

## USB, SIM/Smart-Card Reader ICs



### Description

The Teridian 73S1215F and 73S1217F are, self-contained SoC smart card reader ICs that are in ideal solution for any USB connected ISO-7816 design. Any USB connected or stand alone smart card reader can benefit from the unique feature set the Teridian 73S1215F and 73S1217F has to offer. With the 73S1215F and 73S1217F, products like the personal PINPads, transparent smart card readers or smart card readers built into laptops, desktops and peripherals (keyboards, etc.) can now take advantage of the USB connectivity with no impact on the cost compared to traditional unconnected solutions.

Teridian is committed to simplifying customer designs as well as shortening development and certification timetables by providing unparalleled support and design help. Customers may elect to use Teridian's free-of-charge turnkey reference designs and software solutions that fully comply with all relevant standards (ISO 7816 (T=0, T=1), PS/SC, CCID) and are suitable to pass key certification tests (EMV 4.1 (level1), Microsoft WHQL). Alternately, Teridian fully supports customer's development of their own solutions through Teridian's extensive documentation and support.

KEY FEATURES:	BENEFITS:
<b>Turnkey Solution:</b> > Available with CCID-USB software stack: – Suitable for ISO-7816 and EMV smart cards – Single or multi card slots – Optional PINpad and LCD – Drivers for Windows XP, Vista, Linux and more	> Immediate compliance with ISO7816-3 & 4 and EMV 4.1 level 1 > No software development needed for Windows and Linux based PCs > Also suitable for Linux embedded > Firmware code available to developers who may want to add their own application on top of Teridian CCID
<b>Higher performance CPU core:</b> > 80515 CPU Core – 1 Clock-cycle/instruction – Up to 24MIPS available	> Compares to 6 or 12 clock-cycles per instruction for its competitors in the same price range (with 4MIPS max) > Suitable for encryption needs
<b>Large on-chip memory and powerful In-Circuit-Emulation:</b> > On-chip 2KB XRAM, 256IRAM, and dedicated FIFOs to USB and ISO7816 > True on-chip 64KB Flash (program memory, segmented with 512B pages) > 3-wire JTAG-like interface for In-Circuit-Emulation and Flash Programming – On-chip security fuses can permanently disable the JTAG-like interface and lock the Flash for final products	> Compares to 768B max RAM for its competitors in the same price range > Compares to 16KB ~ 32KB max for its competitors in the same price range > Flexible firmware upgradability > Allows In-System and In-Application Programming > Easy-to-use and cost effective development plus programming tools > Custom firmware is protected
<b>Single and Multi card slots:</b> > 1 built-in electrical interface – Suitable for all ISO-7816 and derivative standards (including EMV 4.1, GSM11-11, etc) > Possibility to extend the number of smart card slots through external 73S8010R/C ICs	> The lowest BOM for single-slot smart card reader > The smallest PCB footprint > Scalability: External SIM/card interfaces (73S8010x) can be added without modifying the firmware/hardware



### Applications

- > **Handheld PINpad smart-card readers:**
  - Battery and/or USB bus-powered
  - Connected, un-Connected and Combo (USB and/or serial)
- > **Transparent smart-card and SIM Readers**
- > **USB readers and USB keys**
- > **Smart-card readers built-into laptops and keyboards**
- > **Single and multiple card slots**
- > **General-purpose smart-card readers**
- > **Point of Sales terminals**

## Additional Features

### Various power supply options:

- > 73S1215F: Dual voltage needed:
  - +3.3V (2.7V~3.6V)
  - +5.0V (4.75V~6.0V)
- > 73S1217F: Single voltage needed (requires an external 10µH inductor):
  - +5.0V (4.4V~5.5V when using VBUS)
  - or +4.0V to 6.5V (when using VBAT ON/OFF line required for power management)
  - or +2.7V ~ 6.5V (when using VPC ON/OFF line required for power management)

### SIM and Smart-Card Support:

- > Supports T=0, T=1, ISO-7816 asynchronous smart cards
- > Card baud rate up to 230Kbps
- > Supports all card voltages: 1.8V, 3V and 5V
- > ESD Rating: 7KV

### Additional Features:

- > USB 2.0 slave interface:
  - 4 Endpoints w/ 304B FIFOs (total)
- > Asynchronous serial interface: 115Kbps
- > 5x6 PINPad interface
- > 8 /user I/Os
- > 4/1 LED, current programmable outputs (73S1215F/73S1217F)
- > 1 Analog DC input:
  - Allows voltage detection, battery supervision
- > I<sup>2</sup>C host interface (400Kbps) with 2-Byte FIFO
  - Suitable to drive external smart card interfaces, or small peripherals such as LCD displays, etc.
- > 32KHz sub-system oscillator with RTC counter

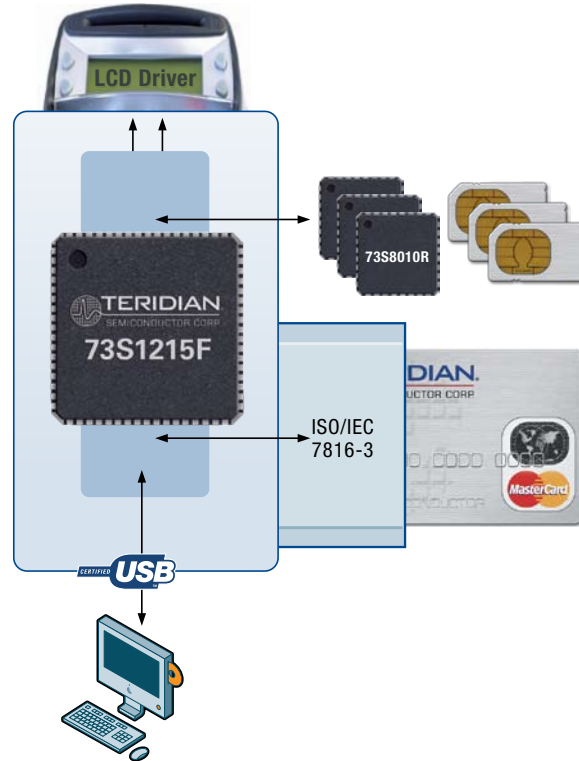
### Other Developments Tools:

- > Powerful In-Circuit-Emulation and Flash programming through a 3-wire JTAG-like interface
  - Low-cost development tools
- > A complete set of ISO-7816, EMV4.1 and USB libraries, sample code for CCID smart card reader (in ANSI C)

### Package:

- > QFN68 8x8mm, QFN44 7x7mm (73S1215F only)
- > Die form (contact Teridian)

## 73S1215F Application



## Ordering Information

PART DESCRIPTION	ORDERING NUMBER
<b>73S1215F</b> 44-QFN 7x7mm, Lead Free	<b>73S1215F-44IM/F</b>
<b>73S1215F</b> 44-QFN 7x7mm, Lead Free, Tape and Reel	<b>73S1215F-44IMR/F</b>
<b>73S1215F</b> 68-QFN 8x8mm, Lead Free	<b>73S1215F-68IM/F</b>
<b>73S1215F</b> 68-QFN 8x8mm, Lead Free, Tape and Reel	<b>73S1215F-68IMR/F</b>
<b>73S1217F</b> 68-pin QFN, 8x8mm, Lead Free	<b>73S1217F-68IM/F</b>
<b>73S1217F</b> 68-pin QFN, 8x8mm, Lead Free, Tape and Reel	<b>73S1217F-68IMR/F</b>