MAXQ1743   DeepCover Secure Magnetic Card Reader IC
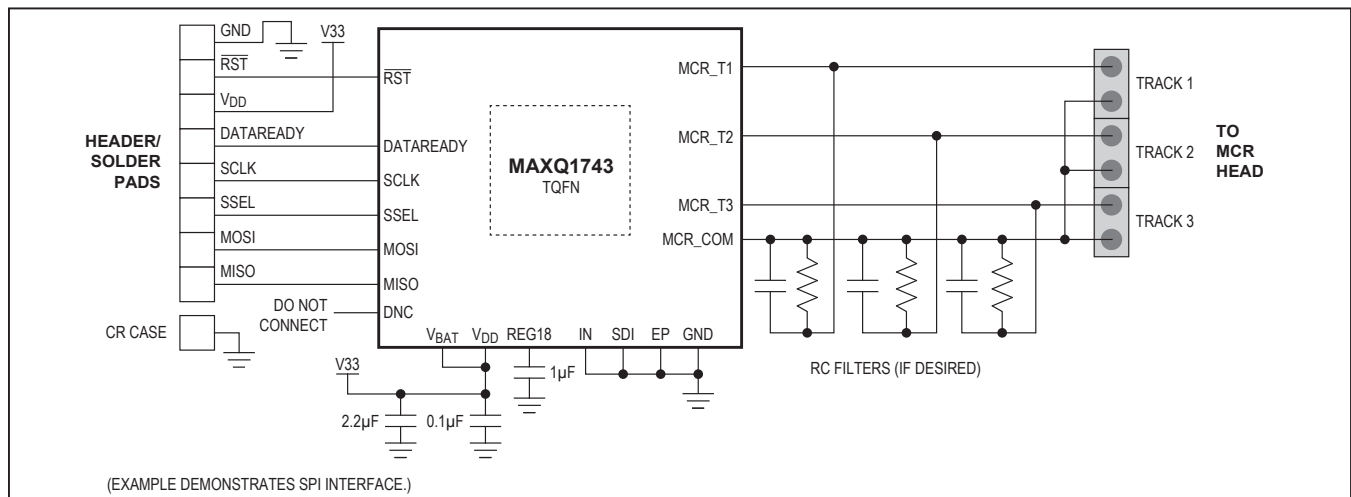
General Description

DeepCover® embedded security solutions cloak sensitive data under multiple layers of advanced physical security to provide the most secure key storage possible.

The DeepCover Secure Magnetic Card Reader (MAXQ1743) is an integrated triple-track magnetic stripe reader IC that adds security features to a POS terminal or ATM card reader at the machine/card interface. Card data can be encrypted using either AES or DES/TDES algorithms. Security is further enhanced with the inclusion of fast-wipe nonvolatile SRAM (NV SRAM), a hardware random number generator (RNG), voltage attack sensors, and a self destruct input pin. The NV SRAM clears its contents when a tamper is detected by the on chip tamper detection circuitry. The fast-wipe feature ensures that any data in the NV SRAM is destroyed before any application software can access it. The MAXQ1743 communicates to a host processor through an SPI or I^{2}C interface. Detailed information regarding the operation of the device can be found in the *MAXQ1743 User's Guide*.

Applications

- ATM/Financial Terminals
- Access Control
- Government

Features

- 1.7V to 3.6V Operating Voltage
- ISO 7811/7812/7813 Compliant
- Triple-Track Magnetic Stripe Head Interface
- Fast Wipe NV SRAM for Key Storage
- AES Encryption (128/192/256 Bit)
- DES/TDEA Algorithm Support
- Random-Number Generator Hardware
- Self-Destruct Input for Tamper Detection
- Supply Overvoltage Detection
- Low-Power Operation (1.5mA typ)
- SPI or I^{2}C Interface
- Unique 64-Bit Serial Number

Ordering Information appears at end of data sheet.

For related parts and recommended products to use with this part, refer to www.maximintegrated.com/MAXQ1743.related.

Typical Operating Circuit

(EXAMPLE DEMONSTRATES SPI INTERFACE.)

DeepCover is a registered trademark of Maxim Integrated Products, Inc.

Note: *Some revisions of this device may incorporate deviations from published specifications known as errata. Multiple revisions of any device may be simultaneously available through various sales channels. For information about device errata, go to: www.maximintegrated.com/errata.*

maxim integrated™

MAXQ1743	DeepCover Secure Magnetic Card Reader IC

Applications Information

This low-power device makes it an excellent fit for many portable or battery-powered applications requiring security.

Grounds and Bypassing

Careful PCB layout significantly minimizes system-level digital noise that could interact with the microcontroller or peripheral components. The use of multilayer boards is essential to allow the use of dedicated power planes. The area under any digital components should be a continuous ground plane if possible. Keep any bypass capacitor leads short for best noise rejection and place the capacitors as close as possible to the leads of the device.

CMOS design guidelines for any semiconductor require that no pin be taken above V_{DD} or below GND. Violation of this guideline can result in a hard failure (damage to the silicon inside the device) or a soft failure (unintentional modification of memory contents). Voltage spikes above or below the device's absolute maximum ratings can potentially cause a catastrophic latchup of the device.

Additional Documentation

Engineers must have the following documents to fully use this device:

● This data sheet, containing pin descriptions, feature overviews, and electrical specifications.

● The device-appropriate user guide, containing detailed information and programming guidelines for core features and peripherals.

● Errata sheets for specific revisions noting deviations from published specifications.

For information regarding these documents, visit technical support at **support.maximintegrated.com/micro**.

Technical Support

Go to **support.maximintegrated.com/micro**.

Ordering Information

PART	OPERATING VOLTAGE (V)	PIN-PACKAGE
MAXQ1743-FBX+	1.70 to 3.6	28 TQFN-EP*
MAXQ1743-DNS+	1.70 to 3.6	Bare die

Note: All devices operate over the -40°C to +85°C operating temperature range.

+Denotes a lead(Pb)-free/RoHS-compliant package.

*EP = Exposed pad.

Package Information

For the latest package outline information and land patterns (footprints), go to **www.maximintegrated.com/packages**. Note that a "+", "#", or "-" in the package code indicates RoHS status only. Package drawings may show a different suffix character, but the drawing pertains to the package regardless of RoHS status.

PACKAGE TYPE	PACKAGE CODE	OUTLINE NO.	LAND PATTERN NO.
28 TQFN-EP	T2844+1	**21-0139**	**90-0035**

Note to readers: This document is an abridged version of the full data sheet. To request the full data sheet, go to **www.maximintegrated.com/MAXQ1743** and click on **Request Full Data Sheet**.