Advanced Card Systems Ltd.
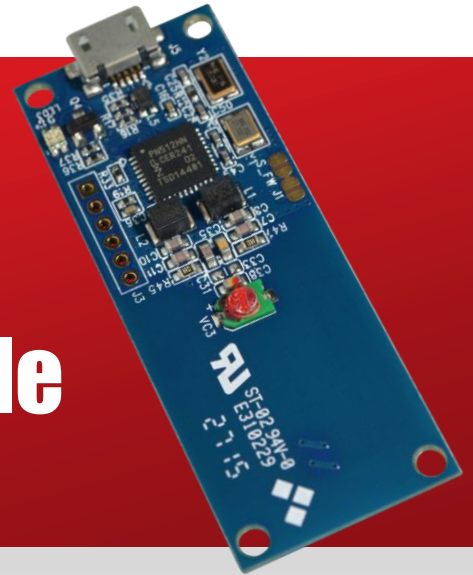## Card & Reader Technologies

ACM1252U-Z2
Small NFC Reader Module

Technical Specifications V1.06
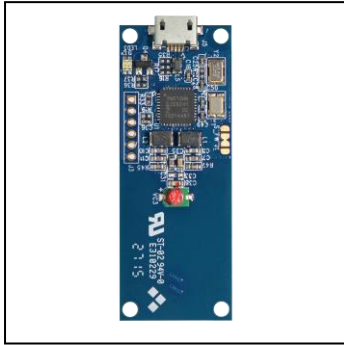
Table of Contents

1.0. Introduction

The ACM1252U-Z2 is an NFC reader module developed based on the 13.56 MHz contactless technology. This NFC Reader Module supports all three NFC modes: card reader/writer, card emulation, and peer-to-peer communication.

The ACM1252U-Z2 supports ISO 14443 Type A and B cards, MIFARE®, FeliCa, and ISO 18092-compliant NFC tags. It also supports other NFC devices with an access speed of up to 424 Kbps and a proximity operating distance of up to 30 mm (depending on tag type used).

It is PC/SC-compliant for interoperability across different applications and platforms and provides high-speed communication ability for contactless cards and NFC tags/devices. Post-deployment firmware upgrade is also supported, eliminating the need for additional hardware modification.

2.0. Features

- USB Full Speed Interface
- CCID-compliant
- Smart Card Reader:
  - Contactless Interface:
    - Read/Write speed of up to 424 Kbps
    - Built-in antenna for contactless tag access, with card reading distance of up to 30 mm (depending on tag type)
    - Supports ISO 14443 Part 4 Type A and B cards, MIFARE Classic®, FeliCa, and all four types of NFC (ISO/IEC 18092 tags)
    - Built-in anti-collision feature (only one tag is accessed at any time)
    - NFC Support:
      - Card Reader/Writer mode
      - Peer-to-Peer mode
      - Card Emulation mode
- Built-in Peripheral:
  - User-controllable bi-color LED
- Application Programming Interface:
  - Supports PC/SC
  - Supports CT-API (through wrapper on top of PC/SC)
- USB Firmware Upgradability
- Supports Android™ 3.1 and later[1]
- Compliant with the following standards:
  - ISO 14443
  - ISO 18092
  - PC/SC
  - CCID
  - CE
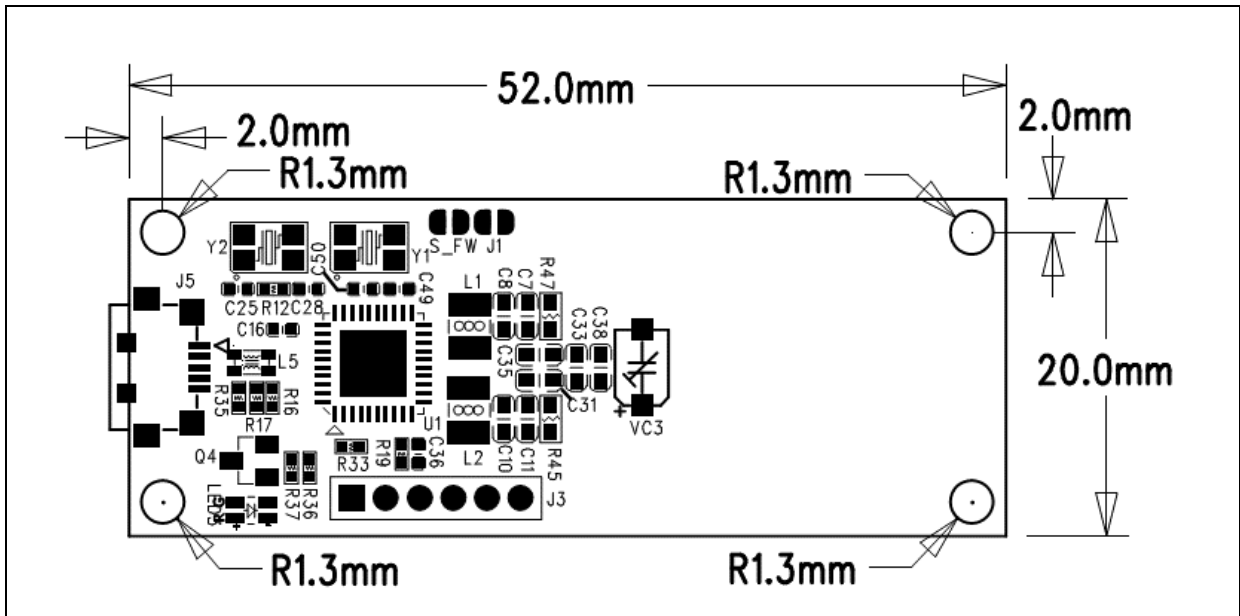 - FCC
  - RoHS
  - REACH
  - Microsoft® WHQL

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[1] Uses an ACS-defined Android Library

3.0. Typical Applications

- e-Government
- e-Banking and e-Payment
- e-Healthcare
- Transportation
- Network Security
- Access Control
- Loyalty Program

4.0. Technical Specifications

Physical Characteristics	
Dimensions	52.0 mm (L) × 20.0 mm (W) × 6.0 mm (H)
Weight..	3.65 g (29.05 g with cable ± 5 g tolerance)

USB Host Interface	
Protocol..	USB CCID
Connector Type.............................	Micro USB
Power Source................................	From USB port
Speed...	USB Full Speed (12 Mbps)
Supply Voltage..............................	5 V
Supply Current	Max. 200 mA
Cable Length................................	1.0 m, Detachable (Optional)

Contactless Smart Card Interface	
Standard	ISO/IEC 18092 NFC, ISO 14443 Type A & B, MIFARE®, FeliCa
Protocol..	ISO 14443 T=CL for ISO14443-4 compliant cards
....	T=CL Emulation for MIFARE Classic, ISO 18092, FeliCa and NFC tags
Operating Frequency	13.56 MHz
Operating Distance	Up to 30 mm (depending on card type)
Smart Card Read/Write Speed.......	106 Kbps, 212 Kbps, 424 Kbps
Antenna Size	20 mm × 22 mm

Built-in Peripheral	
LED..	1 bi-color: Red and Green

Other Feature	
Firmware Upgrade	Supported

Application Programming Interface	
PC-linked Mode.............................	PC/SC

Operating Conditions	
Temperature	0 °C – 60 °C
Humidity	Max. 90% (non-condensing)
MTBF	500,000 hrs

Certifications/Compliance
ISO 14443, ISO 18092, USB Full Speed, PC/SC, CCID, CE, FCC, RoHS, REACH, Microsoft® WHQL

Device Driver Operating System Support
Windows® XP, Windows® Vista™, Windows® 7, Windows® 8, Windows® 8.1, Windows® 10
Windows® Server 2003, Windows® Server 2008, Windows® Server 2008 R2, Windows® Server 2012, Windows® Server 2012 R2, Windows® Server 2016
Linux®, Mac OS®, Solaris, Android™ 3.1 and later

ACM1252U-Z2 – Technical Specifications
Version 1.06

info@acs.com.hk
www.acs.com.hk