

INTRODUCTION

The KA22293 is a monolithic integrated circuit for music center. The KA22293 consists of Mic AMP, Mic and u-com or Manual selection part for Phono, Tuner, cd, tape, Aux, VTR input.

48-QFP-1010D/1010E

FEATURES

- 6 Input Dual Analog Switch
- Dual Phono Amp.
- Dual Buffer Amp \times 2
- Dual MIC Mix
- u-com Interface for function selection.
- Manual function selection switch without u-com
- LEC Driving circuit for indication of selected function.
- Operating voltage : $V_{CC} = 6V \sim 12V$



ORDERING INFORMATION

| Device | Package | Operating temperature | Pitch |
|----------|--------------|-----------------------|--------|
| KA22293 | 48-QFP-1010D | -20°C ~ +70°C | 0.8mm |
| KA22293Q | 48-QFP-1010E | -20°C ~ +70°C | 0.75mm |

BLOCK DIAGRAM

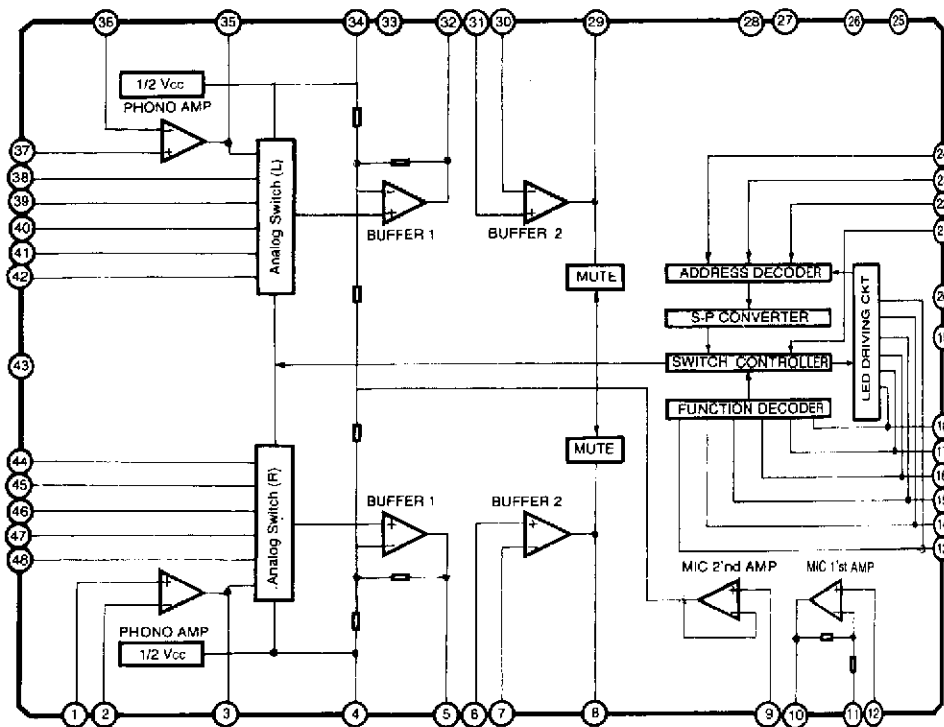


Fig. 1

PIN DESCRIPTION

| Pin No | Symbol | I/O | Description |
|--------|-------------------|-----|---|
| 1 | PHRIN | I | Right Channel PHONO AMP Input |
| 2 | PHRNF | I | Right Channel PHONO AMP Negative feedback |
| 3 | PHROUT | O | Right Channel PHONO AMP Output |
| 4 | RHV _{cc} | - | Right Channel 1/2 V _{cc} |
| 5 | BFR1 OUT | O | Right Channel 1'st Buffer Output |
| 6 | BFR2 INPUT | I | Right Channel 2'nd Buffer Input |
| 7 | BRF2 NF | I | Right Channel 2'nd Buffer Negative feedback |
| 8 | BFR2 OUT | O | Right Channel 2'nd Buffer Output |
| 9 | MIC 2/N | I | Mic 2'nd AMP Input |
| 10 | MIC 1OUT | O | Mic 1'st AMP Output |
| 11 | MIC1 | I | Mic 1'st AMP Negative feedback |
| 12 | MIC | I | Mic 1'st AMP Input |
| 13 | MSPH | I/O | Manual Selection S/W for PHONO function |
| 14 | MSTU | I/O | Manual Selection S/W for Tuner function |
| 15 | MSCD | I/O | Manual Selection S/W for Compact Disc |
| 16 | MSTA | I/O | Manual Selection S/W for Tape |
| 17 | MSAU | I/O | Manual Selection S/W for Aux |
| 18 | MSVT | I/O | Manual Selection S/W for VTR |
| 19 | D-GND | - | Digital GND |
| 20 | RESET | - | RESET |
| 21 | MUTIN | I | Not use |
| 22 | CEIN | I | Enable Input from u-com |
| 23 | CLIN | I | Clock Input from u-com |

PIN DESCRIPTION (Continued)

| Pin No | Symbol | I/O | Description |
|--------|-------------------|-----|--|
| 24 | DAIN | I | DATA Input from u-com |
| 25 | u/M SEL | - | u-com/Manual Selection |
| 26 | MUTIM | - | Muting time decision during Manual Control |
| 27 | V _{CC} | - | V _{CC} (Digital) |
| 28 | V _{CC} | - | V _{CC} (Analog) |
| 29 | BFL2 OUT | O | Left Channel 2'nd Buffer Output pin |
| 30 | BFL2 NF | I | Left Channel 2'nd Buffer Negative feedback |
| 31 | BFL2 INT | I | Left Channel 2'nd Buffer Input |
| 32 | MFL1 OUT | O | Left Channel 1'st Buffer Output |
| 33 | RRF/L | - | Ripple Rejection filter |
| 34 | LHV _{CC} | - | Left Channel 1/2 V _{CC} |
| 35 | PHLOUT | O | Left Channel PHONO Output |
| 36 | PHLNF | I | Left Channel PHONO AMP Negative feedback |
| 37 | PHLIN | I | Left Channel PHONO AMP Input |
| 38 | TULIN | I | Left Channel Tuner Input |
| 39 | CDLIN | I | Left Channel Compact Disc Input |
| 40 | TALIN | I | Left Channel TAPE Input |
| 41 | AULIN | I | Left Channel Aux Input |
| 42 | VTLIN | I | Left Channel VTR Input |
| 43 | A-GND | - | Analog GND |
| 44 | VTR IN | I | Right Channel VTR Input |
| 45 | AUR IN | I | Right Channel Aux Input |
| 46 | TAR IN | - | Right Channel TAPE Input |
| 47 | CDRIN | I | Right Channel Compact Disc Input |
| 48 | TURIN | I | Right Channel Tuner Input |

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

| Characteristic | Symbol | Value | Unit |
|-----------------------|------------------|-----------|------|
| Supply Voltage | V _{CC} | 12 | V |
| Power Dissipation | P _D | 400 | mW |
| Operating Temperature | T _{OPR} | -20 ~ 75 | °C |
| Storage Temperature | T _{STG} | -55 ~ 125 | °C |

ELECTRICAL CHARACTERISTICS

 V_{CC} = 12V, f = 1KHz Unless otherwise specified.

| Characteristic | | Symbol | Test Condition | SPEC | | | UNIT |
|--------------------------------|-----------------|----------------------|--|------|------|------|------------------|
| | | | | MIN | TYP | MAX | |
| Quiescent Circuit Current | Manual | I _{CCQ1} | LED Current | 20 | 40 | 55 | mA |
| | u-Com | I _{CCQ2} | Exception | 20 | 35 | 50 | |
| Function Beginning Selection | | V _{f0} | Manual Mode | | 0.2 | 0.5 | V |
| Function Indication Selection | | V _{f1} | Manual / u-Com | | 0.2 | 0.5 | V |
| Phono Amp Close Loop Gain | | G _{VP} | f = 1KHz | 34 | 35 | 36 | dB |
| 1'st Amp Close Loop Gain | | G _{VB1} | f = 1KHz | 5 | 6 | 7 | dB |
| 2'nd Amp Close Loop Gain | | G _{VB2} | f = 1KHz | 5 | 6 | 7 | dB |
| 1'st Mic Amp Gain | | G _{VM1} | f = 1KHz | 33 | 34 | 35 | dB |
| 2'st Mic Amp Gain | | G _{VM2} | f = 1KHz | 5 | 6 | 7 | dB |
| Analog S/W Max Input Voltage | | V _{in amx} | f = 1KHz, THD = 1% | 1.2 | 1.5 | | V _{rms} |
| 1'st Buffer Max Output Voltage | | V _{ob 1max} | f = 1KHz, THD = 1% | 2.5 | 3.0 | | V _{rms} |
| 2'st Buffer Max Output Voltage | | V _{obmax} | f = 1KHz, THD = 1% | 2.5 | 3.0 | | V _{rms} |
| 1'st Mic Max Output Voltage | | V _{om1max} | f = 1KHz, THD = 1% | 1.2 | 1.5 | | V _{rms} |
| Function Cross Talk | | CT1 | f = 1KHz R _G = 4.7K V _{OB2} = 1V _{RMS} | 75 | 85 | | dB |
| Channel Cross Talk | Phono | CT2 | f = 1KHz R _G = 0 V _{OB2} = 1V _{RMS} | 55 | 65 | | dB |
| | Phono exception | CT3 | | 65 | 75 | | |
| S/N ratio | Phono | S/N 1 | f = 1KHz R _G = 0 V _{OB2} = 200mV _{RMS} | 55 | 65 | | dB |
| | Phono exception | S/N 2 | | 75 | 85 | | |
| THD | Phono | THD1 | f = 1KHz R _G = 0 V _{OB2} = 1V _{RMS} | | 0.05 | 0.1 | % |
| | Phono exception | THD2 | | | 0.03 | 0.05 | |

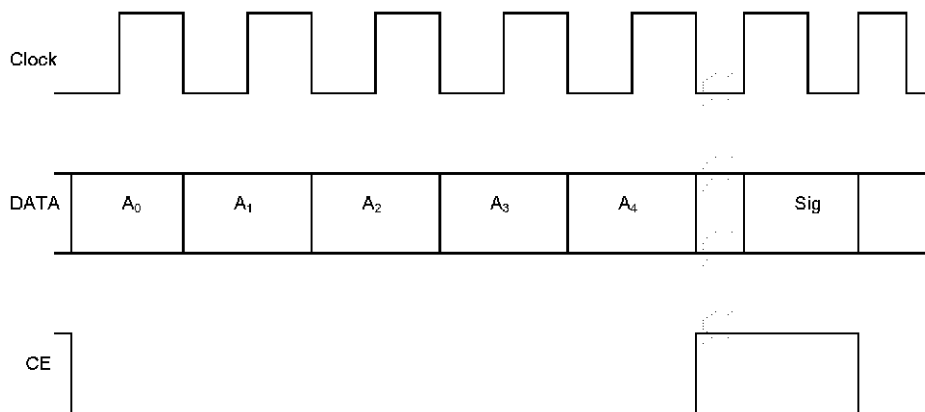
APPLICATION INFORMATION

Logic Part.

First of all, if you let the μ -com operate, the pin25 has to connect to the GND.

The KA22293 obtains the μ -com data such as following Timing diagram, and then, converts the data from the serial to the parallel type by the use of the internal Analog switches.

The signal inputed from the μ -com, consis of the 12 Bit serial data, and the data consists of the 4Bit address and the 8 Bit data for the selection of the switch input.



DATA INPUT Mechod.

| | ADDRESS | DATA |
|-------|---------|----------|
| PHONO | 0101 | 10000000 |
| TUNER | 0101 | 01000000 |
| CD | 0101 | 00100000 |
| TAPE | 0101 | 00010000 |
| AUX | 0101 | 00001000 |
| VTR | 0101 | 00000100 |

Dimensions in Millimeters

