Description

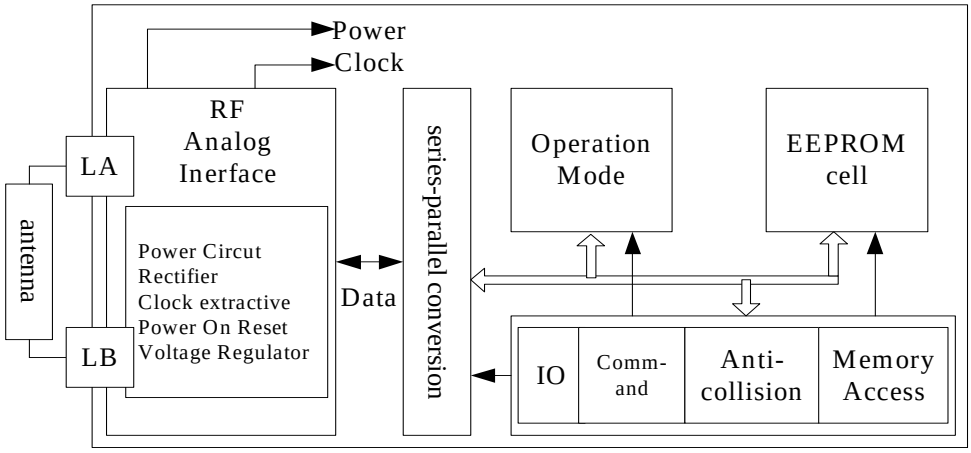
BL75R04SM is a ISO15693 full-compliant IC for intelligent label application like retail as well as baggage and parcel identification in airline business and mail services, access control, ticketing, product authentication, livestock ID, document tracking. The operating frequency of the IC is 13.56MHz. Depending on antenna geometry, the operating distance is up to 1.2m(gate width). The system offers the possibility of operating labels simultaneously in the field of the reader antenna (Anti-collision). Data are stored in a non-volatile memory (EEPROM). The EEPROM has a memory capacity of 2Kbits and is organized in 64 blocks consisting 4 bytes each (1 block=32 bits),including 64bits Unique identifier.

Features

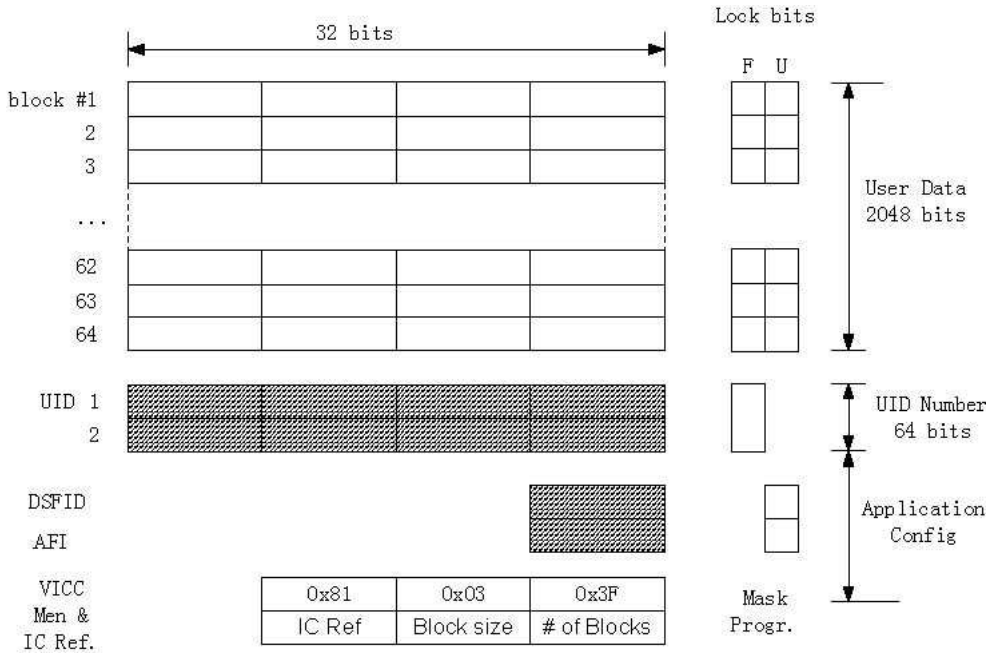
- Contactless transmission of data and supply energy (no battery needed)
- ISO15693 compliant
- Operating frequency: 13.56MHz
- Operating distance: Up to 1.2m(gate width)
- Fast data transfer: 26.5 Kbit/s
- High data integrity: 16 Bit CRC, framing
- Anti-collision
- 2K bits available user memory, organized in 64 blocks of 4 byte each
- Programming time>=2.5mS
- Data retention of 10 years
- Write endurance 100,000 cycles
- Unique identifier for each device
- Support individual lock for each block (write protection)

Functional Description

Block Diagram



Memory Organization



EEPROM memory organization

Commands && Operation

The ISO/IEC15693-3 defined commands

- Inventory(0x01)
- Stay quiet(0x02)
- Read single block(0x20)
- Write single block(0x21)
- Lock block(0x22)
- Read multiple block(0x23)
- Select(0x25)
- Reset to ready(0x26)
- Write AFI(0x27)
- Lock AFI(0x28)
- Write DSFID(0x29)
- Lock DSFID(0x2A)
- Get system information (0x2B)
- Get multiple block security status(0x2C)

Custom command

The format of Custom Commands is generic and allows unambiguous attribution of Custom Command Codes and procedures to each VICC Manufacturer.For the execution of a Custom Command the VICC Manufacturer Code should be included in the request.Belling's Manufacturer Code is 0x84.

- Write_2_Blocks (0xA2)
- Lock_2_Blocks (0xA3)

Electrical Specification

1 Absolute Maximum Ratings

Symbol	Parameter	Test Conditions	Rating	Unit
Tstg	Storage Temperature Range		-55 To +140	℃
Tj	Junction Temperature		-55 To +140	℃
Vesd	Esd Voltage Immunity	-Std-883d	±2	KVpeak
Imaxla-Lb	Maximum Input Peak Current		±60	mA Peak

2 Operating Conditions

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Tamb	Operating Ambient Temperature		-25		+70	℃
Tjop	Operating Junction Temperature		-25		+85	℃
Ila-Lb	Input Current				30	mArms
Vla-Lbrd	Minimum Supply Voltage For Read/Eas	Standard Mode		±3.1	±3.7	Vpeak
Vla-Lbwr	Minimum Supply Voltage For Write	Standard Mode		±3.6	±3.7	Vpeak
Fop	Operating Frequency		13.553	13.560	13.567	MHz

3 Electrical Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Cres	Input Capacitance Between La-Lb	Vla-Lb=2vrms	22.3	23.5	24.7	Pf
Pmin	Minimum Operating Supply Power	Vla-Lb=2vrms		200		μ W
Mmin	Minimun Modulation Of Rf Voltage For Demodulator Response	M=(Vmax-Vmin) /(Vmax+Vmin)		10	100	%
tpsm	Modulation Pulse Length of RF Voltage	m ≥ 10%	7.08	9.44	11.8	μS
tD	Demodulation Response Time	m ≥ 10%	0.1	0.8	2.4	μS
Tret	Eeprom Data Retention	Tamb≤ 55 ℃	10			Years
Nwrite	Eeprom Write Endurance		10^5			Cycles