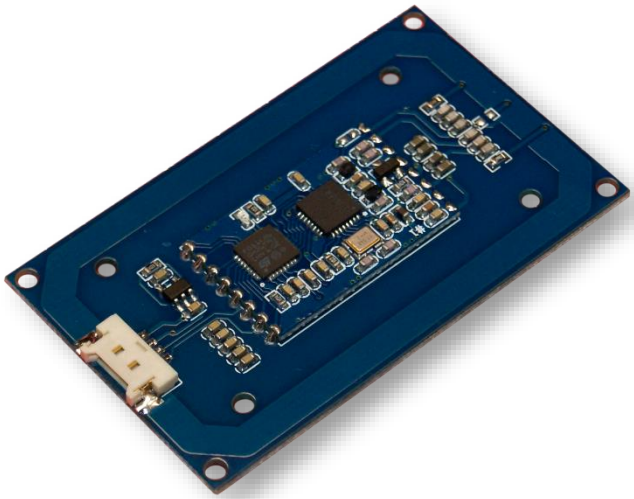
iDTRONIC
PROFESSIONAL RFID



OEM-DES-R835/R836/R837
13.56 MHz OEM RFID Reader Module
Hardware Description

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1 Introduction

1.1 Reference Documents

Command Protocol and API Description: OEM-DES devices Communication Protocol_x.yy_EN.pdf
Manual of Test/Demo Software: OEM-DES devices Test Software Manual_x.y_EN.pdf

1.2 Key Features

- Adopts ARM MCU solution
- Tiny size, single-face laying components with stamp-hole
- Compliant with ISO14443A/B, ISO15693, ISO18092 Standard
- 5 V power supply, various interface options

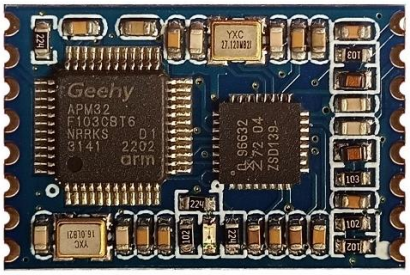
1.3 MCU Versions, Core Module Identification

Due to procurement problems on the world market, there are 3 versions of MCU used in the core module:

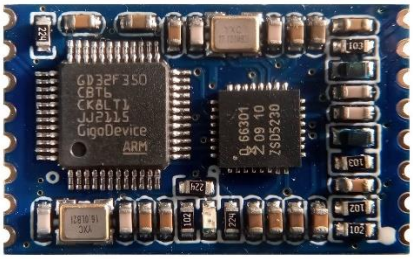
- STM32F103C6T8 (ST Microelectronics), order code character y = 5
- APM32F103CBT6 (Geehy Semiconductor), order code character y = 6
- GD32F350CBT6 (GigaDevice), order code character y = 7

Core Module with MCU STM32F103C6T8

Core Module with MCU APM32F103CBT6

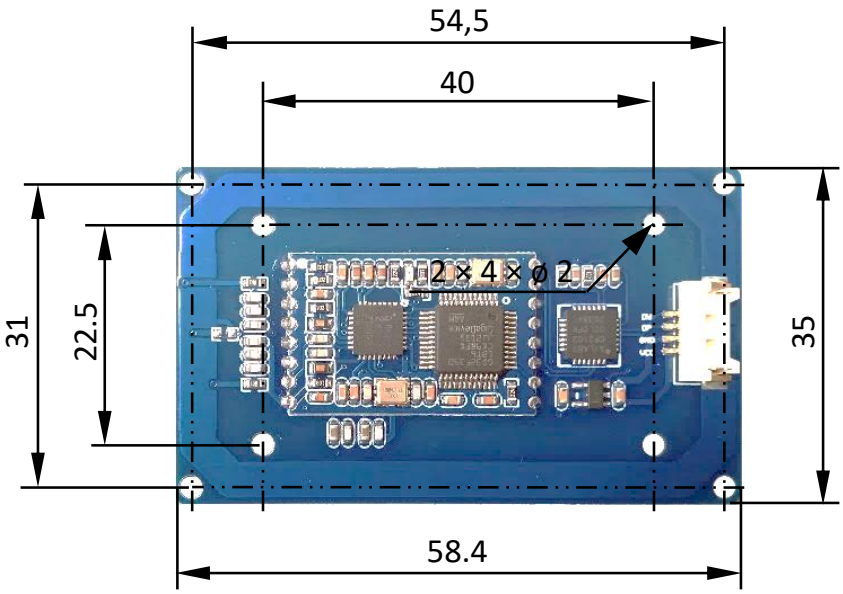


Core Module with MCU GD32F350CBT6



2 Installation

2.1 Mechanics of the Module



The Thickness is < 5 mm.

Figure 1 Dimensional Drawing of Embedded Module

2.2 Electrical Pinout OEM-DES-R83y-TTL

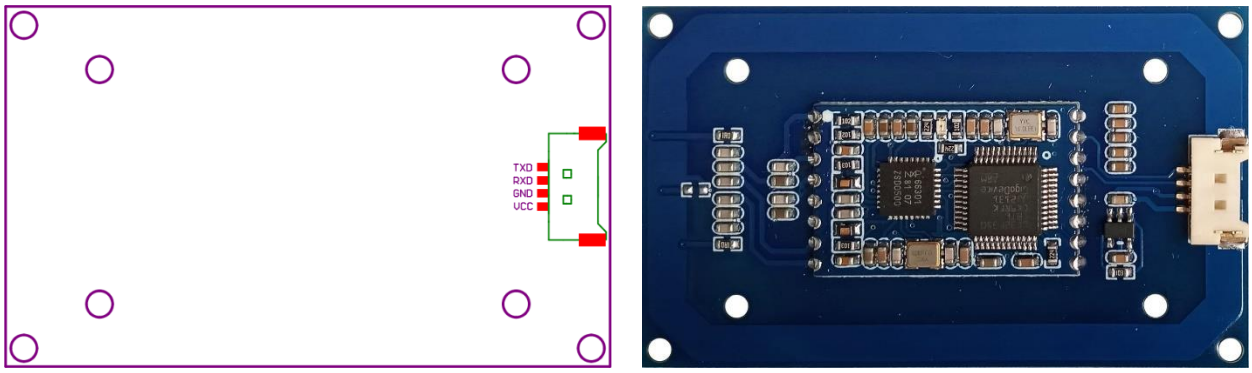


Figure 2 Pinout

OEM-DES-R835-TTL, Connector on right side (interface, 4 pins)

Name	Description
TXD	Transmit Data (Green)
RXD	Receive Data (Yellow)
GND	Power Supply GND (Black)
+3.3…5 Vdc	Power Supply Vcc (Red)

2.3 Electrical Pinout OEM-DES-R83y-USB

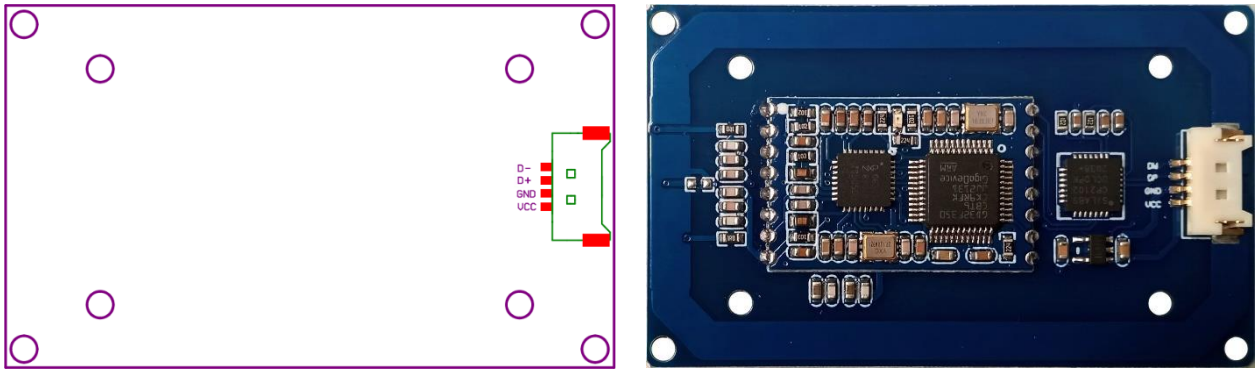


Figure 3 Pinout

OEM-DES-R835-USB, Connector on right side (interface, 4 pins)

Name	Description
D–	USB Data– (Green)
D+	USB Data+ (Yellow)
GND	Power Supply GND (Black)
+5 Vdc	Power Supply Vcc (Red)

2.4 Electrical Pinout OEM-DES-R83y-PC/SC

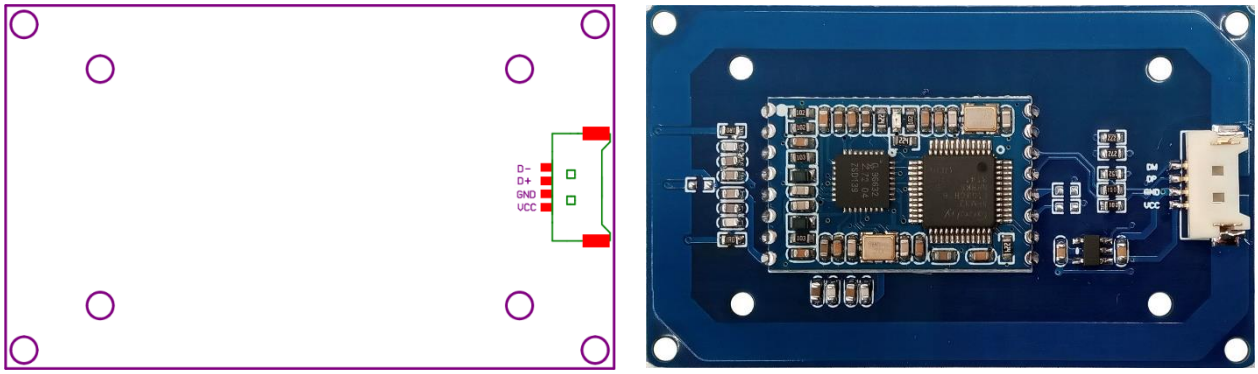


Figure 3 Pinout

OEM-DES-R835-PC/SC, Connector on right side (interface, 4 pins)

Name	Description
D–	USB Data– (Green)
D+	USB Data+ (Yellow)
GND	Power Supply GND (Black)
+5 Vdc	Power Supply Vcc (Red)

3 Technical Data

Electrical Specifications	
Power Supply	3.3…5 Vdc
Power Consumption	< 100 mA, standby current < 1 mA (low power mode)
Operating Frequency	13.56 MHz
Baudrate	9600…115200 bps, default: 1152000 bps
Antenna	internal
Reader IC	NXP CLRC 663
RF TX Speed	up to 848 kBd
Interface TTL	the input is not 5 Volt tolerant! Limit the voltage at the RxD pin to 3.3 V maximum.
Unterface USB	Silicon Labs CP2102
Connector	Molex low-profile connector series PanelMate, 53780 PCB connector, 51146 cable connector

Mechanical Specifications	
Dimensions	58 × 34.5 × 4,5 mm
Weight	8 g
Material	FR4, blue

Environmental Conditions	
Operating Temperature	-20 °C … +80 °C
Storage Temperature	-40 °C … +85 °C
Humidity	up to 95 %, non condensing
MTBF	200‘000 h

Supported Standards / Tags	
ISO 14443 A and compatible	Read/write: MIFARE® Classic Mini / 1K /4K, MIFARE Ultralight®, MIFARE Ultralight® C, MIFARE® DESFire®EV1, MIFARE® Smart MX, MIFARE® Plus S / X, MIFARE® Pro X, NTAG 21x Read UID only: Read UID only of all other ISO14443A RFID tags
ISO 14443 B and compatible	SRI4K, SRIX4K, AT88RF020, 66CL160S, SR176
ISO 15693 and compatible	EM4135, EM4043, EM4x33, EM4x35, I-Code SLI / SLIX, M24LR16/64, TI Tag-it HF-I, SRF55Vxx (my-d vicinity)

Applicable Standards	
EMC	EN 301489-1:2012-04 (v1.9.21) EN 301489-3:2013-12 (V1.6.1)
Radio Regulation	EN 300330-1:2015-08 (V1.8.1) EN 300330-2:2015-08 (V1.6.1)
Safety	EN 60950-1:2014-08 EN 62369-1:2010-03 EN 50364:2010-11
RoHS 2	EC Guideline 2011/65/EU and amendment 2015/863 EN 50581:2012 (valid till 2024-07-07) EN 63000:2018
REACH	EU Guideline 1907/2006, updated by 2018/2005/EU
Certificates	FCC, CE

SDK Information	
Supported Languages	Binary command protocol, VS2005 C++
Demo Software	Windows

Other functions and details to be continued and upgraded.