# REMOTE-CONTROL INTERFACE IC

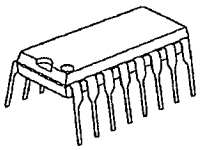
## ■ GENERAL DESCRIPTION

The NJM2129 is a remote-control interface for television, VCR, receiver, and others.

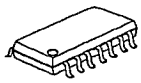
The signal flow of IN1 to OUT1 and IN2 to OUT2 is a first priority. When no signal is input from the IN2, a signal which is input from the IN1 is output to the OUT2 through the OUT1. Also when no signal is input from IN1 and IN2, a signal which is input from the OUT1 is output to the OUT2.

An internal regulator can operate a LED.

## ■ PACKAGE OUTLINE



NJM2129D



NJM2129M

## ■ FEATURES

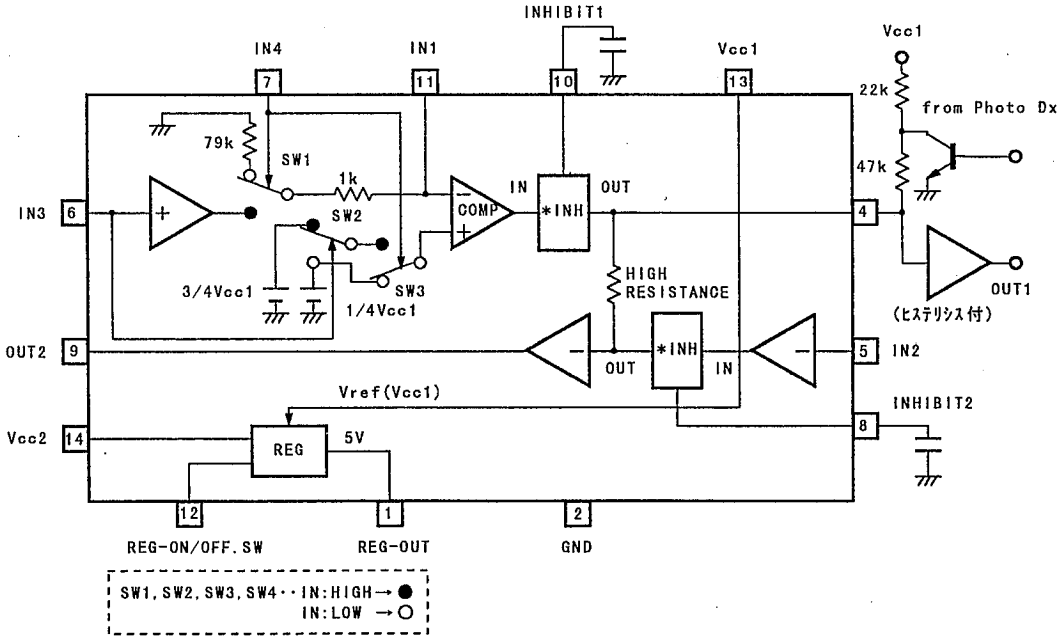
【INTERFACE BLOCK】

- IN4 switches One-Way or Two-Way communication

【REGULATOR BLOCK】

- Internal Current Limit Circuit
- Internal Output Short Protection
- ON/OFF Control
- Bipolar Technology
- Package Outline DIP14, DMP14

## ■ BLOCK DIAGRAM




*The output of INH becomes high impedance when its input is keeping over about 40 msec.

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---|---|---|---|
| Supply Voltage | Vcc1, 2 | 15 | V |
| Input Voltage | $V_{IN}$ | 15 | V |
| Power Dissipation | $P_D$ | DIP8 700<br>DMP8 300 | mW |
| Operating Temperature Range | $T_{opr}$ | -20 ~ +75 | °C |
| Storage Temperature Range | $T_{stg}$ | -40 ~ +125 | °C |

■ ELECTRICAL CHARACTERISTICS (Vcc1=5V, Ta=25°C)

| PARAMETER | SYMBOL | TEST CONDITION | | | | | | | | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 【INTERFACE】 | | INPUT CONDITION | | | | | CIRCUIT | | | | | | |
| | | OUT1 | IN1 | IN2 | IN3 | IN4 | SW1 | SW2 | SW3 | | | | |
| Operating Supply Voltage1 | Vcc1 | — | — | — | — | — | | | | 4.75 | 5.0 | 5.25 | V |
| Operating Current1 | Icc1 | — | L | L | L | L | | | | — | 2 | 4 | mA |
| Operating Current2 | Icc2 | — | — | H | H | H | 3 | 2 | 3 | — | 4.5 | 7 | mA |
| IN2/3/4-Vth | IN2/3/4-Vth | — | — | — | — | — | | | | 2.0 | 2.5 | 3.0 | V |
| IN1-Vth (note 1) | IN1-Vth | — | | — | L | H | | | | 1.0 | 1.3 | 2.0 | V |
| | | — | | — | H/L | L | | | | 1.0 | 1.3 | 2.0 | V |
| | | — | | — | H | H | | | | 3.0 | 3.6 | 4.0 | V |
| OUT1 (Low) | OUT1-L | | H | — | — | — | | 2 | | 0 | — | 1.5 | V |
| OUT1 (High) | OUT1-H | | *L | — | — | — | | 1 | | 3.5 | — | 5.0 | V |
| OUT1 (Hi-Imp) | OUT1-Hi-Imp | | L | — | — | — | | 1 | | 0 | — | 1.5 | V |
| | | | L | — | — | — | | 2 | | 3.5 | — | 5.0 | V |
| OUT2 (Low) | OUT2-L | L | H | *L | — | — | | 2 | 1 | 0 | — | 1.5 | V |
| | | H | *L | *L | — | — | | 1 | 1 | | | | |
| | | L/H | L | *L | — | — | | 1/2 | 1 | | | | |
| | | H | *L | L | — | — | | 1 | 1 | | | | |
| | | | L | L | — | — | | 2 | 1 | | | | |
| OUT2 (Hsgt) | OUT2-H | L | H | H | — | — | | 2 | 2 | 3.5 | — | 5.0 | V |
| | | H | *L | H | — | — | | 1 | 2 | | | | |
| | | L/H | L | H | — | — | | 1/2 | 2 | | | | |
| | | L | H | L | — | — | | 2 | 2 | | | | |
| | | | L | L | — | — | | 1 | 2 | | | | |

(note 1) : The Vth of IN1 is changed by condition of IN3 and IN4.
*: For INHIBIT.

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■ ELECTRICAL CHARACTERISTICS (Vcc1=5V, Ta=25°C)

| PARAMETER | SYMBOL | TEST CONDITION | | | | | | | | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 【INTERFACE】 | | INPUT CONDITION | | | | | CIRCUIT | | | | | | |
| | | OUT1 | IN1 | IN2 | IN3 | IN4 | SW1 | SW2 | SW3 | | | | |
| IN1 Input Impedance | IN1-Rin | — | | - | - | - | 1 | | | 47 | 80 | 120 | kΩ |
| IN1-OUT(Low) | IN1-Lout | | | - | L | H | 2 | | | 2 | 2.5 | 3 | V |
| | | | | - | L | H | 3 | | | 0 | — | 1.0 | V |
| IN1-OUT(High) | IN1-Hout | — | | - | H | H | 2 | | | 3.5 | — | 5.0 | V |
| | | — | | - | H | H | 3 | | | 2 | 2.5 | 3 | V |
| IN1-OPEN | IN1-Open | — | | - | H | H | 1 | | | 4.0 | — | 5.0 | V |
| INHIBIT1 Time | INH1-time | — | *L | - | - | L | | | | 20 | 40 | 80 | ms |
| INHIBIT2 Time | INH2-time | — | - | *L | - | - | | 1 | | 20 | 40 | 80 | ms |
| Slew Switch1(IN1→OUT2) | | Vcc1:OFF, IN1=3.5V | | | | | | | 3 | 3.0 | — | — | V |
| 【POWER SUPPLY】 (note 3) | | | | | | | | | | | | | |
| Operating Power Supply2 | Vcc2 | | | | | | | | | 5.75 | 5.9 | 12 (note4) | V |
| Operating Current2 | Icc2 | Io=0mA | | | | | | | | — | 2 | 3 | mA |
| | | Io=50mA | | | | | | | | — | 20 | 30 | mA |
| Output Voltage | Vout | Vcc2=5.9V, Io=60mA | | | | | | | | 4.5 | 5.0 | 5.3 | V |
| Line Regulation | ΔVo-Vcc2 | Vcc2=5.75V～12V, Io=50mA | | | | | | | | — | — | 300 | mA |
| Load Regulation | ΔVo-Io | Vcc2=5.9V, Io=0～50mA | | | | | | | | — | — | 300 | mA |
| REG-SW(ON) | Reg-ON | | | | | | | | | 3.0 | — | 5.0 | V |
| REG-SW(OFF) | Reg-OFF | | | | | | | | | 0 | — | 2.0 | V |

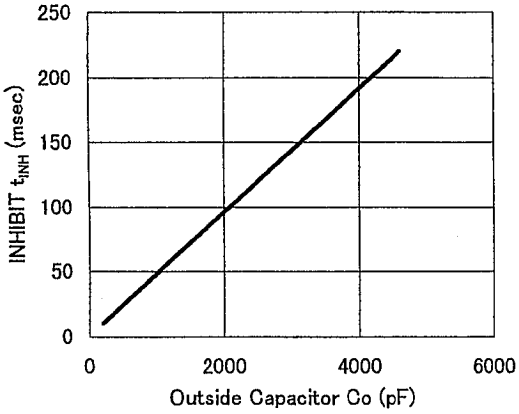
(note 3) The Vref in Power Supply block is the Vcc1, so that its specification is guaranteed at Vcc1=5V.

(note 4) The Supply voltage of Vcc2 must be chose less then power dissipation.

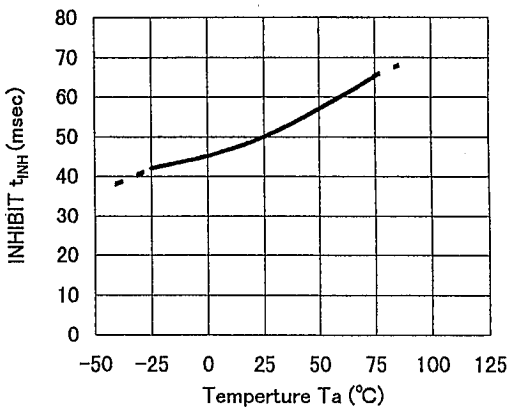
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■ TYPICAL CHARACTERISTICS

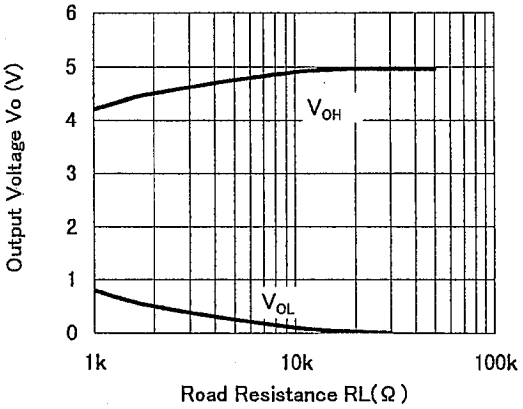
INHIBIT Time vs. Outside Capacitor
(Vcc1=5V,Ta=25°C)



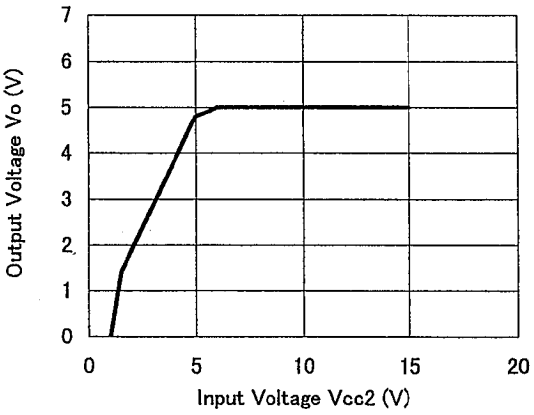

INHIBIT Time vs. Temperture
(Vcc1=5V,C=1000pF)



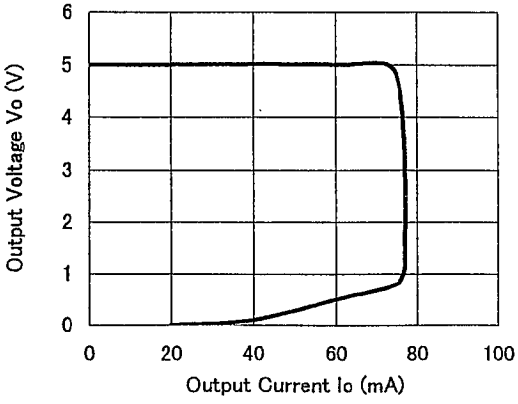

Out2 Output Voltage vs. Load Resistance
(Vcc1=IN2=5V,Ta=25°C)



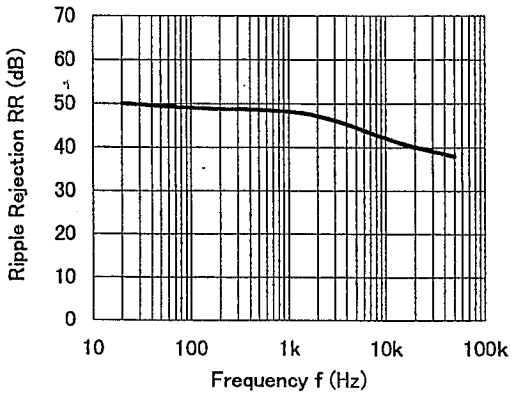

Regulator Output Characteristics
(Vcc1=5V,$R_L$=100Ω,Ta=25°C)




Regulator Load Characteristics
(Vcc1=5V,Vcc2=5.9V,Ta=25°C)




Ripple Rejection
(Vcc1=5V,Vcc2=5.9V+300mVrms,$R_L$=100Ω,Ta=25°C)




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MEMO

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