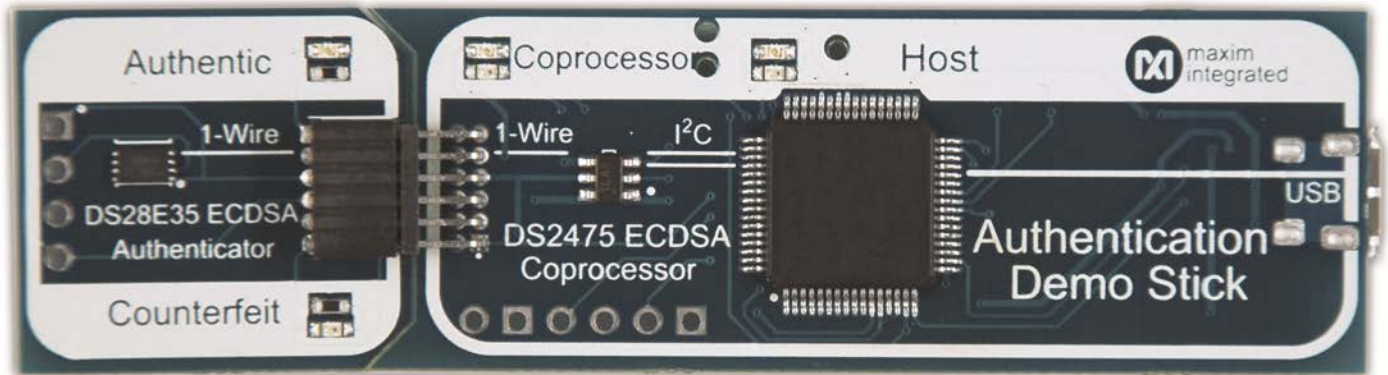


DS28E35DEMOK Authentication Demo Stick



The DS28E35 Authentication Demo Stick comprises a host board, an authenticator DUT board, and a USB cable. The host board contains a MAXQ622 microcontroller and a DS2475 ECDSA coprocessor. The microcontroller communicates over the I²C interface to the DS2475, and the DS2475 bridges I²C to 1-Wire[®] to communicate with the DS28E35 IC (one on the top side, one on the bottom side) on the authenticator DUT board. During manufacturing, the top-side DS28E35 is preprogrammed with an authentic private key, certificate, and other relevant data to simulate an authentic product. The bottom side is not programmed to simulate an unauthentic product. Refer to the DS28E35 data sheet for more details on the certificate, private key, etc. The USB connection is used only for power.

The DS28E35 Authentication Demo Stick is not intended to be a fully functional evaluation kit. For the full evaluation kit, order the DS28E35EVKIT#.

Quick Start Guide

1. Take the Authentication Demo Stick out of its packaging and ensure that the two circuit boards are connected as shown.
2. Using the provided micro-USB cable (or equivalent), connect the demo board to a USB power source such as a computer or a USB wall charger. **Note:** USB is used only as a source for power (5V). No PC software is required.
3. Every time power is applied, the LEDs flash to indicate that the demo is initializing. **Note:** The certificate and private key are preprogrammed onto the top side authenticator. The bottom side authenticator is intentionally not programmed.
4. Once initialization is completed, the demo repeatedly cycles through the authentication sequence. If the private key and certificate are found to be authentic, then the LED labeled **Authentic** illuminates.
5. While keeping the USB cable connected, gently disconnect the small authenticator board, flip it 180° horizontally, and reconnect it so that the backside is now on top. Since the second authenticator is not programmed, it does not have the correct private key or certificate. The LED labeled **Counterfeit** illuminates.
6. (Optional) If the USB cable is removed and reconnected, return to step 2. Regardless of previous usage, only one side is authentic.

DS28E35DEMOKIT Features

- Simple, yet powerful demonstration of asymmetric ECDSA secure authentication
- Easy integration onto breadboards
- Uses USB only for power

DS28E35 Secure Authenticator Features

- Single-contact 1-Wire interface
- ECDSA Engine for generating signatures
- Safeguards the private key using advanced die level protections
- Separate user-programmable and lockable memory space to store a public-key certificate
- 17-bit one-time settable, nonvolatile decrement-on-command counter
- 1 Kb User EEPROM with various protection modes partitioned into four pages with 100k write cycles
- ±8kV HBM ESD protection (typ) on IO pin
- 6-pin TDFN, 6-pin TSOC packages

DS2475 Coprocessor Features

- Offloads ECDSA processing
- I²C to 1-Wire protocol conversion
- 6-pin SOT23 package

Contents

- Host board with the MAXQ622 and the DS2475
- DUT board with two DS28E35 ICs—one on front and one on the back
- USB cable

For additional information, visit: <http://www.maximintegrated.com/DS28E35DEMOK>

If you have trouble with this demo board, open a support ticket here: <http://support.maxim-ic.com/1-wire>

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