



No.4064A

LA7155M

Audio Switch for PAL 21 Pin Connectors

Overview

The LA7155M is an audio switch of a stereophonic system for PAL21 pin connectors.

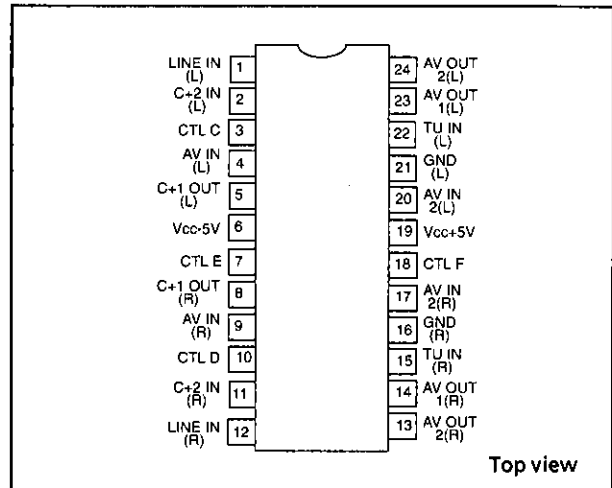
Features

- +-5V power supply.
- Smaller size allowing for saving space.
- Low distortion factor.

Functions

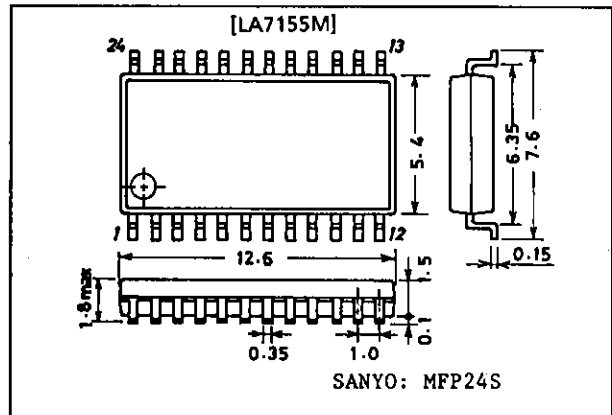
- 4 audio switch circuits of 2 inputs and 1 output.
- 2 audio switch circuits of 3 inputs and 1 output.
- 2 audio amplifying circuits of 2dB.
- 2 audio amplifying circuits of 12dB.

Pin Assignment



Package Dimensions

(unit :mm)
3112



LA7155M

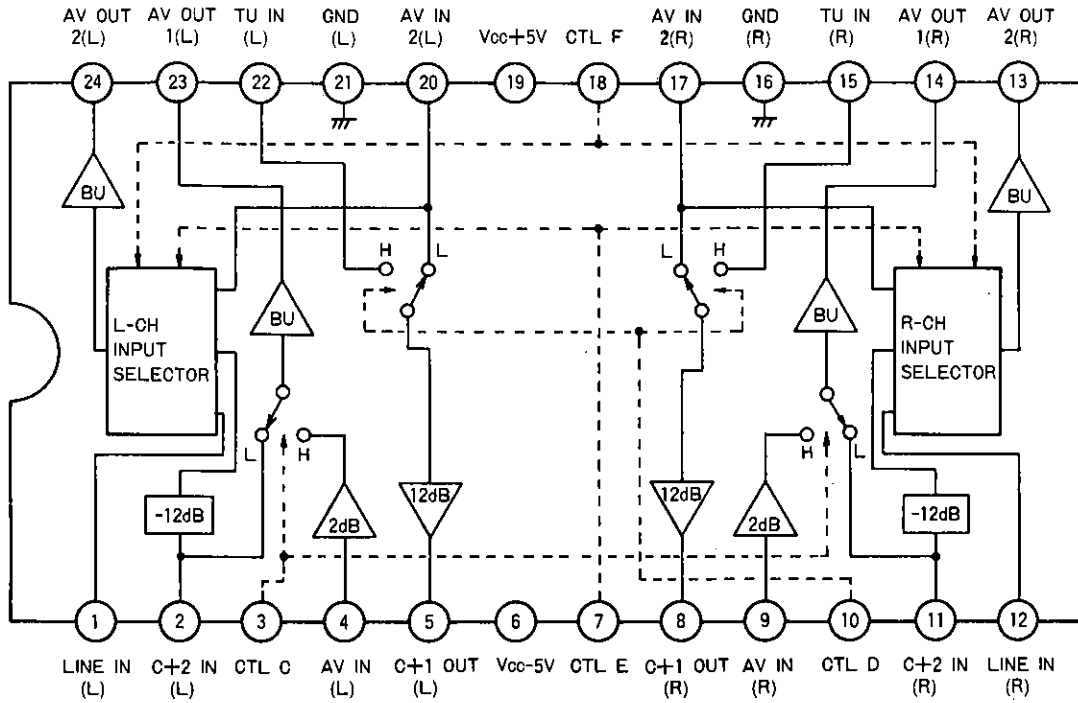
| Maximum Ratings at Ta = 25°C | | | | Unit |
|------------------------------|---------------------|-----------|-------------|------|
| Maximum supply voltage | V _{CC} max | | ±7 | V |
| Allowable power dissipation | Pd max | Ta ≤ 75°C | 300 | mV |
| Operating temperature | T _{opr} | | -20 to +75 | °C |
| Storage temperature | T _{stg} | | -55 to +150 | °C |

| Operating Conditions at Ta = 25°C | | | | Unit |
|-----------------------------------|--------------------|--|----------|------|
| Recommended supply voltage | V _{CC} | | ±5 | V |
| Operating voltage range | V _{CC} op | | ±4 to ±6 | V |

* Both + and - voltages of supply are required.

| Operating characteristics at Ta=25°C, Vcc=±5V and f=1kHz | | | | min | typ | max | Unit |
|--|-------------------|---|-----|-------|------------------|-----|------|
| Current dissipation | I _{CC} | No signal | 8 | 11 | 14 | mA | |
| Output voltage 1 | V _{O1} | V _{IN} =-18dBV | -19 | -18 | -17 | dBV | |
| Output voltage 2 | V _{O2} | V _{IN} =-6 dBV | -19 | -18 | -17 | dBV | |
| Output voltage 3 | V _{O3} | V _{IN} =-6 dBV | -7 | -6 | -5 | dBV | |
| Output voltage 4 | V _{O4} | V _{IN} =-8 dBV | -7 | -6 | -5 | dBV | |
| Output voltage 5 | V _{O5} | V _{IN} =-18dBV | -7 | -6 | -5 | dBV | |
| Total harmonic distortion 1 | THD ₁ | V _{IN} =-18dBV | | 0.005 | 0.1 | % | |
| Total harmonic distortion 2 | THD ₂ | V _{IN} =-6 dBV | | 0.005 | 0.1 | % | |
| Total harmonic distortion 3 | THD ₃ | V _{IN} =-6 dBV | | 0.008 | 0.1 | % | |
| Total harmonic distortion 4 | THD ₄ | V _{IN} =-8 dBV | | 0.01 | 0.1 | % | |
| Total harmonic distortion 5 | THD ₅ | V _{IN} =-18dBV | | 0.01 | 0.1 | % | |
| Maximum output voltage 1 | V _{OM1} | THD=1% | 5.0 | 9.0 | | dBV | |
| Maximum output voltage 2 | V _{OM2} | THD=1% | -7 | -3 | | dBV | |
| Maximum output voltage 3 | V _{OM3} | THD=1% | 6.0 | 9.0 | | dBV | |
| Maximum output voltage 4 | V _{OM4} | THD=1% | 6.0 | 9.0 | | dBV | |
| Maximum output voltage 5 | V _{OM5} | THD=1% | 6.0 | 9.0 | | dBV | |
| Output noise voltage 1 | V _{ON1} | No signal Rg=600Ω DIN AUDIO FILTER | | -110 | -104 | dBV | |
| Output noise voltage 2 | V _{ON2} | | | -110 | -104 | dBV | |
| Output noise voltage 3 | V _{ON3} | | | -107 | -101 | dBV | |
| Output noise voltage 4 | V _{ON4} | | | -105 | -99 | dBV | |
| Output noise voltage 5 | V _{ON5} | | | -101 | -94 | dBV | |
| Input separation | V _{CR} | V _{IN} =-8dBV, Other input, Rg=600Ω | -80 | | | dB | |
| Switched DC offset | V _{DC} | Outputs at pins 13 and 24 No signal | -20 | 0 | +20 | mV | |
| H mode hold voltage | V _{CHI} | V ₃ , V ₇ , V ₁₀ , V ₁₈ | 3.5 | | +V _{CC} | V | |
| L mode hold voltage | V _{CLOW} | V ₃ , V ₇ , V ₁₀ , V ₁₈ | 0 | | 1.0 | V | |

Block Diagram



AV OUT 1

| Control pin 3 | Output L-CH | Output R-CH |
|---------------|-------------|-------------|
| L | C+2 IN (L) | C+2 IN (R) |
| H | AV IN (L) | AV IN (R) |

AV OUT 2

| Control pin 7 | Control pin 18 | Output L-CH | Output R-CH |
|---------------|----------------|-------------|-------------|
| L | L | AV IN 2(L) | AV IN 2(R) |
| L | H | LINE IN (L) | LINE IN (R) |
| H | L | C+2 IN (L) | C+2 IN (R) |
| H | H | LINE IN (L) | LINE IN (R) |

C+1 OUT

| Control pin 10 | Output L-CH | Output R-CH |
|----------------|-------------|-------------|
| L | AV IN 2(L) | AV IN 2(R) |
| H | TU IN (L) | TU IN (R) |

LA7155M

Test Circuit

Unit (resistance: Ω)

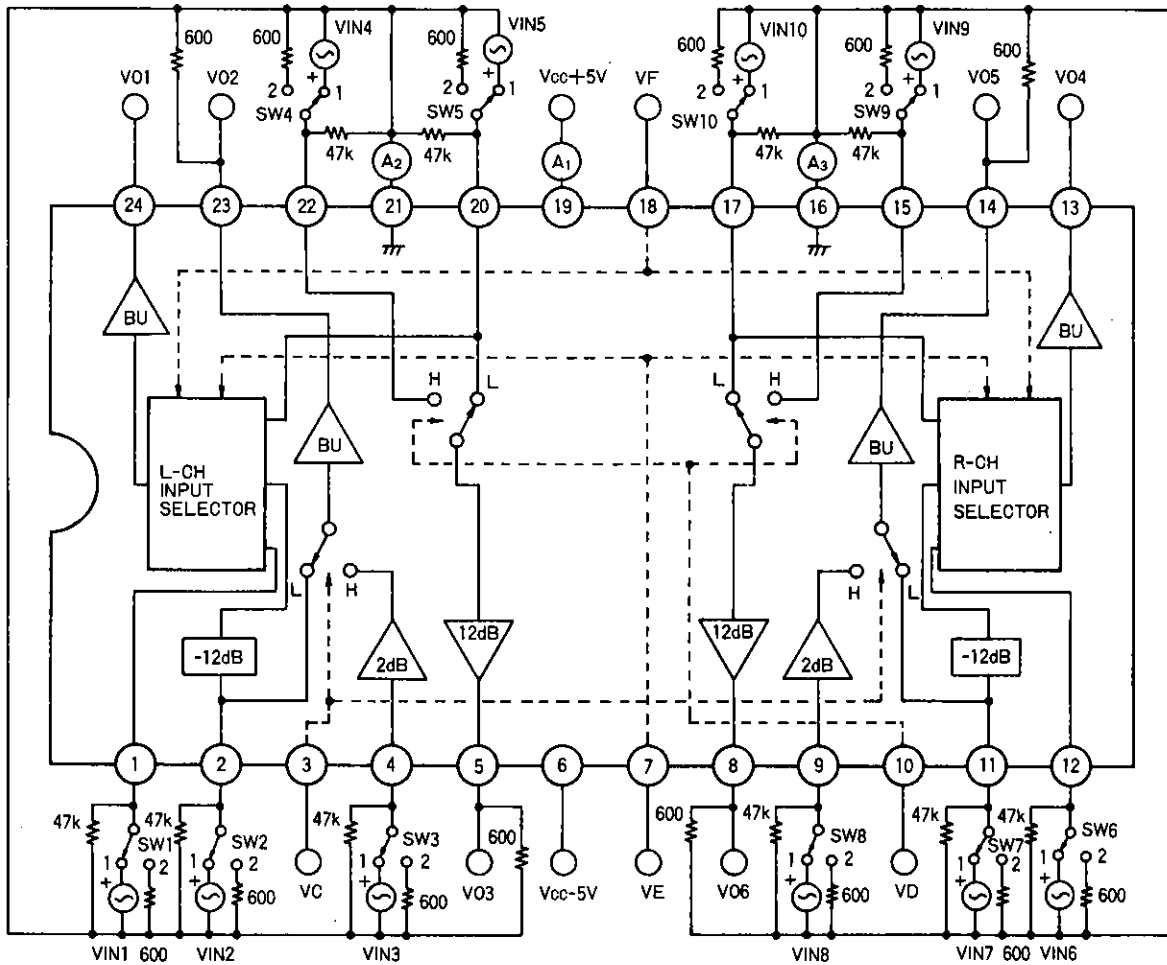


Table of switch operation

| Symbol | SW1 | SW2 | SW3 | SW4 | SW5 | SW6 | SW7 | SW8 | SW9 | SW10 | VC | VD | VE | VF | Measuring point |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|----|----|----|----|-----------------|
| Icc | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | L | L | A1+A2+A3 |
| VO1-1L | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | L | H | VO1 |
| VO1-1R | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | L | L | L | H | VO4 |
| VO1-2L | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | L | L | L | L | VO1 |
| VO1-2R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | L | L | L | L | VO4 |
| VO2-1L | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | H | L | VO1 |
| VO2-1R | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | L | L | H | L | VO4 |
| VO3-1L | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | H | L | VO2 |
| VO3-1R | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | L | L | H | L | VO5 |
| VO4-1L | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | H | L | H | L | VO2 |
| VO4-1R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | H | L | H | L | VO5 |
| VO5-1L | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | H | H | H | L | VO3 |
| VO5-1R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | H | H | H | L | VO6 |
| VO5-2L | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | H | L | H | L | VO3 |
| VO5-2R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | H | L | H | L | VO6 |
| THD1-1L | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | L | H | VO1 |
| THD1-1R | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | L | L | L | H | VO4 |
| THD1-2L | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | L | L | L | L | VO1 |
| THD1-2R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | L | L | L | L | VO4 |
| THD2-1L | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | H | L | VO1 |
| THD2-1R | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | L | L | H | L | VO4 |
| THD3-1L | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | H | L | VO2 |
| THD3-1R | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | L | L | H | L | VO5 |
| THD4-1L | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | H | L | H | L | VO2 |
| THD4-1R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | H | L | H | L | VO5 |
| THD5-1L | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | H | H | H | L | VO3 |
| THD5-1R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | H | H | H | L | VO6 |
| THD5-2L | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | H | L | H | L | VO3 |
| THD5-2R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | H | L | H | L | VO6 |
| VOM1-1L | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | L | H | VO1 |
| VOM1-1R | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | L | L | L | H | VO4 |
| VOM1-2L | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | L | L | L | L | VO1 |
| VOM1-2R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | L | L | L | L | VO4 |
| VOM2-1L | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | H | L | VO1 |
| VOM2-1R | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | L | L | H | L | VO4 |
| VOM3-1L | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | H | L | VO2 |
| VOM3-1R | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | L | L | H | L | VO5 |
| VOM4-1L | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | H | L | H | L | VO2 |
| VOM4-1R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | H | L | H | L | VO5 |
| VOM5-1L | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | H | H | H | L | VO3 |
| VOM5-1R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | H | H | H | L | VO6 |
| VOM5-2L | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | H | L | H | L | VO3 |
| VOM5-2R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | H | L | H | L | VO6 |

(Continued on next page)

LA7155M

(Continued from preceding page)

| Symbol | SW1 | SW2 | SW3 | SW4 | SW5 | SW6 | SW7 | SW8 | SW9 | SW10 | VC | VD | VE | VF | Measuring point |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|----|----|-----|-----|-----------------|
| VON1-1L | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | L | H | VO1 |
| VON1-1R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | L | H | VO4 |
| VON1-2L | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | L | L | VO1 |
| VON1-2R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | L | L | VO4 |
| VON2-1L | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | H | L | VO1 |
| VON2-1R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | H | L | VO4 |
| VON3-1L | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | H | L | VO2 |
| VON3-1R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | H | L | VO5 |
| VON4-1L | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | H | L | H | L | VO2 |
| VON4-1R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | H | L | H | L | VO5 |
| VON5-1L | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | H | H | H | L | VO3 |
| VON5-1R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | H | H | H | L | VO6 |
| VON5-2L | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | H | L | H | L | VO3 |
| VON5-2R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | H | L | H | L | VO6 |
| VCR-1L | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | L | H | VO2, 3, 4, 5, 6 |
| VCR-1R | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | L | L | L | H | VO1, 2, 3, 5, 6 |
| VCR-2L | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | L | L | L | L | VO2, 3, 4, 5, 6 |
| VCR-2R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | L | L | L | L | VO1, 2, 3, 5, 6 |
| VCR-3L | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | H | L | VO2, 3, 4, 5, 6 |
| VCR-3R | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | L | L | H | L | VO1, 2, 3, 5, 6 |
| VCR-4L | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | H | L | VO1, 3, 4, 5, 6 |
| VCR-4R | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | L | L | H | L | VO1, 2, 3, 4, 6 |
| VCR-5L | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | H | L | H | L | VO1, 3, 4, 5, 6 |
| VCR-5R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | H | L | H | L | VO1, 2, 3, 4, 6 |
| VCR-6L | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | H | H | H | L | VO1, 2, 4, 5, 6 |
| VCR-6R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | H | H | H | L | VO1, 2, 3, 4, 5 |
| VCR-7L | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | H | L | H | L | VO1, 2, 4, 5, 6 |
| VCR-7R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | H | L | H | L | VO1, 2, 3, 4, 5 |
| VDC-L | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | L/H | L/H | VO1 |
| VDC-R | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | L/H | L/H | VO4 |
| VCH1-3 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | - | L | H | L | VC |
| VCH1-7 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | - | L | VF |
| VCH1-10 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | H | - | H | L | VD |
| VCH1-18 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | L | L | L | - | VE |
| VCLOW-3 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | - | L | H | L | VC |
| VCLOW-7 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | L | L | - | L | VF |
| VCLOW-10 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | H | - | H | L | VD |
| VCLOW-18 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | L | L | L | - | VE |

- No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.
- Anyone purchasing any products described or contained herein for an above-mentioned use shall:
 - ① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use:
 - ② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

This catalog provide information as of **April** , 1995 . Specifications and information herein are subject to change without notice.