OKA- 672T

Transmitter, RF Keyless Entry System

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Operation Guide

This device complies with part 15 of the FCC Rules.
operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received,
including interference that may cause undesired operation.

Caution !

Any changes or modifications to the equipment not expressly approved by the party
responsible for compliance could void user's authority to operate the equipment.

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 the door and the trunk l
wireless remote controller. This system consists of three components. The TRANSMITTER is a device that
transmits the signal when the button is pressed. The transmission signal consists of several synchronous
codes , unique identification code , security code and function code. The RECEIVER is fixed inside the vehicle
It works intermittently to prevent the battery exhaustion. When the receiver detects the synchronous 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.

OPERATION	ACTION
LOCK	lock the door
UNLOCK	unlock the door
PANIC	alarm the horn
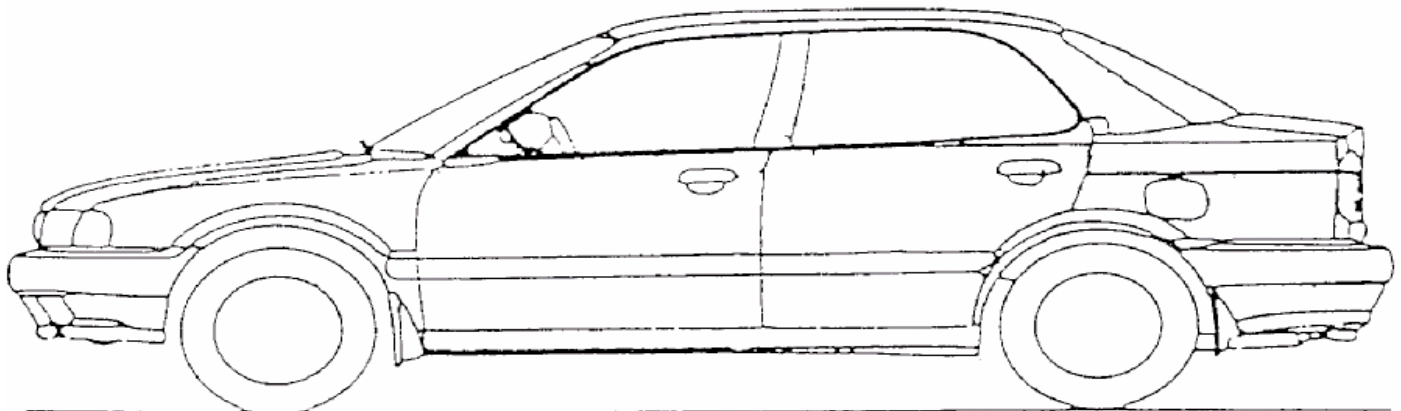
Transmitter
f = 315.1MHz
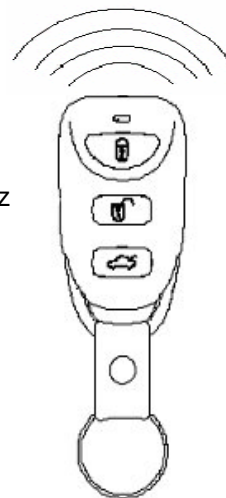
2. User's manual (provisionally)

REMOTE TRANSMITTER

LOCK

UNLOCK

PANIC
(? ?)

You can lock and unlock your vehicle with the remote transmitter.

LOCK
  When you push the LOCK button, all the doors will lock.
  You cannot lock any of the doors with the remote transmitter if any door is open or the key is the
  ignition switch.

UNLOCK
  When you push the UNLOCK button, all the doors will unlock.
  You cannot unlock any of the doors with the remote transmitter if any door is open or the key is in the
  ignition switch.

PANIC
  When you push the PANIC button, horn will alarm.

3. Block diagram

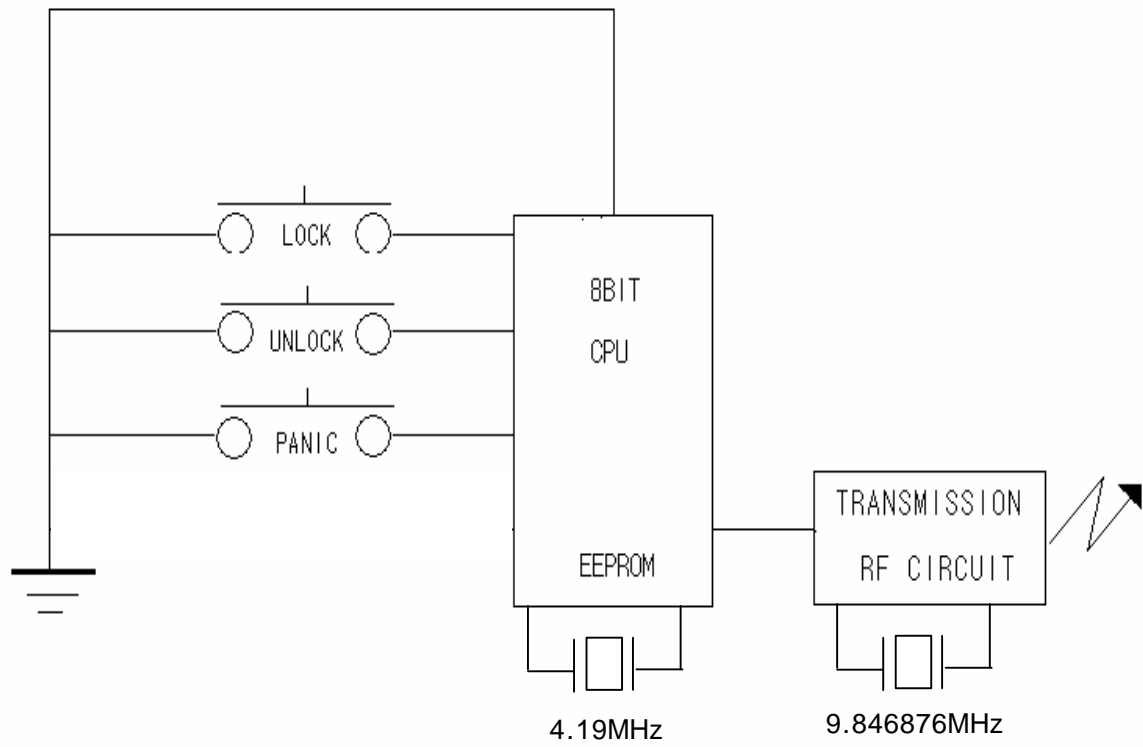This is block diagram concerning to the transmitter

figure 3.1 block diagram of the transmitter

4. Specification

4.1 CPU

Type	uPD789860-xxx(8bit)
	Manufacturer : NEC Corporation
ROM	4 Kbytes
RAM	128 bytes
EEPROM	32 bytes
Clock frequency	4.19MHz
Clock frequency generation	X-TAL OSCILATION
Package	20pin SSOP

4.2 RF block

Carrer frequency	315.1MHz
Frequency generation	X-TAL
Modulation	FSK
Bit transmission rate	500bps or 1000bps
Bandwidth	120KHz
RF output power (field strength	75dBuV/m

4.3 Others

Dimension	62mm×34mm×15mm
Weigh	23g
Battery	Lithium cell (CR2032)
	Manufacturer : PANASONIC Battery corporation etc.
Operation Voltage	DC3V
Operation Temperature	-20 +60

5. Features

5.1 Transmission frame

The transmission begins immediately in case of LOCK and UNLOCK button is pressed.

but Panic buttonis begun after 0.5s

The transmission frame consists of the synchronous frame and the data frame. The synchronous frame has 320bit synchronous codes that it will be used for the receiver to wake up. The data frame consists of 24bit length identification code, 16bit security code and 4bit function code and 8bit crc code. 16mil different identification codes are available.

The security code is always changed in case of any of the buttons is pressed. The transmission time is typically 300 milliseconds.

5.2 Battery saving

To prevent the battery exhaustion , the micro-computer of the transmitter is usually inactive. When the button will be pressed, the micro-computer wakes up immediately and judges which button is pressing. Then the micro-computer constructs the transmission frame and radiates it from the antenna . After tran mitting, the micro-computer switches stand-by mode by itself.