90132 are:
• Car access and car start
• Car interior setup according to different drivers, such as infotainment; seat position, heating and mirrors; telematics; engine/chassis setup and preference configuration.
• User authentication—car rentals
• Support to wireless communication—such as Wi-Fi and Bluetooth—with benefit of reduced setup time

“We are glad we have chosen to evaluate the MLX90132 in NFC based car access applications, as this device has the lowest power consumption and the smallest component count among all other NFC solutions available on the market today.” says Stefan Vogel, from Marquardt.

“The MLX90132 is the first member of a series of advanced NFC/RFID products resulting from an ambitious and successful cooperation program with ST Microelectronics. Not only will Melexis NFC offer a higher level of security allowing more applications to be run safely in the car, its faster set-up time also will permit other wireless technologies to take advantage of NFC’s faster authentication process.” says Diana Moncoqut, Product Line Manager, Wireless Automotive and Sensing at Melexis.

The MLX90132 is packaged in a 5x5mm QFN package and rated for operation over -40° to +105°C. It is manufactured and qualified according to AEC-Q100 automotive standard. The device is available in sample quantities immediately. For more information please visit www.melexis.com/mlx90132 [1] or email NFC@melexis.com [2].

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