

# Smart Card Interface IC

General Purpose, Low Power ISO-7816/EMVco Electrical Interface with High-Efficiency DC-DC Converter



The 73S8024C is a single smart card interface IC, compliant to the electrical requirements of ISO-7816-3, EMV 4.0 (EMV2000) and NDS<sup>1</sup> electrical specifications. It can be used in conjunction with any host microcontroller that can support the smart card protocol layer. The 73S8024C interfaces with the host through a dedicated digital control bus, compatible with the industry-standard device TDA8004.

A key feature of the 73S8024C 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.

The circuit also features a power-down mode that can be activated through a digital input. When entering this mode (allowed when no card is activated), the card interface typically draws less than 2 $\mu$ A. High efficiency and power down features make the TDK 73S8024C chip ideal for battery-operated applications, or every time power-dissipation must be limited inside an application. The 73S8024C is also ideal for consumer electronics applications such as DVD or HDD recorders (Personal Video Recorders), that have to support high-current, high frequency conditional access smart cards while the 5V system power supply must be removed for overall cost reduction of the system.

### Key Applications

- *Conditional Access (NDS Approved<sup>1</sup>): for Set-Top-Boxes, DVD or HDD recorders (Personal Video Recorders) and Digital TVs*
- *Payment Slot (EMV pre-Certified): Point of Sales & Transaction Terminals*
- *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 $\mu$ 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!)*

<sup>(1)</sup>NDS Approval Pending

## Features

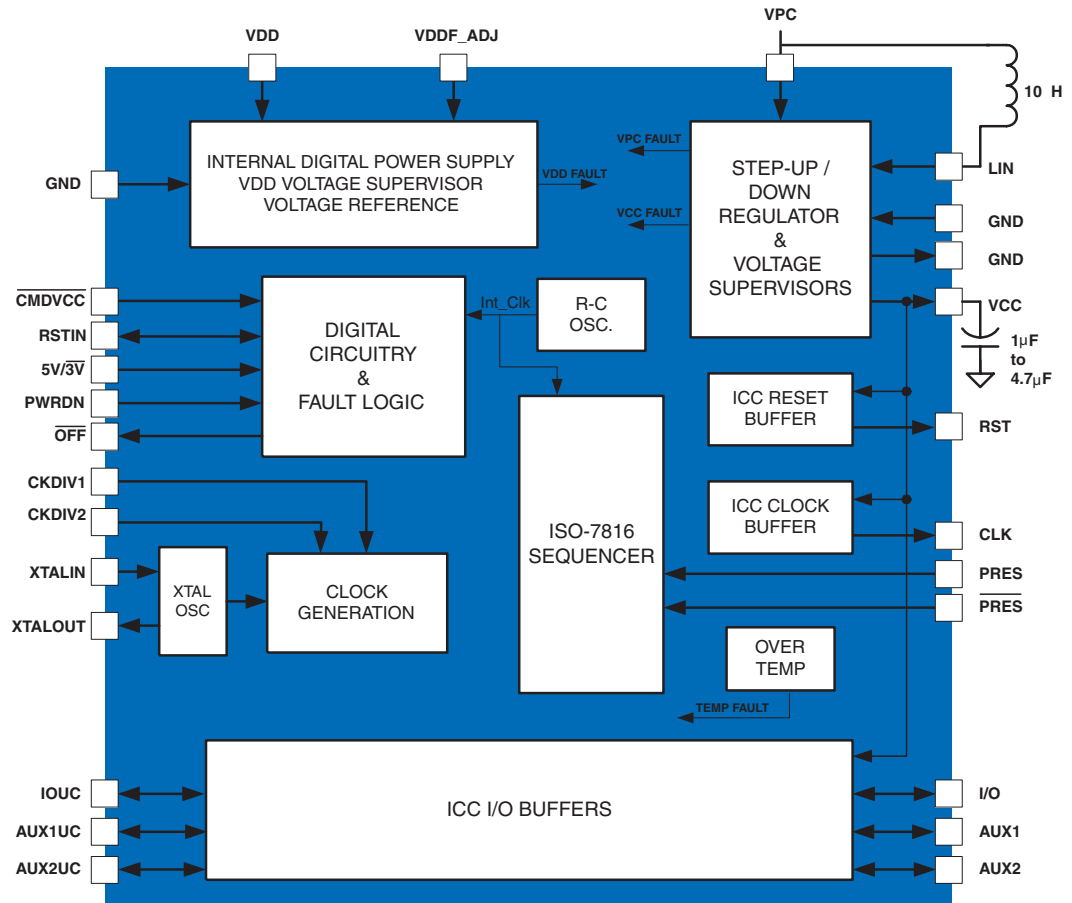
### Card Interface

- Complies with ISO-7816-3, EMV 4.0 and NDS<sup>1</sup>
- 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
  - Card removal
  - Voltage supervision faults: Detection of voltage drops on VCC (card), VPC power supply
  - Adjustable power supply (VDD) fault detection (2 resistors needed)
  - Card over-current (true current detection)
  - Die over-heating fault
- 2 card detection inputs, 1 for each possible user polarity
- Auxiliary I/O lines, for C4 / C8 contact signals

### System Controller Interface

- 3 Digital inputs control the card activation / deactivation, card reset, card voltage and power down mode
- 4 Digital inputs control the card clock (division rate and card clock stop modes)
- 1 Digital output (interrupt output to the host for fault detection) allows the system controller to monitor the card presence

## 73S8024C Block Diagram



### Power Supply

- 2.7V to 3.6V

6KV ESD Protection on the card interface

Package: SO28



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