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TX ASSY-KEYLESS ENTRY / RX ASSY-KEYLESS ENTRY

User's Manual

TX Model: 100060233 / 100060234 / 100060235
RX Model: 223004362

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1. Constitution of the Radio Frequency Keyless Entry System for vehicle

The radio frequency keyless entry is a system that it controls locking and unlocking doors. It can open and close sliding doors and tail gate automatically. It can notice us where the car is by panic button.

The TRANSMITTER is a device that transmits the signal when the button is pressed. The transmission signal consists of preamble, header, random, key data, sync, c/s, and inter frame code.

The RECEIVER is fixed inside of the vehicle. It works intermittently to prevent the battery exhaustion. When the receiver detects the preamble code, it runs continuously to receive the signals completely. After receiving the signal, the receiver decides which operation will be performed. The user can select the following operations by pressing the button of the remote transmitter.

CAUTION

"RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.

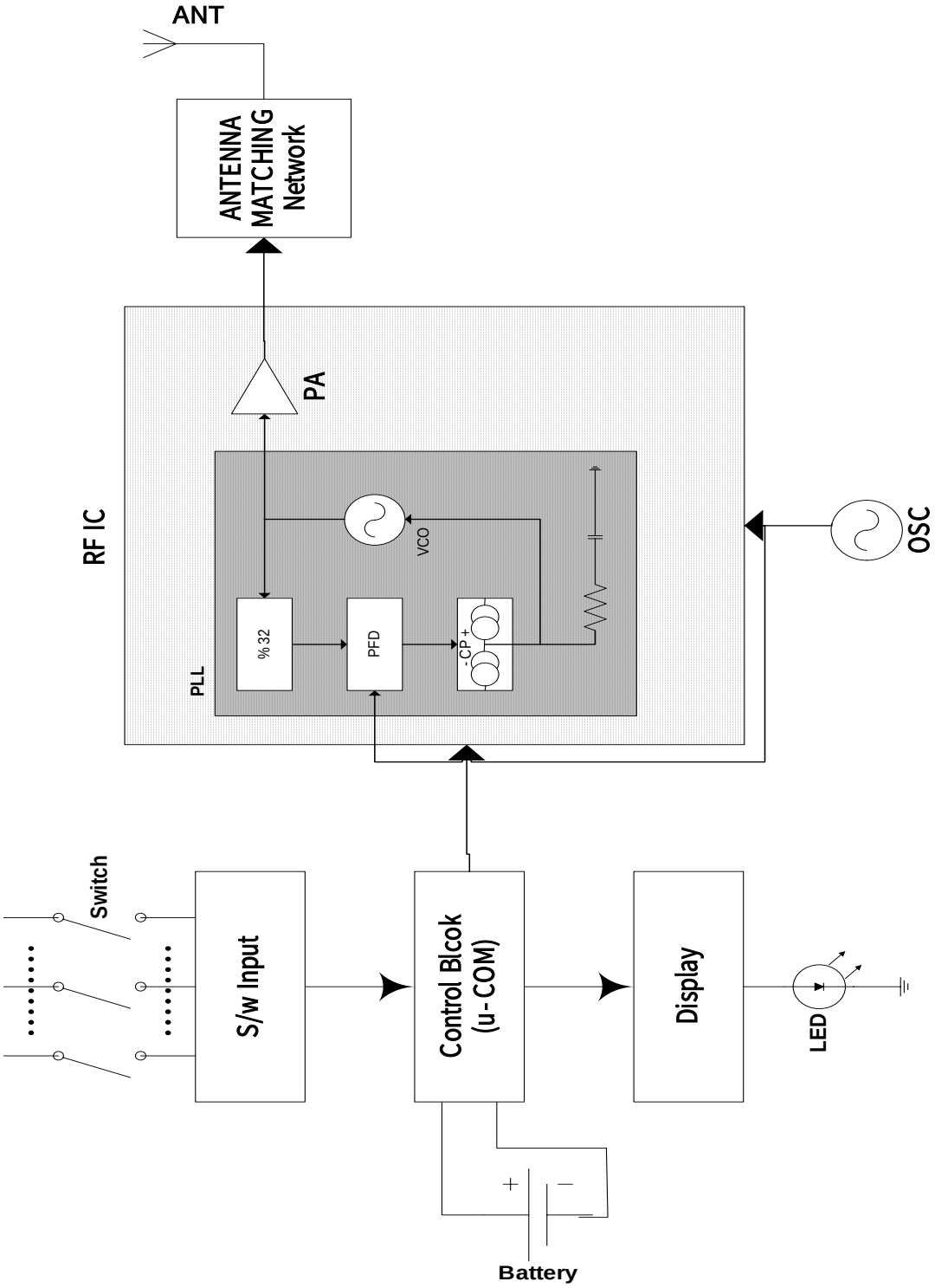
DISPOSE OF USED BATTERIES ACCORDING TO THE NATIONAL CODE OR RECYCLING PROGRAM."

2. User's manual

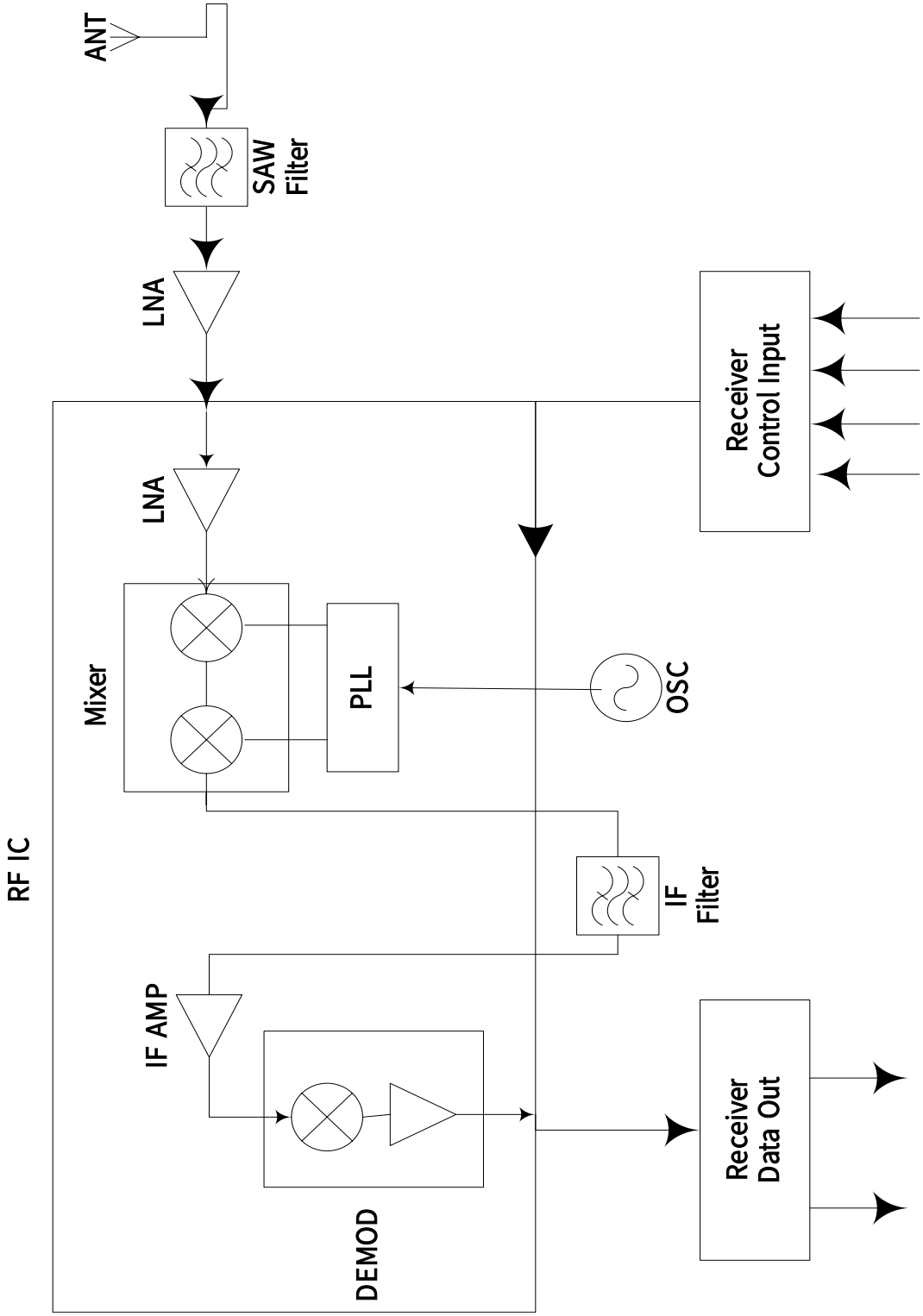
Key	Mark	Operation	Function	Model
Lock		Lock key is pressed	CENTRAL LOCK	100060233 100060234 100060235
			Horning for 30mS	
			Lighting turn lamp for 1 second	
		Lock key is pressed for 0.5 seconds	Closing window of driver's seat	
Unlock		Unlock key is pressed	CENTRAL UNLOCK	100060233 100060234 100060235
			Blinking turn lamp twice for 1 second	
		Unlock key is pressed for 0.5 seconds	Opening window of driver's seat	
Panic		Panic key is pressed	To stop horning by pressing the panic key	100060233 100060234 100060235
			Horning for 27 seconds	
			Blinking turn lamp for 27 seconds	
Sliding Door Left		Sliding door left key is pressed for 0.5 seconds	Opening or closing left sliding door	100060234 100060235
Sliding Door Right		Sliding door right key is pressed for 0.5 seconds	Opening or closing right sliding door	100060234 100060235
Tail Gate		Tailgate key is pressed for 0.5 seconds	Opening or closing tailgate	100060235
			Blinking turn lamps 5 times	

3. Block diagram

3.1 Transmitter



3.2 Receiver


ANT
SAW Filter
LNA
LNA
Receiver Control Input
Mixer
PLL
OSC
RF IC
IF Filter
IF AMP
Receiver Data Out
DEMOD

4. Specification

4.1 Transmitter

Type	PIC16F676 (Manufacturer : MICROCHIP)
RFIC	TH72001 (Manufacturer : Melexis)
Memory	2K × 8bit
Clock frequency	4.00MHz
Clock frequency generation	INTERNAL
Package	14pin TSSOP
Carrier frequency	315 MHz
Frequency generation	Crystal
Modulation	FSK
Bandwidth	≤ 100 kHz
RF output power	≤ 75dBuV/m

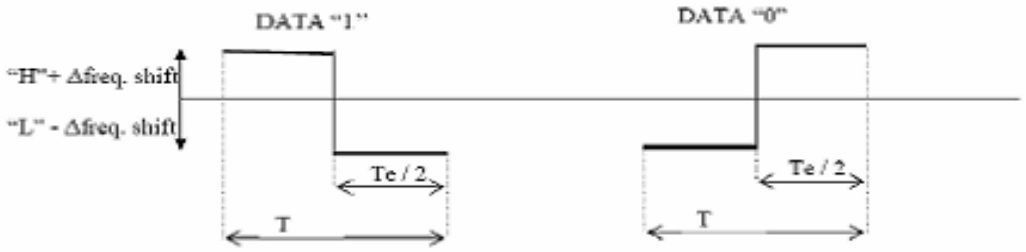
4.2 RF Receiver module

Local clock frequency	315 MHz
Frequency generation	Crystal
Modulation Scheme	FSK
Bandwidth	±100KHz
RFIC	TH71102 Manufacturer : Melexis

4.3 Others

Item	Transmitter	Receiver
Dimension	6.8 x 3.8 x 1.1 (cm)	20 x 16 x 7 (cm)
Weigh	30g	
Battery	LITHIUM Coin Type(DC 3V)	Car Battery(DC 12V)
Operation Temperature	-30℃ ~ +80℃	

5. DATA structures



First frame structure :

Preamble Tpreamb	Header Thead	Random code Trand	Key data (Tkeydata)	Synch. Counter (Tsynch)	Check Sum (Tchksum)	Interframe (Tinter)
40 bits Manchester data "0" (1200Hz 50% duty cycle	4 bits Manch data at "1010"	20 bits coded data	6 bits key data	20 bits incremental counter data	8 bit SUM of data	Manchester code violation

Message field table :

FRAME	Field	Length (Tbits)	Value (Bin=binary/hex= hexadecimal)	Duration (ms)
First frame	Preamble	40	00000 hex	33.33
	Header	4	1010 bin	3.332
	Random	20	RRRRR hex	16.66
	Key	6	k-k-k-k-k-k-bin	4.998
	Sync.	20	SSSSS hex	16.66
	Check sum	8	XX hex	6.664
	Inter-frame	6	**"H"+"L" + 0000 bin**	4.998
Second frame	Header	4	1010 bin	3.332
	Random	20	RRRRR hex	16.66
	Key	6	k-k-k-k-k-k-bin	4.998
	Sync.	20	SSSSS hex	16.66
	Check sum	8	XX hex	6.664
	Inter-frame	6	**"H"+"L" + 0000 bin**	4.998
Third frame	Header	4	1010 bin	3.332
	Random	20	RRRRR hex	16.66
	Key	6	k-k-k-k-k-k-(b)	4.998
	Sync.	20	SSSSS (h)	16.66
	Check sum	8	XX (h)	6.664
	Inter-frame	2	**"H"+"L"**	**1.666**
	TOTAL	*228 bits*		***190 ms***