FCC ID: P9Y00000723391

Technical Description :

The brief circuit description is listed as follows :

Reader
- C14, C14A and associated circuit act as Antenna.
- R2, Jum1 and Jum2 act as RF Filter.
- U1, Y1 and associated circuit act as RFID Reader and 13.56 MHz Oscillator.
- U2 acts as Micro-Controller with Voice Synthesizer.
- Q1 and associated circuit act as Audio Amplifier.
- Q2 and associatd circuit act as Power Supply Control Circuit.
- SW Bear, SW Bottle and Metal Plate act as Control Inputs.

Tags
- C1, C2 and associated circuit act as Antenna.
- U3 acts as RFID Transponder.

Antenna Used :

A loop antenna has been used.

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CS8RFB3

Features

- Low standby current.
- Low power consumption.
- Simple application circuit.
- Stable performance.
- The system and oscillator can be enable separately.
- 3 kinds of Decoder outputs.
- Level hold mode and one shot Trigger mode.
- High Active and low Active output selectable.

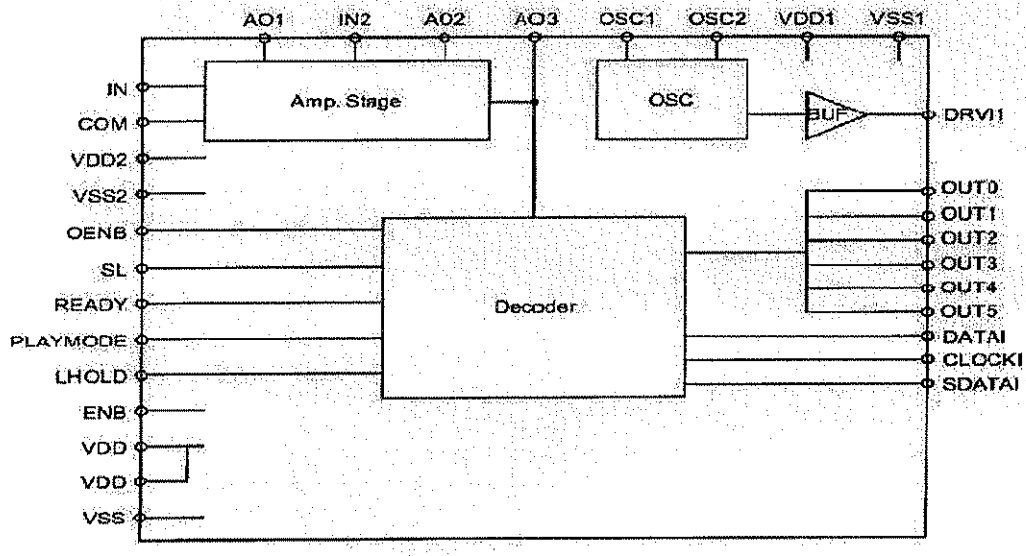
Applications

- Toy RFID.
- Asset control.
- Contactless entry control.
- Education.

General Description

CS8RFB3 is a CMOS IC used to perform the function of a RFID Reader. A RFID contains two parts: RFID TAG (CS8RFB0) and RFID Reader (CS8RFB3). CS8RFB3 contains of a 13.56MHz crystal oscillator, a 13.56MHz output buffer, a preamplifier and data decoder. The output buffer drives an antenna which can transmits RF signal to the RFID TAG.
If TAG is close enough to the Reader, the encoder of TAG will send out a data train. The data train is used to modulate the RF signal in the TAG, and the amplitude of RF signal in the Reader will be modulated also. Preamplifier is used to amplify the modulating signal. The decoder is used to decoder the encoded data transmitted from TAG.
There are three kinds of output data: Synchronous, Asynchronous and direct drive outputs. In order to Interface to most of power Speech IC, the data rate of the output is slower than the data rate of the RFID TAG.

Block Diagram



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Electrical Characteristics

SYSTEM	DESCRIPTION	TEST CONDITION	LIMIT			UNIT
			MIN.	TYP.	MAX.	
VDD	Supply Voltage		3	4.5	5	V
VIL	Input Voltage Low	VDD=4.5V			0.3VDD	V
VIH	Input Voltage High	VDD=4.5V	0.7VDD			V
VOSC	Oscillator Starting Voltage			2.2		V
IOP	Operating Current	VDD=4.5V		12*		mA
IST	Stand-by Current	VDD=4.5V		0.5		uA
IOSC	Oscillator Operating Current	VDD=4.5V		0.4		mA

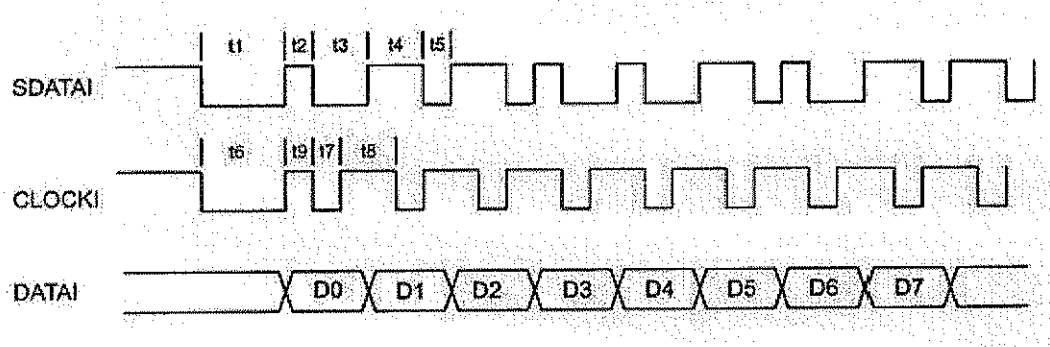
* IOP depends on external coil

Functional Description

There are three major function provided by CS8RFB3: support a 13.56MHz driver, to Transform DATA Bit rate for easy interface with MCU or power Speech IC and to Provide direct decoder output.
After received the modulating signal from the RFID TAG, the modulating signal is amplified and filtered by preamplifier. There is decoder and error decoder built in the CS8RFB3. The decoded output can be sent to output pin directly, or encoded again at a slower bit rate. Slower bit rate is necessary for most of power speech IC. When PLAYMODE=1, there are 8 direct output provided. Besides the 3 bits which is used as decoder inputs there is 1 bit, which is used as parity check bit. The output will be activated only when parity is correct. In CS8RFB3 even parity is used, bit0~bit2 is used as decoder input and bit7 is parity bit.

OENB is coil driver enable pin. When OENB=0, coil driver is off, while others circuit still work.

Data I/O Format in Serial Mode



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8-bit micro-controller with voice synthesizer and melody

Features

- 65C02-base single chip 8-bit CPU
- Operation voltage: 2.4V to 5.5V
- Memory:
  - ROM (shared by program and data): 256K ~ 48KBytes
  - Data RAM: 256 Bytes
- 24 input/output pins with wake-up function
- Two power-down modes for saving power consumption:
  - Sleep mode: micro-controller no operation (main- and sub-oscillator still oscillating)
  - Stop mode: micro-controller no operation (all oscillators stop oscillating)
- Two current DAC output for voice synthesizer
- Dual-channel melody with programmable envelope
- Programmable sample rate for voice/melody function
- One serial input port and voltage comparator built-in
- Three re-loadable 16-bit timers
- One watchdog timer built-in
- Oscillator
  - Single or dual clock operation is selected by code option
  - Main oscillator operation at crystal or RC mode is selected by code option
  - Crystal/Ceramic oscillator up to 4MHz @ 2.4V and 6MHz @ 3.6V
  - RC oscillator up to 4MHz @ 2.4V

Selection Information

		CS3C05A	CS3C06A	CS3C07A	CS3C08A	CS3C09A	CS3C10A
ROM (Program ROM)		256K x 8-bit (32K x 8-bit)	192K x 8-bit (32K x 8-bit)	128K x 8-bit (32K x 8-bit)	96K x 8-bit (32K x 8-bit)	64K x 8-bit (32K x 8-bit)	48K x 8-bit (32K x 8-bit)
I/O		24	24	24	24	24	24
Voice Duration	6KHz 4-bit ADPCM	80 sec	60 sec	40 sec	30 sec	20 sec	16 sec
	8KHz 4-bit ADPCM	60 sec	45 sec	30 sec	22 sec	16 sec	12 sec

Application Field

General voice synthesizer

Toy controller

General IR controller

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General Description

CS3C05A series integrates an 8-bit CPU core, SRAM, timer, D/A and system control circuits by a CMOS silicon gate technology. The ROM can store voice, melody, data table and program.

Twenty-four I/O pins can be used for keypad control, motor control, IR application, LED indicators or communication with other systems. This chip can implement a dual tone melody function with programmable envelope, which can perform harmonic music with different timbres.

This chip is very suitable for instruments, speech products, and intelligent educational toys, etc.

Pad Description

Pad No.	Pad Name	I/O	Description
33, 4	AGND, GND	P	Ground pins, the two ground pins should be connected at the outside individually
35, 1	AV_{DD}, V_{DD}	P	Positive power pins, the two power pins should be connected at the outside individually
2, 3	OSCO, OSCI	O, I	RC or crystal oscillator pins
7, 8	X32O, X32I	O, I	32.768KHz crystal oscillator pins
5	/RES	I	System reset pin (low active)
6	TEST	-	For test mode only
36	SPK2	O	DAC 2 output
34	SPK1	O	DAC 1 output
9 ~ 16	P0.0 ~ P0.7	I/O	Programmable I/O ports with interrupt function
17 ~ 24	P1.0 ~ P1.7	I/O	Programmable I/O ports. Port P1.3, P1.4, P1.5 can be I/O or serial input port. Port1.6, 1.7 can be output with IR carrier.
25 ~ 32	P2.0 ~ P2.7	I/O	Programmable I/O ports. Port 2.4~2.6 can be I/O or voltage comparator.

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CS8RFB0

Features

- Carrier frequency 13.56MHz Read-only in RF field.
- Low power consumption.
- Wide operating range.
- 8-bit ID selected by wire bonding.
- On chip rectifier and voltage limiter.
- Low operating current.

Applications

- Toy RFID.
- Asset control.
- Contactless entry control.
- Education.

General Description

CS8RFB0 is a low power CMOS RF Identification device (RFID). There are build-in power rectifier and data modulator for CS8RFB0 to operate under RF magnetic field generated by Data Reader without external power supply. CS8RFB0 provides 8-bit data for user programming, which is selected by wire bonding. CS8RFB0 is suitable for application in the toy products, asset control and education.

Block Diagram