



SANYO Semiconductors

DATA SHEET

LA72715NV — Monolithic Linear IC JPN MTS (Multi Channel Television Sound) Decoder IC

Overview

JPN MTS (Multi Channel Television Sound) Decoder IC

Features

- With SIF circuit, alignment-free* STEREO channel separation.
* In base band signal input mode, separation is adjusted by input level.
- Three I²C slave-addresses are prepared.
- The maximum output level is as large as 4.2dBV.
(Frequency = 1kHz, distortion = less than 3%, V_{CC} = 5V, TYP)
- The external clock is unnecessary.
- A couple of external input terminal is prepared.

Functions

- Stereo & Bilingual demodulation.
- Stereo & Bilingual detection.
- Just clock out.

Specifications

Maximum Ratings at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|----------------------|--|-------------|------|
| Maximum power supply voltage | V _{CCH} max | | 7.0 | V |
| Allowable power dissipation | Pd max | Ta ≤ 80°C, Mounted on a specified board* | 203 | mW |
| Operating temperature | Topr | | -20 to +80 | °C |
| Storage temperature | Tstg | | -55 to +150 | °C |

* Mounted on a specified board: 114.3mm × 76.1mm × 1.6mm glass epoxy board

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Operating Ranges at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|-------------------------------|---------------------|------------|------------|------|
| Recommended operating voltage | V _{CCH} | | 5.0 | V |
| Allowable operating voltage | V _{CCH op} | | 4.5 to 5.5 | V |

Electrical Characteristics at Ta = 25°C, V_{DD} = 5V

[Condition of input signal at pin 5]

BASE BAND input

[Output] L-ch: pin 18, R-ch: pin 17

| Parameter | Symbol | Conditions | Ratings | | | unit |
|----------------------------------|--------------------|---|---------|-------|-----|-------|
| | | | min | typ | max | |
| Current dissipation | I _{CC1} | No signal, Inflow current at pin 19 | 18 | 26 | 34 | mA |
| MONO output level | V _{OMN1} | fm = 1kHz, 100% Mod, Pre-emphasis OFF | -6 | -4.5 | -3 | dBV |
| | | | 501 | 595 | 708 | mVrms |
| MONO L/R level difference | ΔV _{OMN1} | fm = 1kHz, 100% Mod, Pre-emphasis OFF | -1 | 0 | 1 | dB |
| MONO distortion | THDM1 | fm = 1kHz, 100% Mod, Pre-emphasis OFF | | 0.2 | 0.5 | % |
| MONO frequency characteristics | FCM1 | fm = 10kHz/1kHz, 100% Mod, 15kHz LPF Pre-emphasis OFF | -18 | -13.5 | | dB |
| MONO S/N | SNM1 | Non Mod, 15kHz LPF | 60 | 65 | | dB |
| STEREO output level | V _{OST1} | fm = 1kHz, 100% Mod, Cue (Stereo), 15kHz LPF | -6 | -4.5 | -3 | dBV |
| | | | 501 | 595 | 708 | mVrms |
| STEREO distortion | THDS1 | fm = 1kHz, 100% Mod, Cue (Stereo), 15kHz LPF | | 0.5 | 1 | % |
| STEREO S/N | SNS1 | Sub Carrier (Non Mod), Cue (Stereo), 15kHz LPF | 50 | 60 | | dB |
| Main output level | V _{OMA1} | fm = 1kHz, 100% Mod, Cue (Bilingual), 15kHz LPF | -6 | -4.5 | -3 | dBV |
| | | | 501 | 595 | 708 | mVrms |
| Main distortion | THDMA1 | fm = 1kHz, 100% Mod, Cue (Bilingual), 15kHz LPF | | 0.2 | 0.5 | % |
| Main S/N | SNMA1 | Sub Carrier (Non Mod), Cue (Bilingual), 15kHz LPF | 60 | 65 | | dB |
| SUB output level | V _{SU1} | fm = 1kHz, 100% Mod, Cue (Bilingual), 15kHz LPF | -6 | -4.5 | -3 | dBV |
| | | | 501 | 595 | 708 | mVrms |
| SUB distortion | THDSU1 | fm = 1kHz, 100% Mod, Cue (Bilingual), 15kHz LPF | | 0.7 | 1.5 | % |
| SUB frequency characteristics | FCSU1 | fm = 10kHz/1kHz, 60% Mod, Cue (Bilingual), 15kHz LPF, Pre-emphasis OFF | -18 | -14.5 | | dB |
| SUB Main S/N | SNSU1 | Sub Carrier (Non Mod), Cue (Bilingual), 15kHz LPF | 50 | 60 | | dB |
| STEREO separation L → R | SEPR1 | fm = 1kHz (L-only), 60% Mod, Cue (Stereo), 15kHz LPF | 35 | 43 | | dB |
| STEREO separation R → L | SEPL1 | fm = 1kHz (R-only), 60% Mod, Cue (Stereo), 15kHz LPF | 35 | 43 | | dB |
| Stay behind carrier level (SUB) | CLSU1 | Main = 0%, Sub = 0% (Carrier) Cue (Bilingual) | | -50 | -40 | dBV |
| Stay behind carrier level (MAIN) | CLMA1 | Main = 0%, Sub = 0% (Carrier) Cue (Bilingual) | | -55 | -45 | dBV |
| Cross-talk MAIN → SUB | CTSUB1 | Main : fm = 1kHz, 100% modulation, Cue (Bilingual), 1kHz BPF | 55 | 62 | | dB |
| Cross-talk SUB → MAIN | CTMA1 | Sub : fm = 1kHz, 100% modulation, Cue (Bilingual), 1kHz BPF | 55 | 62 | | dB |
| MODE output MONO | MODMO1 | Input = Mono Signal | 1.7 | 2 | 2.3 | V |
| MODE output STEREO | MODST1 | Input = Stereo Signal | 0 | 1 | 1.3 | V |
| MODE output BILINGUAL | MODBI1 | Input = Bilingual Signal | 2.7 | 3 | 3.3 | V |
| Just Clock output High voltage | JCH1 | f = 400Hz (mono), 25% Mod | 4 | | | V |
| Just Clock output Low voltage | JCL1 | f = 400Hz (mono), 10% Mod | | | 1 | V |
| Max Output level | MOL1 | f = 1kHz, distortion = 3% | 3.3 | 4.2 | | dBV |
| | | | 1462 | 1622 | | mVrms |

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| Parameter | Symbol | Conditions | Ratings | | | unit |
|----------------------|--------|-----------------------------------|---------|-------|-----------------|-------|
| | | | min | typ | max | |
| EXTERNAL input level | EXTIN1 | f = 1kHz, (pin 12 & pin 13 input) | | -14.5 | | dBV |
| | | | | 188.4 | | mVrms |
| 8pin-CONTROL "H" | MUTEH | MUTE-ON | 3.0 | | V _{CC} | V |
| 8pin-CONTROL "OPEN" | MUTEOP | MUTE-OFF | | 0.9 | | V |
| 8pin-CONTROL "L" | MUTEL | MUTE-OFF & Detection AREA CONROL | 0 | | 0.2 | V |

[Condition of input signal at pin 5]

Deviation of SIF input MONO : (fm = 1kHz) 100%→4.5MHz±25kHz Pre-Emphasis ON

[Output] L-ch : pin 18, R-ch : pin 17

| Parameter | Symbol | Conditions | Ratings | | | unit |
|----------------------------------|----------------------------|---|---------|-------|-------|------------|
| | | | min | typ | max | |
| Current dissipation | I _{CC2} | No signal, Inflow current at pin 19 | 20 | 28 | 36 | mA |
| Input sensitivity level | V _{SIN} | fc = 4.5MHz | 70 | 90 | 110 | dB μ V |
| | | | 3.16 | 31.62 | 316.2 | mVrms |
| MONO output level | V _{OMN2} | fm = 1kHz, 100% Mod, Pre-emphasis OFF | -6 | -4.5 | -3 | dBV |
| | | | 501 | 595 | 708 | mVrms |
| MONO L/R level difference | Δ V _{OMN2} | fm = 1kHz, 100% Mod, Pre-emphasis OFF | -1 | 0 | 1 | dB |
| MONO distortion | THDM2 | fm = 1kHz, 100% Mod, Pre-emphasis OFF | | 0.2 | 0.5 | % |
| MONO frequency characteristics | FCM2 | fm = 10kHz/1kHz, 100% Mod, 15kHz LPF Pre-emphasis OFF | -18 | -13.5 | | dB |
| MONO S/N | SNM2 | Non Mod, 15kHz LPF | 55 | 60 | | dB |
| STEREO output level | V _{OST2} | fm = 1kHz, 100% Mod, Cue (Stereo), 15kHz LPF | -6 | -4.5 | -3 | dBV |
| | | | 501 | 595 | 708 | mVrms |
| STEREO distortion | THDS2 | fm = 1kHz, 100% Mod, Cue (Stereo), 15kHz LPF | | 0.5 | 1 | % |
| STEREO S/N | SNS2 | Sub Carrier (Non Mod), Cue (Stereo), 15kHz LPF | 50 | 57 | | dB |
| Main output level | V _{OMA2} | fm = 1kHz, 100% Mod, Cue (Bilingual), 15kHz LPF | -6 | -4.5 | -3 | dBV |
| | | | 501 | 595 | 708 | mVrms |
| Main distortion | THDMA2 | fm = 1kHz, 100% Mod, Cue (Bilingual), 15kHz LPF | | 0.2 | 0.5 | % |
| Main S/N | SNMA2 | Sub Carrier (Non Mod), Cue (Bilingual), 15kHz LPF | 55 | 60 | | dB |
| SUB output level | V _{OSU2} | fm = 1kHz, 100% Mod, Cue (Bilingual), 15kHz LPF | -6 | -4.5 | -3 | dBV |
| | | | 501 | 595 | 708 | mVrms |
| SUB distortion | THDSU2 | fm = 1kHz, 100% Mod, Cue (Bilingual), 15kHz LPF | | 0.7 | 1.5 | % |
| SUB frequency characteristics | FCSU2 | fm = 10kHz/1kHz, 60% Mod, Cue (Bilingual), 15kHz LPF, Pre-emphasis OFF | -18 | -14.5 | | dB |
| SUB Main S/N | SNSU2 | Sub Carrier (Non Mod), Cue (Bilingual), 15kHz LPF | 50 | 58 | | dB |
| STEREO separation L → R | SEPR2 | fm = 1kHz (L-only), 60% Mod, Cue (Stereo), 15kHz LPF | 35 | 38 | | dB |
| STEREO separation R → L | SEPL2 | fm = 1kHz (R-only), 60% Mod, Cue (Stereo), 15kHz LPF | 35 | 38 | | dB |
| Stay behind carrier level (SUB) | CLSU2 | Main = 0%, Sub = 0% (Carrier) Cue (Bilingual) | | -50 | -40 | dBV |
| Stay behind carrier level (MAIN) | CLMA2 | Main = 0%, Sub = 0% (Carrier) Cue (Bilingual) | | -55 | -45 | dBV |
| Cross-talk MAIN → SUB | CTSUB2 | Main : fm = 1kHz, 100% modulation, Cue (Bilingual), 1kHz BPF | 55 | 62 | | dB |
| Cross-talk SUB → MAIN | CTMA2 | Sub : fm = 1kHz, 100% modulation, Cue (Bilingual), 1kHz BPF | 55 | 62 | | dB |
| MODE output MONO | MODMO2 | Input = Mono Signal | 1.7 | 2 | 2.3 | V |
| MODE output STEREO | MODST2 | Input = Stereo Signal | 0 | 1 | 1.3 | V |
| MODE output BILINGUAL | MODBI2 | Input = Bilingual Signal | 2.7 | 3 | 3.3 | V |
| Just Clock output High voltage | JCH2 | f = 400Hz (mono), 25%Mod | 4 | | | V |

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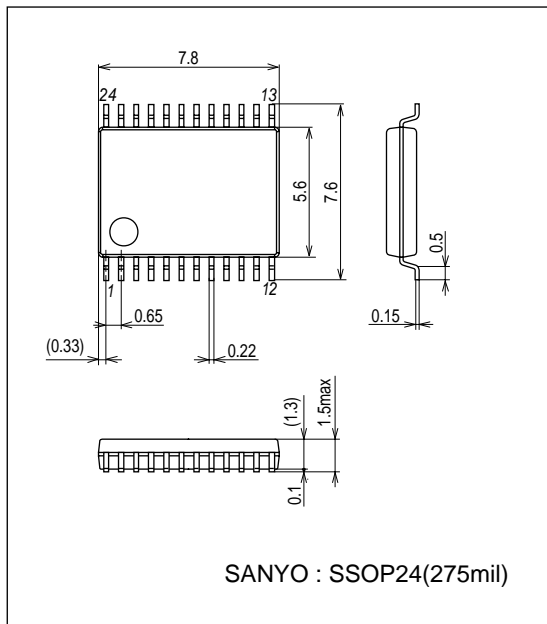
| Parameter | Symbol | Conditions | Ratings | | | unit |
|-------------------------------|--------|-----------------------------------|---------|-------|-----------------|-------|
| | | | min | typ | max | |
| Just Clock output Low voltage | JCL2 | f = 400Hz (mono), 10%Mod | | | 1 | V |
| Max Output level | MOL2 | f = 1kHz, distortion = 3% | 3.3 | 4.2 | | dBV |
| | | | 1462 | 1622 | | mVrms |
| EXTERNAL input level | EXTIN2 | f = 1kHz, (pin 12 & pin 13 input) | | -14.5 | | dBV |
| | | | | 188.4 | | mVrms |
| 8pin-CONTROL "H" | MUTEH | MUTE-ON | 3.0 | | V _{CC} | V |
| 8pin-CONTROL "OPEN" | MUTEOP | MUTE-OFF | | 0.9 | | V |
| 8pin-CONTROL "L" | MUTEL | MUTE-OFF & Detection AREA CONROL | 0 | | 0.2 | V |

Package Dimensions

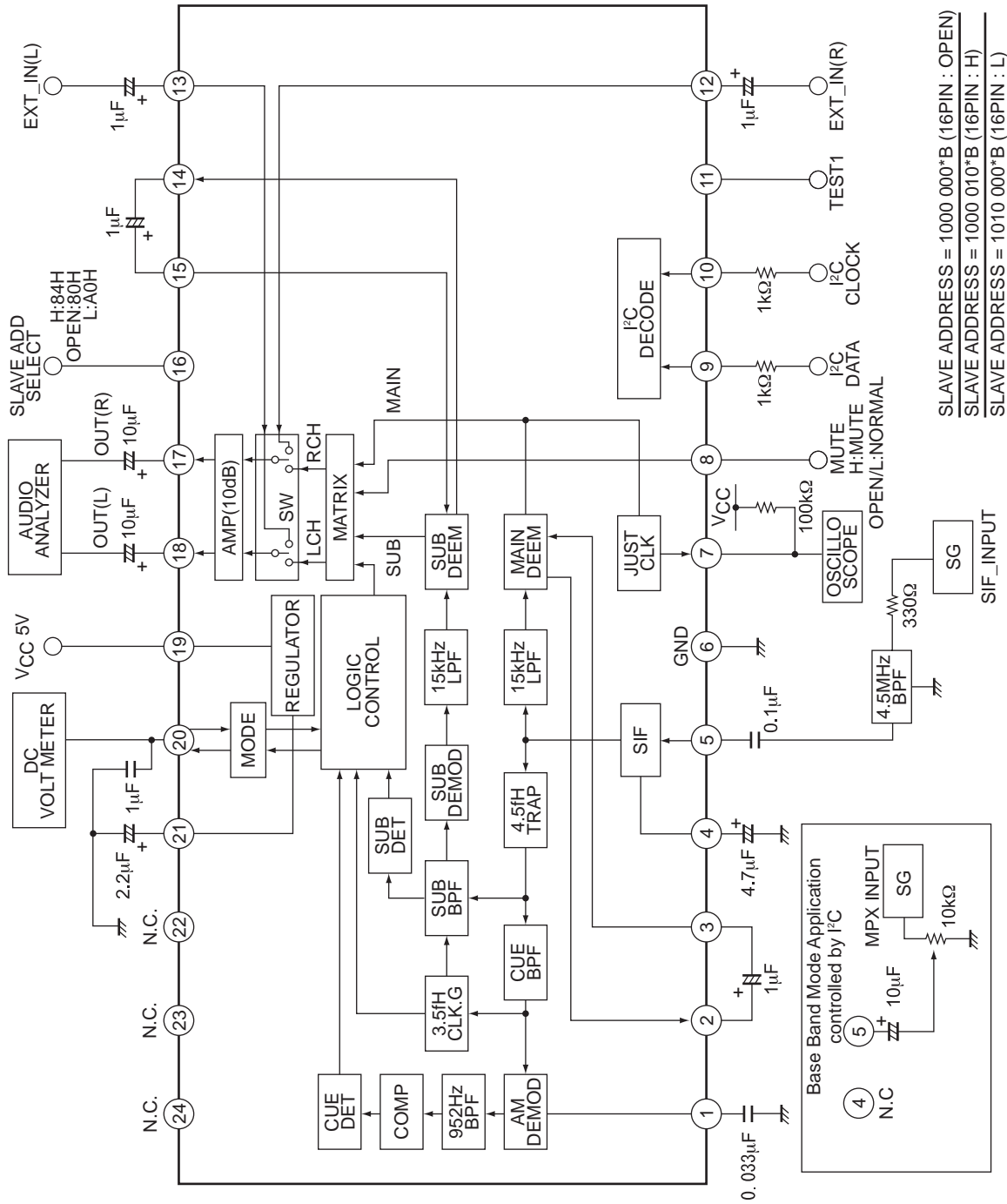
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3175C

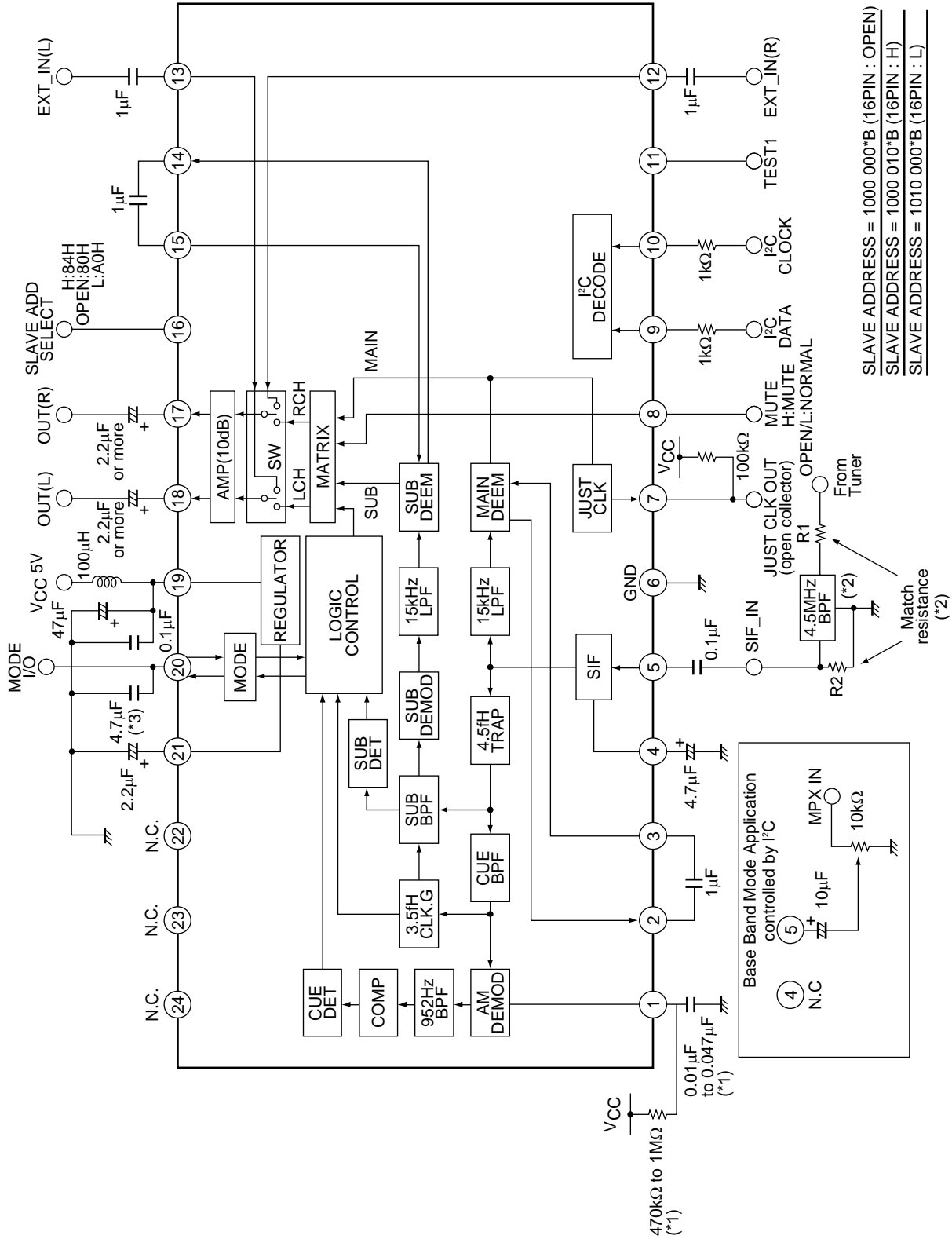
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Block Diagram and Test Circuit



Block Diagram and Application Circuit Example



SLAVE ADDRESS = 1000 000*B (16PIN : OPEN)
 SLAVE ADDRESS = 1000 010*B (16PIN : H)
 SLAVE ADDRESS = 1010 000*B (16PIN : L)

The value of (1*), (2*), and (3*) affects sensitivity for signal detection. It must be adjusted depending on the circumstances by the user.

(1*): Recommended constant value $0.0033\mu\text{F} + 470\text{k}\Omega$ (values when tested)

(2*): Recommended matching resistor value $R1=1\text{k}\Omega$, $R2=1\text{k}\Omega$

Recommended BPF Murata SFSRA4M50DF00-B0

(3*): Recommended constant value $4.7\mu\text{F}$ to $10\text{k}\Omega$

The ceramic capacitor may be used for the electrolytic capacitor.

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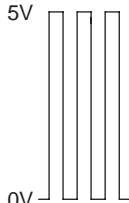
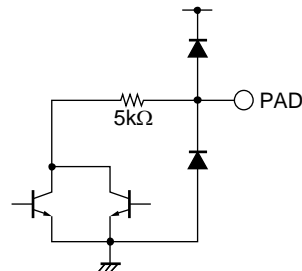
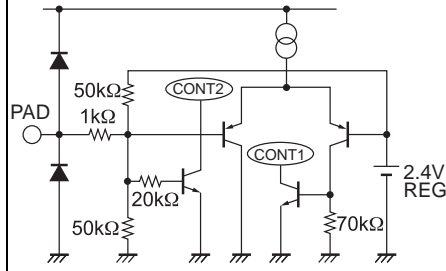
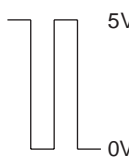
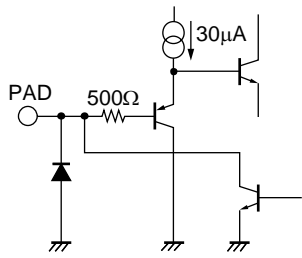
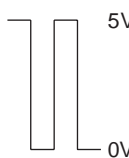
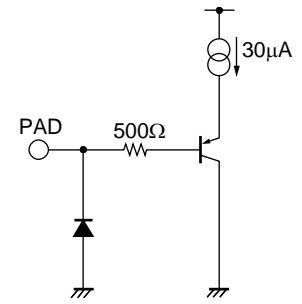
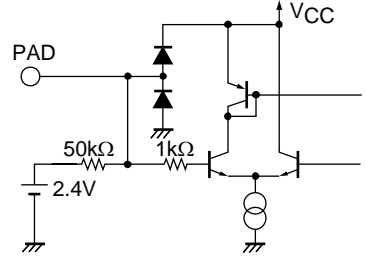
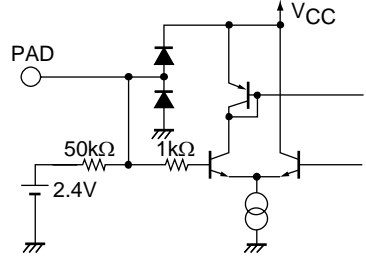
Pin Functions

| Pin No. | Pin Name | DC voltage AC level | Function | Equivalent Circuit |
|---------|------------------|---|---|--------------------|
| 1 | AM DETECTOR | DC : 2.3V | Reference terminal of AM detection. | |
| 2 14 | DC FILTER OUT | 2pin DC : 2.6V 14pin DC : 2.1V | Absorbing the DC offset of signal line by external capacity. | |
| 3 15 | DC FILTER IN | DC : 2.4V | Absorbing the DC offset of signal line by external capacity. | |
| 4 | FM FILTER | DC : 2.9V | Filter terminal for making stable DC voltage of FM detection output in SIF part. Normally, use a condenser of 4.7μF. Increase the capacity value with concerning frequency characteristics of low level. | |
| 5 | SIF INPUT | DC : 2.4V | Input terminal for SIF. The input impedance is about 5kΩ. Be care for about pattern layout of the input circuit, because of causing buzz-beat and buzz by leaking noise signal into the input terminal. (The noise signal depending on sound is particularly video signal and chroma signal and so on. VIF carrier becomes noise signal.) | |
| 6 | GND | | | |

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| Pin No. | Pin Name | DC voltage AC level | Function | Equivalent Circuit |
|---------|---|---|---|---|
| 7 | JUST CLOCK OUT |  | Rectangle wave output for JUST CLOCK. (OPEN Collector) 100kΩ Pull-up |  |
| 8 | MUTE control pin & Distinction control. | DC : 0V | 3.0V to V _{CC} : MUTE (CONT 1) OPEN (0.9V) : NORM 0V : NORM & Detection AREA Control (CONT2) Use it within the range of 0 to 0.2V when you operate usually. |  |
| 9 | Serial data input pin. |  | High : 2.5V to 5V Low : 0V to 1.5V |  |
| 10 | Serial CLK input pin |  | High : 2.5V to 5V Low : 0V to 1.5V |  |
| 11 | TEST1 | | | |
| 12 | EXTIN_R | DC : 2.4V -14.5dBV | EXT input Rch not used : OPEN |  |
| 13 | EXTIN_L | DC : 2.4V -14.5dBV | EXT input Lch not used : OPEN |  |

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| Pin No. | Pin Name | DC voltage AC level | Function | Equivalent Circuit |
|----------------|--|---------------------------|--|--------------------|
| 16 | SLAVE ADD SELECT | | | |
| 17 18 | Line Out (R) terminal Line Out (L) terminal | DC : 2.4V AC : -4.5dBV | Line output pin. | |
| 19 | V _{CC} 5V | | | |
| 20 | MTS MODE OUT | No signal DC : 2.0V | Detection output for M.T.S. signal. BILINGUAL :3.0V MONO :2.0V STEREO :1.0V | |
| 21 | REG FILT | DC : 2.4V | Filter terminal of reference voltage source | |
| 22 23 24 | NC | | | |

I²C BUS Serial Interface Specification

(1) Data Transfer Manual

This LSI adopts control method (I²C-BUS) with serial data, and controlled by two terminals which called SCL (serial clock) and SDA (serial data). At first, set up^{*1} the condition of starting data transfer, and after that, input 8 bit data to SDA terminal with synchronized SCL terminal clock. The order of transferring is first, MSB (the Most Scale of Bit), and save the order. The 9th bit takes ACK (Acknowledge) period, during SCL terminal takes 'H', this LSI pull down the SDA terminal. After transferred the necessary data, two terminals lead to set up and of^{*2} data transfer stop condition, thus the transfer comes to close.

*1 Defined by SCL rise down SDA during 'H' period.

*2 Defined by SCL rise up SDA during 'H' period.

(2) Transfer Data Format

After transfer start condition, transfers slave address (1000 000*) to SDA terminal, control data, then, stop condition (See figure 1).

Slave address is made up of 7bits, ^{*3}8th bit shows the direction of transferring data, if it is 'L' takes write mode (As this LSI side, this is input operation mode), and in case of 'H' reading mode (As this LSI side, this is output operation mode).

Data works with all of bit, transfer the stop condition before stop 8bit transfer, and to stop transfer, it will be canceled the transfer dates. At READ mode, this LSI outputs during ACK period, please must input 9 clocks.

*3 It is called R/W bit.

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Fig.1 DATA STRUCTURE “WRITE” mode

| | | | | | | |
|-----------------|---------------|--|-----|--------------|-----|----------------|
| START Condition | Slave Address | $\begin{matrix} R/W \\ \underline{L} \end{matrix}$ | ACK | Control data | ACK | STOP condition |
|-----------------|---------------|--|-----|--------------|-----|----------------|

Fig.2 DATA STRUCTURE “READ” mode

| | | | | | | |
|-----------------|---------------|--|-----|-----------------|-----|----------------|
| START condition | Slave Address | $\begin{matrix} R/W \\ \underline{H} \end{matrix}$ | ACK | Internal Data * | ACK | STOP condition |
|-----------------|---------------|--|-----|-----------------|-----|----------------|

* The output data synchronizes with the clock of SCL pin. Then the ACK output is made after the output data.

- bit8 is result of STERO DET (H : STEREO)
- bit7 is result of BILINGUAL DET (H : BILINGUAL)
- bit6 is Initial Condition ‘H’
- bit5 to bit1 are fixed to ‘L’

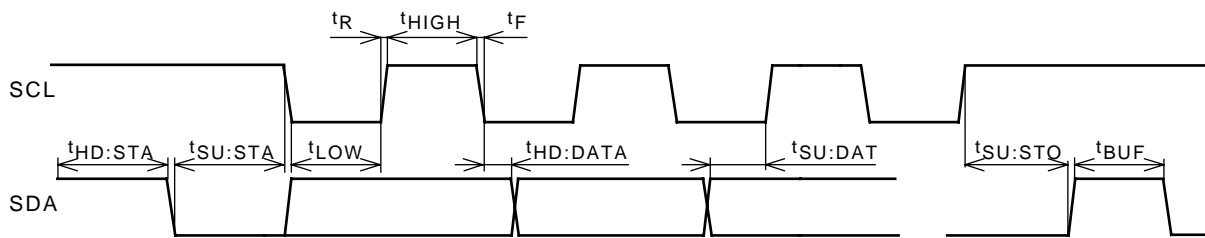
(3) Initialize

This IC is initialized for circuit protection. Initial condition is “01h (Main-mode)”.

Reference

| Parameter | Symbol | min | max | unit |
|--|----------------|------|-----|---------|
| LOW level input voltage | V_{IL} | -0.5 | 1.5 | V |
| HIGH level input voltage | V_{IH} | 2.5 | 5.5 | V |
| LOW level output current | I_{OL} | | 3.0 | mA |
| SCL clock frequency | f_{SCL} | 0 | 100 | kHz |
| Set-up time for a repeated START condition | $t_{SU : STA}$ | 4.7 | | μs |
| Hold time START condition. After this period, the first clock pulse is generated | $t_{HD : STA}$ | 4.0 | | μs |
| LOW period of the SCL clock | t_{LOW} | 4.7 | | μs |
| Rise time of both SDA and SDL signals | t_R | 0 | 1.0 | μs |
| HIGH period of the SCL clock | t_{HIGH} | 4.0 | | μs |
| Fall time of both SDA and SDL signals | t_F | 0 | 1.0 | μs |
| Data hold time | $t_{HD : DAT}$ | 0 | | μs |
| Data set-up time | $t_{SU : DAT}$ | 250 | | ns |
| Set-up time for STOP condition | $t_{SU : STO}$ | 4.0 | | μs |
| BUS free time between a STOP and START condition | t_{BUF} | 4.7 | | μs |

Definition of Timing



LA72715NV

I²C Control/LA72715NV Group number is ONLY 1 (Normal Use).

Grp-1

| D8 | D7 | D6 | D5 | D4 | D3 | D2 | D1 | Condition |
|----|----|----|----|----|----|----|----|----------------------|
| | | | | | | 0 | 0 | Bilingual |
| * | | | | | | 0 | 1 | Main |
| | | | | | | 1 | 0 | Sub |
| | | | | | | 1 | 1 | (Prohibit) |
| * | | | | | 0 | | | Normal |
| | | | | | 1 | | | Forced MONO |
| * | | | | 0 | | | | Normal (MUTE OFF) |
| | | | | 1 | | | | MUTE |
| * | | | 0 | | | | | TV Mode (SW Normal) |
| | | | 1 | | | | | EXT Mode (SW EXT) |
| * | | 0 | | | | | | JUST CLOCK OFF |
| | | 1 | | | | | | JUST CLOCK ON |
| * | 0 | | | | | | | SIF Mode |
| | 1 | | | | | | | BASE BAND Mode |
| * | 0 | | | | | | | Fix |
| | 1 | | | | | | | Prohibit (TEST Mode) |

*: Initial condition

Read out data

| D8 | D7 | D6 | D5 | D4 | D3 | D2 | D1 | Condition |
|----|----|----|----|----|----|----|----|-----------------------------|
| | | | 0 | 0 | 0 | 0 | 0 | Fixed |
| 0 | | | | | | | | Normal |
| 1 | | | | | | | | Stereo det |
| | 0 | | | | | | | Normal |
| | 1 | | | | | | | Bilingual det |
| | | 0 | | | | | | Except an initial condition |
| | | 1 | | | | | | Initial condition |

Test Mode Condition

When STOP condition transform at Grp-1 data-end, controlled NORMAL mode.

Grp-2 (Only test condition : Normally, this group is hidden group)

| D8 | D7 | D6 | D5 | D4 | D3 | D2 | D1 | Condition/Monitor position |
|----|----|----|----|----|----|----|----|----------------------------|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | TEST-01 SIF out |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | TEST-02 SUB FIL out |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | TEST-03 CUE FIL out |
| 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | TEST-04 SUD DET out |
| 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | TEST-05 CUE DC1 out |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | TEST-06 SUB DET2 out |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | TEST-07 110K out |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | TEST-08 28K out |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | TEST-09 CUE PLS out |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | TEST-10 FIL ZAP LEVEL |

SLAVE ADDRESS 80H (16pin : OPEN)

SLAVE ADDRESS 84H (16pin : V_{CC})

SLAVE ADDRESS A0H (16pin : GND)

LA72715NV

Mode Select (pin & I²C setting)

| Broadcast signal | MUTE PIN setting | I ² C | | | | | OUTPUT MODE | | | READ MODE OUT | | MODE I/O |
|------------------|------------------|------------------|----|----|----|----|-------------|-------------|--------|---------------|----|----------|
| | 8pin | D5 | D4 | D3 | D2 | D1 | LCH (18pin) | RCH (17pin) | MODE | D8 | D7 | 20pin |
| Bilingual | L or OPEN | 0 | 0 | 0 | 0 | 0 | MAIN | SUB | BOTH | 0 | 1 | 3V |
| | L or OPEN | 0 | 0 | 0 | 0 | 1 | MAIN | MAIN | MAIN | 0 | 1 | |
| | L or OPEN | 0 | 0 | 0 | 1 | 0 | SUB | SUB | SUB | 0 | 1 | |
| | L or OPEN | 0 | 0 | 1 | * | * | MAIN | MAIN | MONO | 0 | 1 | |
| | * | * | 1 | * | * | * | MUTE | MUTE | MUTE | 0 | 1 | |
| | H | * | * | * | * | * | MUTE | MUTE | MUTE | 0 | 1 | |
| | L or OPEN | 1 | 0 | * | * | * | EXT L | EXT R | EXT | 0 | 1 | |
| STEREO | L or OPEN | 0 | 0 | 0 | * | * | L | R | STEREO | 1 | 0 | 1V |
| | L or OPEN | 0 | 0 | 1 | * | * | L+R | L+R | MONO | 1 | 0 | |
| | * | * | 1 | * | * | * | MUTE | MUTE | MUTE | 1 | 0 | |
| | H | * | * | * | * | * | MUTE | MUTE | MUTE | 1 | 0 | |
| | L or OPEN | 1 | 0 | * | * | * | EXT L | EXT R | EXT | 1 | 0 | |
| MONO | L or OPEN | 0 | 0 | * | * | * | L+R | L+R | MONO | 0 | 0 | 2V |
| | * | * | 1 | * | * | * | MUTE | MUTE | MUTE | 0 | 0 | |
| | H | * | * | * | * | * | MUTE | MUTE | MUTE | 0 | 0 | |
| | L or OPEN | 1 | 0 | * | * | * | EXT L | EXT R | EXT | 0 | 0 | |

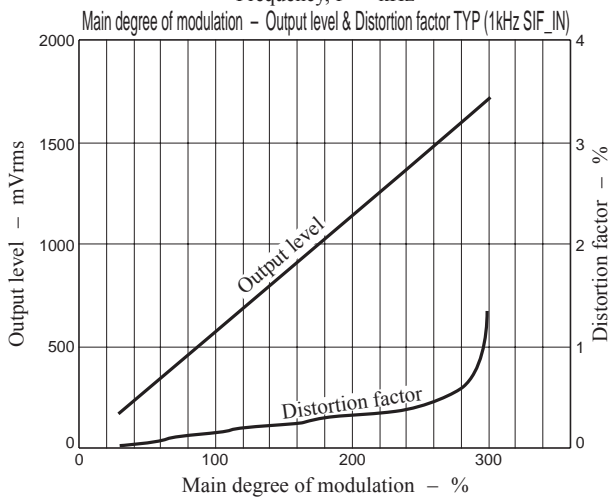
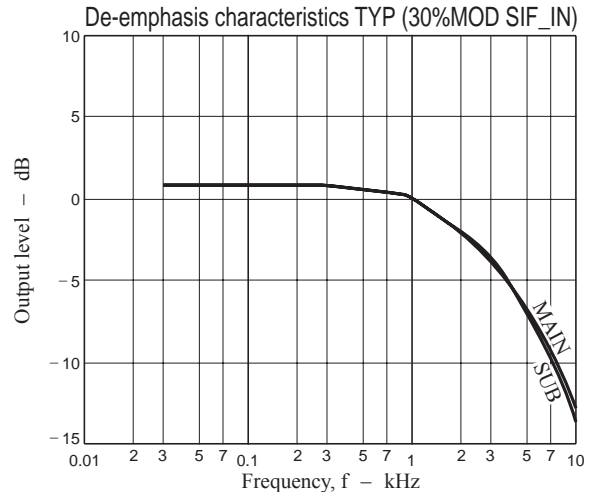
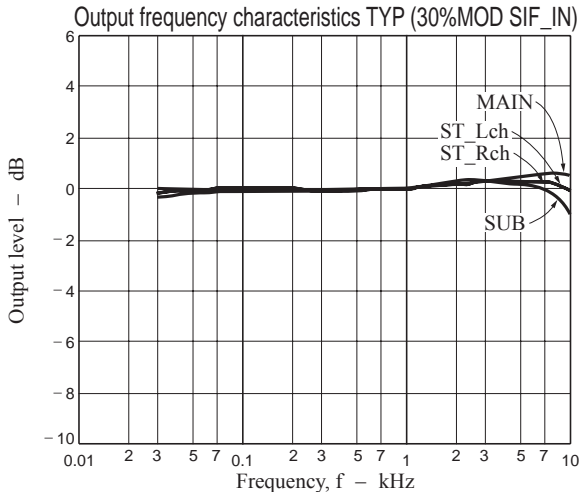
16pin : Slave address select. 0V to 1.5V : A0H, OPEN : 80H, 3.0V to V_{CC} : 84H

Serial Data Specification (I²C bus communication)

| Data bit | | | | | | | |
|--------------------------|------------------------------------|--------------------------|-------------------------------|--------------------------|--------------------------|--|-----------|
| MSB D8 | D7 | D6 | D5 | D4 | D3 | D2 | LSB D1 |
| TEST | SIF or BASE BAND | JUST CLK | EXT SOURCE SELECT | NORMAL OUT MUTE | Forced MONO | Bilingual mode select | |
| <u>0</u> : OFF 1 : ON | <u>0</u> : SIF 1 : BASE BAND | <u>0</u> : OFF 1 : ON | <u>0</u> : OFF(TV) 1 : EXT | <u>0</u> : OFF 1 : ON | <u>0</u> : OFF 1 : ON | 00: BILINGUAL <u>01</u> : MAIN 10 : SUB 11 : Unusable | |

Note : Underline shows default setting

LA72715NV Reference Characteristics



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