

SANYO

No.2003B

LC8910 Series

Remote Control LSI

Overview

The LC8910 series are LSIs designed for transmit/receive use in remote control system applications. The adoption of a statistical processing circuit entirely original with Sanyo enhances noise-resisting capability greatly.

Applications

- HA (home automation) use :
Air-conditioning equipment, lighting equipment, solar system, radio equipment, home appliances
- Crime preventing monitor system, disaster preventing monitor system :
Smoke detector, gas detector, fire detector, burglarproof system, electronic key
- Communication system :
Radio pager, remote data collecting system

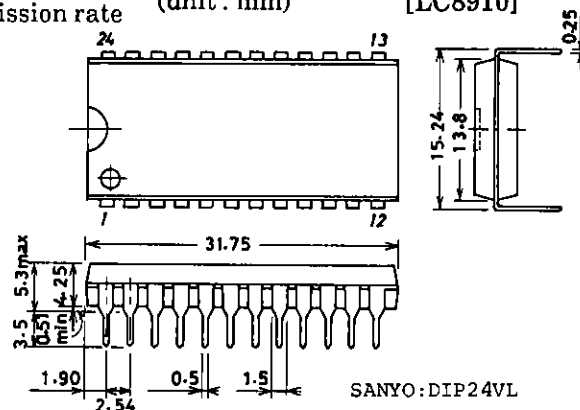
Type No.	Application	Unique Address Length (bits)*	Data Length (bits)	Package
LC8910	Controller	0	20 max	DIP24
LC8912	Terminal	8	4	DIP28
LC8913	Terminal	12	8	DIP40

* : Unique address designates individually assigned network addresses.

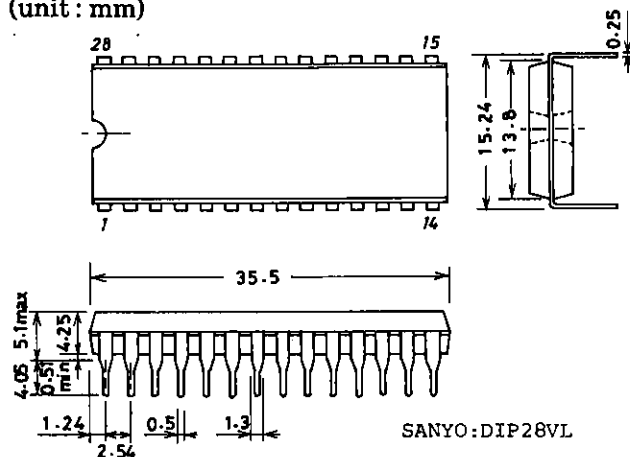
Features

- LSIs designed for transmit/receive use
- Transmission line access control : Master polling and CSMA/CD
- Biphase data transmission codes and variable transmission rate
- Modulation : Base band/AM (by on-chip modulation/demodulation circuit)
- Statistical processing circuit adopted to enhance noise-resisting capability greatly
- The LC8910 is capable of interfacing to any microcomputer.
- The LC8912, 8913 require a minimum number of external parts to make up a system.
- Answerback function and broadcast communication function
- CMOS process for low power dissipation

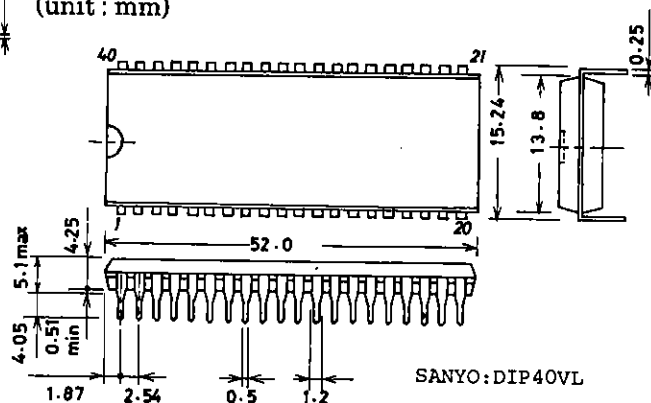
Package Dimensions 3068A
(unit : mm) [LC8910]



Package Dimensions 3069A [LC8912]
(unit : mm)



Package Dimensions 3077 [LC8913]
(unit : mm)



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LC8910 Series

Specifications

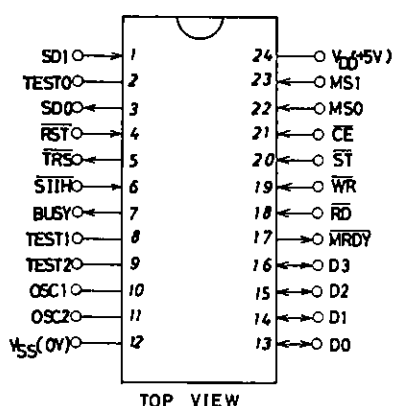
- Transmission mode : Half-duplex transmission
- Transmission line access control : CSMA/CD
- Modulation : Base band/AM
- Code : Biphase code
- Transmission rate : 15kb/s to 10b/s
- Error detection : Bit rule error
CKSM error
Overrun error
Underrun error
Transmission error by collision detection
- Answerback : Output data/input data
- Broadcast communication : General broadcast/group broadcast
- Supply voltage : Single 5V
- Power dissipation : 15mW typ

Signal Format

PR	ID	DC	ADRS	DATA	CKSM
PR : Preamble				12/32 bits	
ID : Control code				4 bits	
DC : Data count				4 bits	
ADRS : Address				0 to 12 bits	
DATA : Data				0 to 20 bits	
CKSM : Checksum				4 bits	

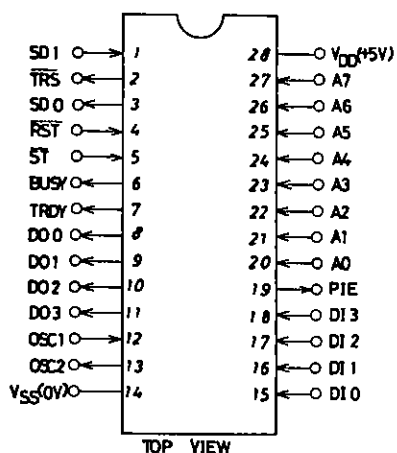
Pin Description

1) LC8910



SDI	: Receive signal input
SDO	: Transmit signal output
RST	: Reset input
TRS	: Transmit mode output
STIH	: Receive disable signal input
BUSY	: Busy signal output
TEST0 to 2	: Test input
OSC1, 2	: Clock pins
D0 to 3	: Data input/output
MRDY	: Reception completed signal output
ST	: Start input
RD	: Read input
WR	: Write input
CE	: Chip enable input
MS0, 1	: Mode select signal input

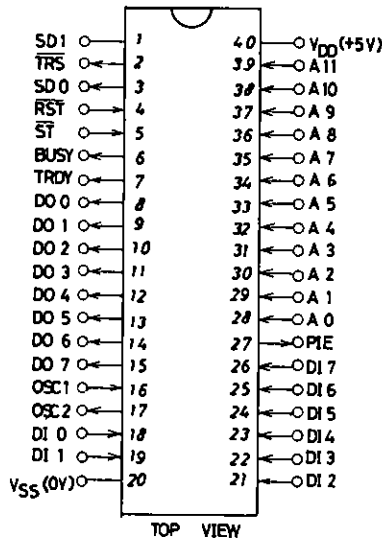
2) LC8912



SDI	: Receive signal input
TRS	: Transmit mode output
SDO	: Transmit signal output
RST	: Reset input
ST	: Start input
BUSY	: Busy signal output
TRDY	: Terminal ready
DO0 to 3	: Data output
OSC1, 2	: Clock pins
DI0 to 3	: Data input
PIE	: Parameter/address select signal output
A0 to 7	: Address/parameter input

LC8910 Series

3) LC8913



SDI	: Receive signal input
TRS	: Transmit mode output
SDO	: Transmit signal output
RST	: Reset input
ST	: Start input
BUSY	: Busy signal output
TRDY	: Terminal ready
DO0 to 7	: Data output
OSC1, 2	: Clock pins
DI0 to 7	: Data output
PIE	: Parameter/address select signal output
A0 to 11	: Address/parameter input

Absolute Maximum Ratings at Ta = 25°C, VSS = 0V

			unit
Maximum Supply Voltage	VDD max	-0.3 to +7.0	V
Input Voltage	VI, VO	-0.3 to VDD + 0.3	V
Storage Temperature	Topr	-55 to +125	°C
Operating Temperature	Topg	-30 to +70	°C

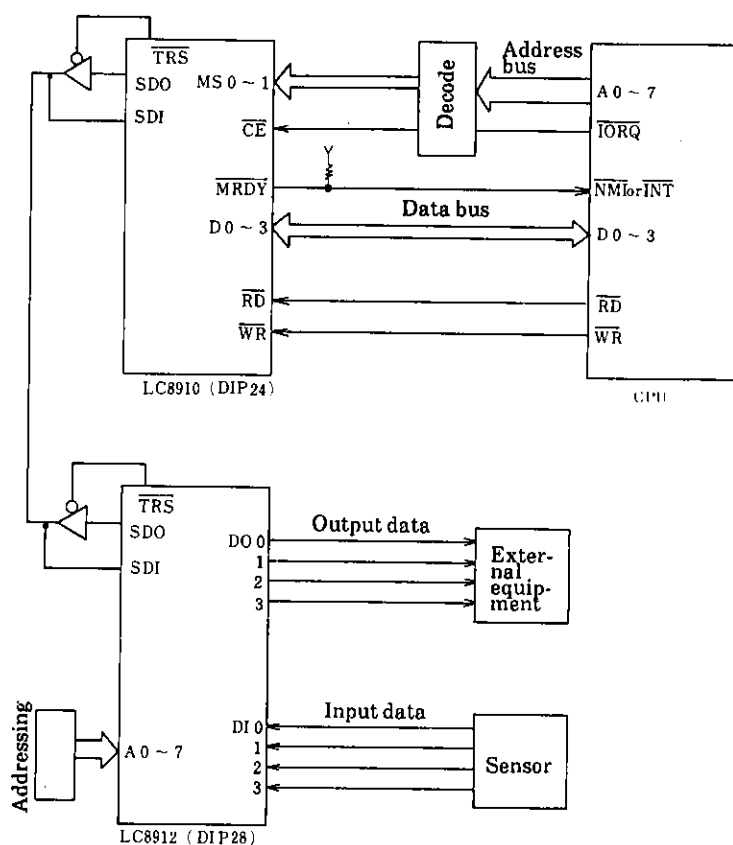
Allowable Operating Conditions at Ta = -30 to +70°C

		min	typ	max	unit
Supply Voltage	VDD	4.5	5.0	5.5	V
Input Voltage Range	VIN	0		VDD	V

Electrical Characteristics at VDD = 4.5 to 5.5V, Ta = -30 to +70°C

			min	typ	max	unit
'H'-Level Input Voltage	VIH1	Schmitt trigger	2.5			V
	VIH2		2.2			V
	VIH3	RST pin	VDD - 0.9			V
'L'-Level Input Voltage	VIL1	Schmitt trigger			0.6	V
	VIL2				0.8	V
	VIL3	RST pin			0.6	V
'H'-Level Output Voltage	VOH	IOH = -0.4mA	2.4			V
'L'-Level Output Voltage	VOL	IOL = 2mA			0.4	V
Input Leakage Current	IL	VI = VSS, VDD	-25		25	μA
Output Leakage Current	IOZ	Output pin : 'H' impedance	-100		100	μA
OSC Amp 'H'-Level Input Voltage	VIHOSC		0.8VDD			V
OSC Amp 'L'-Level Input	VILOSC			0.2VDD		V

Sample Application Circuit



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