

Smart Card Interface IC

General Purpose, Low Power ISO-7816 / EMVco
Electrical Interface, controllable through I²C
with High-efficiency DC-DC Converter



The 73S8010C is a single smart card interface IC, compliant to the electrical requirements of ISO-7816-3 and EMV 4.0 (EMV2000) electrical specifications. It is controllable by an I²C bus, that makes it particularly suitable for applications that require several card interfaces, such as multiple SAM (Secure Access Modules) configurations in Point-of-Sales and payment terminals. For smart card reader applications traditionally using TDA8004 or TDA8002 type of devices, the TDK 73S8010C and its I²C host interface is an advantageous replacement that requires fewer controller interface signals. It can be used in conjunction with any host microcontroller that can support the smart card protocol layer.

It is available either in a standard SO28 package, or in a 32-pin QFN package (5 x 5 x 0.8mm), making it the smallest solution available today in the market.

A key feature of the 73S8010C is its high-efficiency inductor-based DC-DC converter, which generates the smart card voltage (3V or 5V) from a low-voltage power supply source (2.7V to 3.6V), capable of supplying an ICC card current up to 100mA. Digital circuitry is separately powered by a digital power supply VDD, typically 3.3V, which is independent from the supply of the converter.

The circuit also features a power-down mode that can be activated through the I²C register. When entering this mode (allowed when no card is activated), the card interface typically draws less than 2 μ A.

The TDK 73S8010C, with its features such as low-power, high-efficiency converter, easy I²C interfacing and small size in its QFN32 option, is ideal for battery-operated Point-of-Sales terminals, multiple SIM / SAM architectures or embedded EMV slots in portable devices such as cell phones and PDAs.

Key Applications

- Point of Sales Terminals
- E-commerce and identification slots in cell phones and PDAs
- Conditional Access: Set-Top-Boxes, DVD or HDD recorders Digital TVs and PVRs
- Control Access & Identification

Key Advantages

- Replacement for the TDA8004:
- The 5V system power supply can be removed!
 - Dramatic cost reduction of the BOM in consumer electronics applications
- Power down mode: Sub 2 μ A typical
- The inductor-based DC-DC converter provides higher current and efficiency (85% typ.) than usual charge-pump capacitor-based converters
 - Very low power dissipation
 - Ideal for battery-powered applications
 - Suitable for high current cards and SAMs: (up to 100mA supplied to the card!)

ISO/IEC
7816-3



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Features

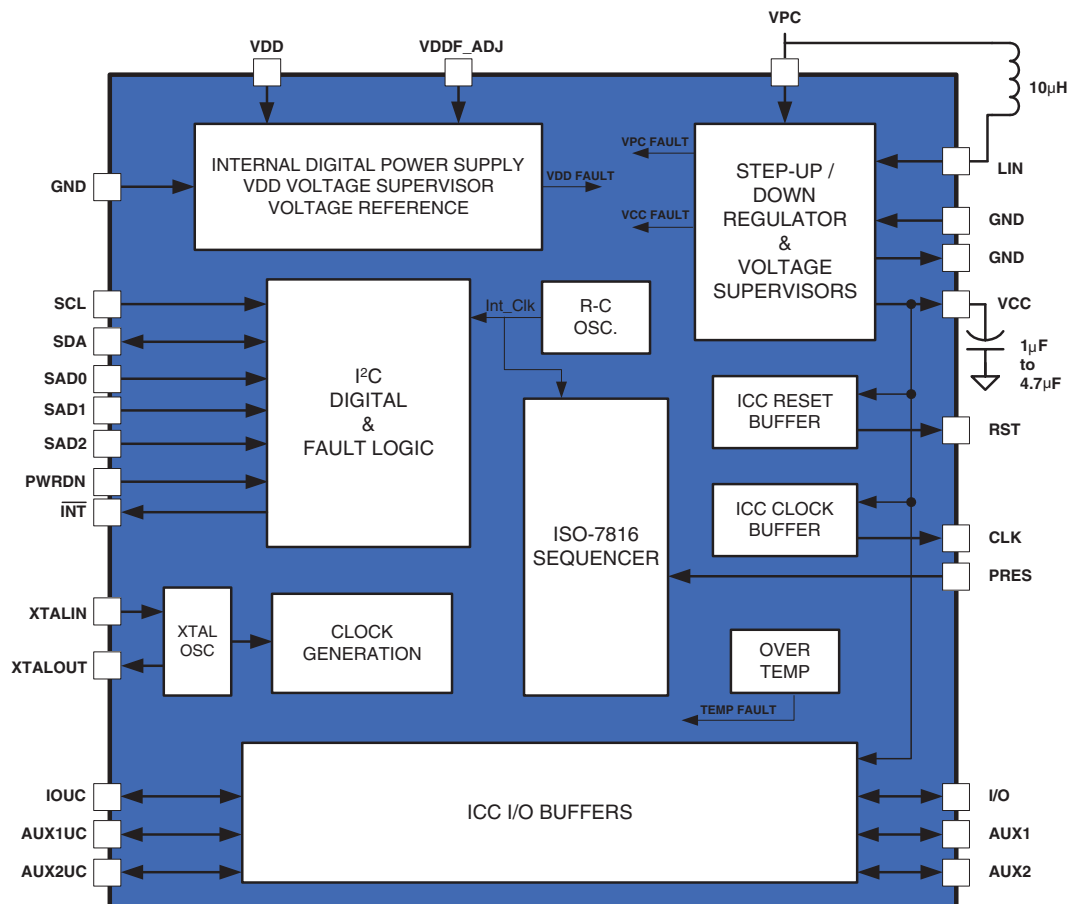
Card Interface

- Complies with ISO-7816-3 and EMV 4.0
- Provides at least 100mA to the card
- DC-DC Converter provides 3V/5V to the card from an external power supply input
- ISO-7816-3 Activation/Deactivation sequencer
- Emergency card deactivation upon hardware fault:
 - Card removal
 - Voltage supervision faults: Detection of voltage drops on VCC (card) and VPC power supply
 - Adjustable power supply (VDD) fault detection (2 resistors needed)
 - Card over-current (true current detection)
 - Die over-heating fault
- Card clock stop (high or low)
- Auxiliary I/O lines, for C4/C8 contact signals

System Controller Interface

- Fast mode, 400kbps I²C slave bus
- 8 possible devices in parallel with different I²C addresses
- One control register and one status register
- Interrupt output to the host for fault detection
- 3 Digital inputs control the card activation / deactivation, card reset and card voltage
- 4 Digital inputs control the card clock (division rate and card clock stop modes)

73S8010C Block Diagram



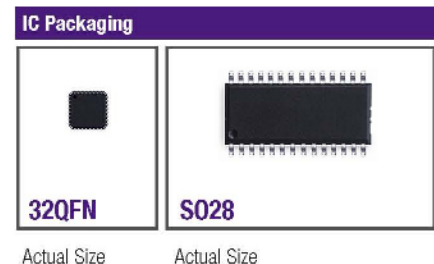
- 1 Digital output (interrupt) to the system controller, allows the system controller to monitor the card presence and faults

Power Supply

- 2.7V to 3.6V

6KV ESD Protection on the card interface

Package: SO28 or 32QFN



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