The 73S8010R and 73S8010C are single smart card interface ICs, compliant to the electrical requirements of ISO-7816-3 and EMV 4.0 electrical specifications. They implement an I²C bus control, making them particularly suitable for applications that require several card interfaces. This is applicable to multiple SIM / SAM (Secure Access Module) configurations in Point-of-Sales and payment terminals. Also, the I²C host interface is an attractive solution requiring fewer controller interface signals, in comparison to applications that traditionally use TDA8004/TDA8002 type devices. The 73S8010R and 73S8010C can be used in conjunction with any host microcontroller that can support the smart card protocol layer.

Both ICs are available either in a popular SO28 package, or in a 32-pin QFN tiny package (5 x 5 x 0.8mm).

The difference between the 73S8010R and 73S8010C resides in the smart card power supply generation: The 73S8010R implements a low-drop-out VCC regulator, whereas the 73S8010C features an inductor-based DC-DC converter.

The choice between either IC will be determined by the system power supply available, as well as the power consumption requirement:

- The 73S8010R requires two power supplies: Typically, a 3.3V and a 5V supply are required to support both 3V and 5V cards (however, a single 3.3V supply will be sufficient to support 3V cards only).
- The 73S8010C requires a single 2.7V to 3.6V system power supply, regardless of which card voltage must be supported.

From a power consumption standpoint, both ICs are ideal for low-power and battery-operated devices. At high card current conditions, both ICs save 0.5 Watts compared to TDA8004/TDA8002 type devices. In addition, the 73S8010C supports a power down mode that places the IC in a sub-2μA (typical) consumption mode. Finally, the DC-DC converter of the 73S8010C performs very high-efficiently, in the range 82% to 90%, depending on the operating conditions. These features make the 73S8010C ideal for battery-operated applications.
Features

Card Interface
- Complies with ISO-7816-3 and EMV 4.0
- Provides at least 90mA to the card
- DC-DC Converter provides 3V/5V to the card from an external power supply input (73S8010C only)
- ISO-7816-3 Activation/Deactivation sequencer
- Emergency card deactivation upon hardware fault:
  - Card removal
  - Detection of voltage drops on VCC and VDD power supplies
  - Adjustable power supply (VDD) fault detection (2 resistors needed)
  - Card over-current (true current detection)
  - Die over-heating fault
- 1 card detection input
- Auxiliary I/O lines, for C4/C8 contact signals

System Controller Interface
- Fast mode, 400kbps I'C slave bus
- 8 possible devices in parallel with 8 different I'C addresses
- One control register and one status register
- Interrupt output to the host for fault detection

Power Supply
- 73S8010R:
  - (VDD): 2.7V to 5.5V
  - (VPC): 4.75V to 5.5V (to support 5V cards)
- 73S8010C:
  - 2.7V to 3.6V

6KV ESD Protection on the card interface

IC Packaging

73S8010R/C Block Diagram

For immediate technical information and the name of a local representative or distributor, visit www.teridian.com, send an e-mail to support@teridian.com or call (714) 508-8800.

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