

To all our customers

Regarding the change of names mentioned in the document, such as Mitsubishi Electric and Mitsubishi XX, to Renesas Technology Corp.

The semiconductor operations of Hitachi and Mitsubishi Electric were transferred to Renesas Technology Corporation on April 1st 2003. These operations include microcomputer, logic, analog and discrete devices, and memory chips other than DRAMs (flash memory, SRAMs etc.) Accordingly, although Mitsubishi Electric, Mitsubishi Electric Corporation, Mitsubishi Semiconductors, and other Mitsubishi brand names are mentioned in the document, these names have in fact all been changed to Renesas Technology Corp. Thank you for your understanding. Except for our corporate trademark, logo and corporate statement, no changes whatsoever have been made to the contents of the document, and these changes do not constitute any alteration to the contents of the document itself.

Note : Mitsubishi Electric will continue the business operations of high frequency & optical devices and power devices.

Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

PRELIMINARY
 Notice ; This is not a final specification.
 some parametric limits are subject to change.



MITSUBISHI SOUND PROCESSOR

M62494SP/FP

SOUND CONTROLLER FOR TV

SRS 3D Stereo + SRS 3D Mono 1Chip

OUTLINE

M62494 has SRS 3D STEREO and SRS 3D MONO.
 There are three modes, those are SRS 3D stereo
 SRS 3D mono and bypass.
 Each mode can be set by terminals.

FEATURE

- Each mode can be set by terminals.
- Mute Function

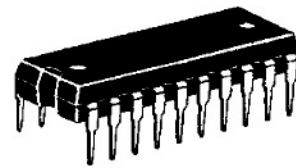
APPLICATION

- TV , Mini-Stereo , etc

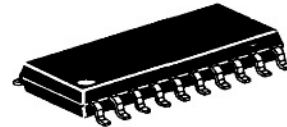
RECOMMENDED OPERATING CONDITION

- Supply voltage range 6 ~ 9.5V
- Rated supply voltage 9V

PACKAGE OUTLINE

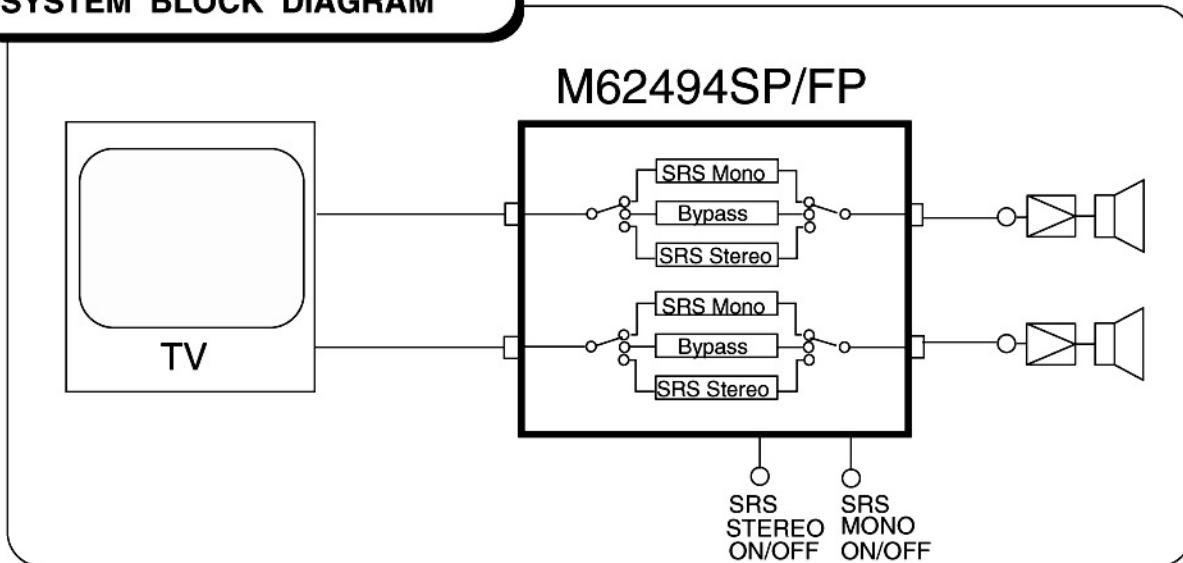


20P4B(SP)



20P2N(FP)

SYSTEM BLOCK DIAGRAM



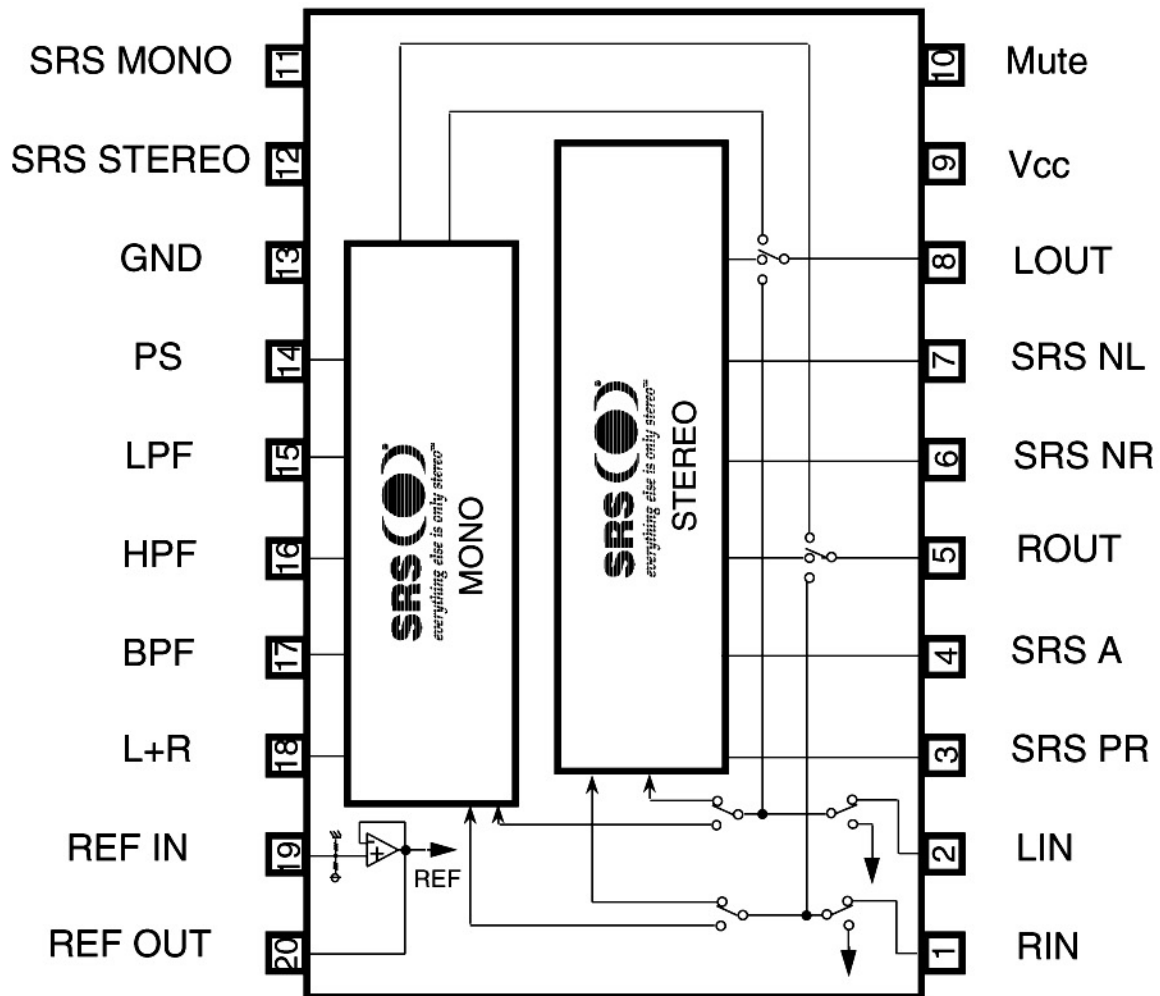
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M62494SP/FP

SOUND CONTROLLER FOR TV

Block Diagram



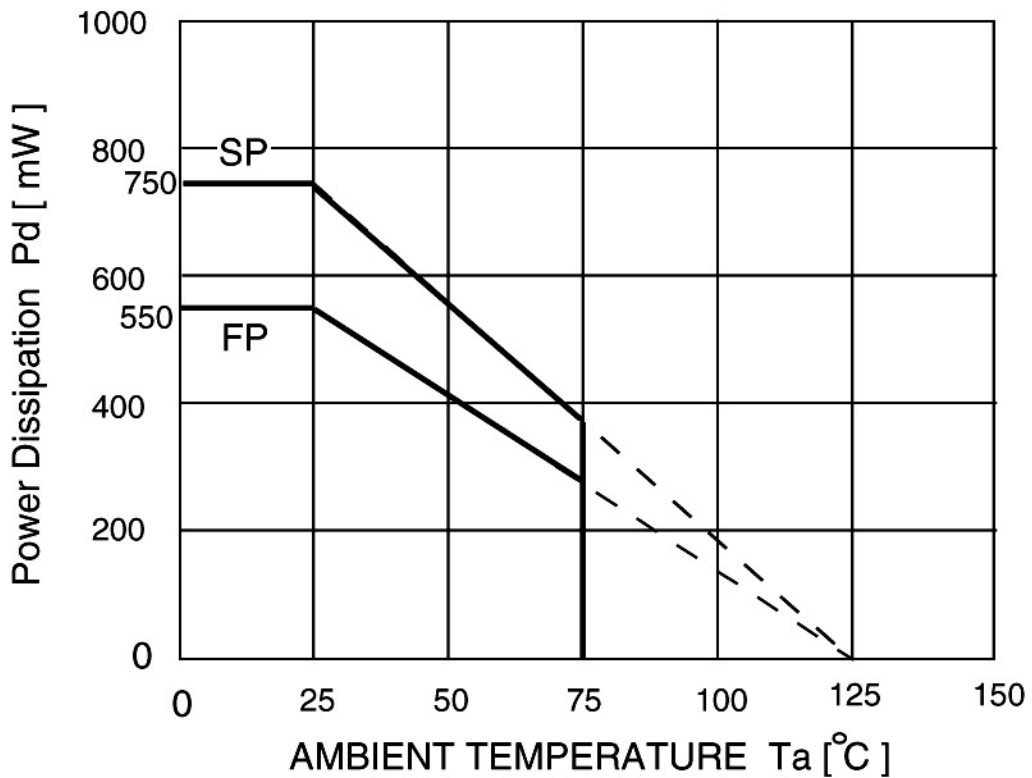
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M62494SP/FP

ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Conditions | Ratings | Unit |
|--------|-----------------------|------------|-----------------|-------|
| Vcc | Supply Voltage | | 13.0 | V |
| Pd | Power Dissipation | Ta≤25 | 750(SP)/550(FP) | mW |
| Kθ | Thermal Derating | Ta>25 | 7.5(SP)/5.5(FP) | mW/°C |
| Topr | Operating Temperature | | -20 ~ 75 | °C |
| Tstg | Storage Temperature | | -40 ~ 125 | °C |

Thermal Derating



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MITSUBISHI SOUND PROCESSOR

M62494SP/FP

SOUND CONTROLLER FOR TV

RECOMMENDED OPERATING CONDITION

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-----------------|--------------------------|--------------|------|------|------|------|
| Vcc | Supply Voltage | | 4.5 | 9.0 | 12.0 | V |
| V _{IH} | High Level Input Voltage | Pin-10,11,12 | 2.1 | — | Vcc | V |
| V _{IL} | Low Level Input Voltage | Pin-10,11,12 | 0 | — | 0.8 | V |

ELECTRICAL CHARACTERISTICS

(1) Power Supply Characteristics

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-----------------|-----------------|------------|------|------|------|------|
| I _{cc} | Circuit Current | | — | 16 | 35 | mA |

(2) -1 Input / Output Characteristics (V_{cc}=9V, T_a=25°C, V_i=500mV_{rms}, pin 10=0V)

| Symbol | Parameter | Conditions | | Conditions | Limit | | | Unit |
|-----------------|------------------------------|--|---|-----------------------------------|-------|------|-------|------------------|
| | | Input | Output | | Min. | Typ. | Max. | |
| G _{v1} | Input - Output Voltage Gain1 | pin1,2 f=1kHz | pin5,8 RL=10KΩ | Bypass (pin11,12=0V) | -3 | 0 | +3 | dB |
| G _{v2} | Input - Output Voltage Gain2 | pin1,2 f=1kHz | pin5,8 RL=10KΩ | SRS Stereo (pin12=5V/pin11=0V) | -0.5 | +2.5 | +5.5 | dB |
| G _{v3} | Input - Output Voltage Gain3 | pin1,2 f=100Hz | pin5,8 RL=10KΩ | SRS Stereo (pin12=5V/pin11=0V) | +7 | +10 | +13 | dB |
| G _{v4} | Input - Output Voltage Gain4 | pin1,2 f=100Hz | pin 8 RL=10KΩ | SRS Mono (pin12=0V/pin11=5V) | +4.5 | +7.5 | +10.5 | dB |
| G _{v5} | Input - Output Voltage Gain5 | pin1,2 f=10KHz | pin 8 RL=10KΩ | SRS Mono (pin12=0V/pin11=5V) | +2.5 | +6 | +9.5 | dB |
| V _{OM} | Maximum Output Voltage | pin1,2 f=1kHz | pin5,8 THD=1% IHF-A filter RL=10KΩ | Bypass (pin11,12=0V) | 1.8 | 2.2 | — | V _{rms} |
| THD | Total Harmonic Distortion | pin1,2 f=1kHz V _i =0dBm | pin5,8 DIN-A filter RL=10KΩ | Bypass (pin11,12=0V) | — | 0.01 | 0.05 | % |
| MUTE | MUTE | pin1,2 f=1kHz V _i =0dBm | pin5,8 IHF-A filter RL=10KΩ | Mute (pin10=5V/pin11,12=0V) | — | 55 | 45 | dB |

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M62494SP/FP

(Vcc=9V, Ta=25°C, pin 10=0V)

| Symbol | Parameter | Conditions | | Conditions | Limit | | | Unit |
|--------|-----------------------|------------|--------------|-----------------------------------|-------|------|------|-------|
| | | Input | Output | | Min. | Typ. | Max. | |
| VNO1 | Output Noise Voltage1 | | IHF-A filter | Bypass (pin11,12=0V) | — | 3 | 10 | μVrms |
| VNO2 | Output Noise Voltage2 | | IHF-A filter | SRS Stereo (pin12=5V/pin11=0V) | — | 30 | 100 | μVrms |
| VNO3 | Output Noise Voltage2 | | IHF-A filter | SRS Mono (pin12=0V/pin11=5V) | — | 30 | 100 | μVrms |

Switch Condition and the Mode

| | |
|--------|-------------|
| ⑩ Mute | Mute Switch |
| ON | H |
| OFF | L |

| | |
|------------|-----------------|
| ⑪ SRS MONO | SRS MONO Switch |
| ON | H |
| OFF | L |

| | |
|--------------|-------------------|
| ⑫ SRS STEREO | SRS ON/OFF Switch |
| ON | H |
| OFF | L |

* Bypass mode can be set by both SRS STEREO switch and SRS MONO switch are set to "L".

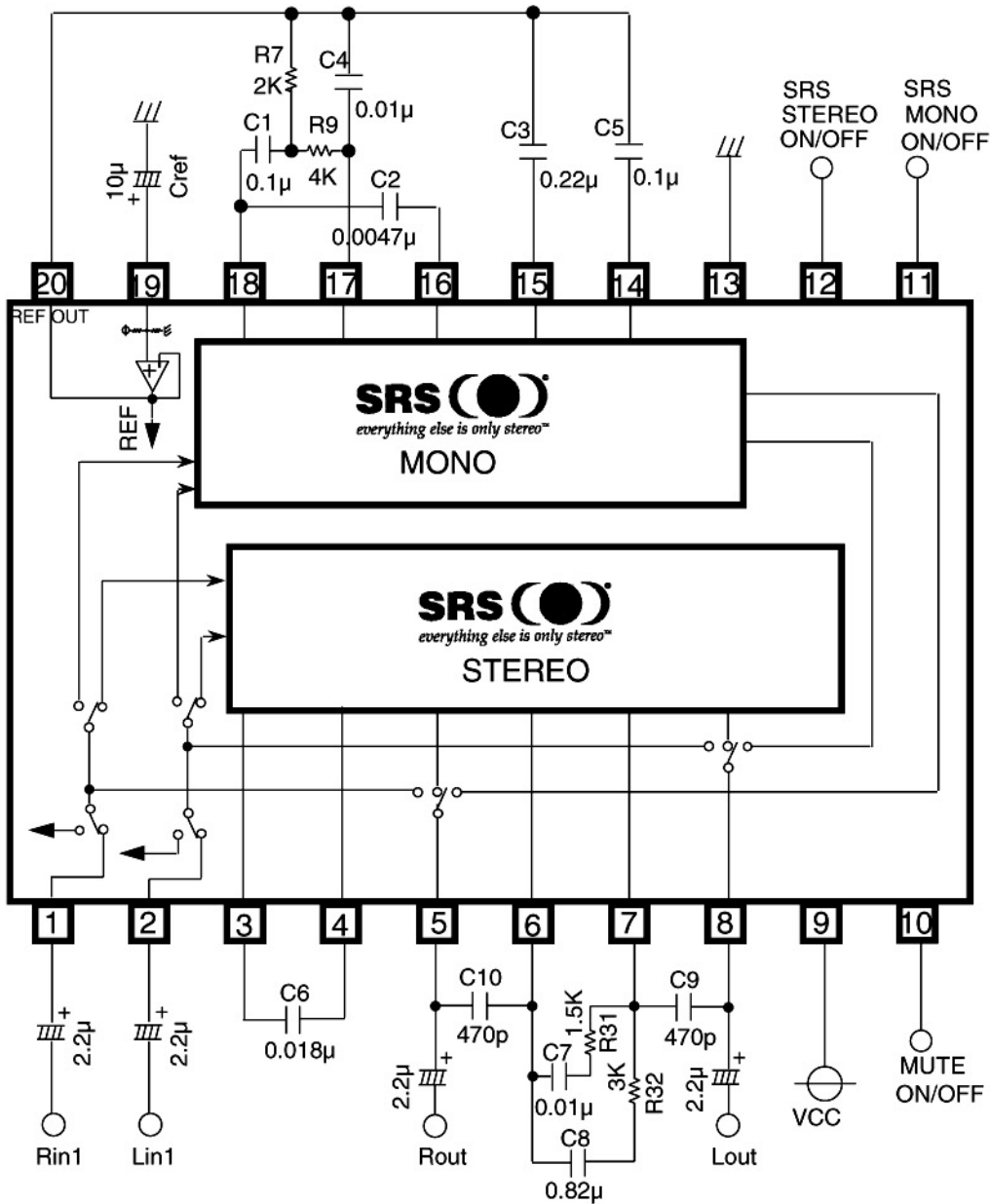
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M62494SP/FP

SOUND CONTROLLER FOR TV

● SRS Stereo/Mono/Bypass Version



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SOUND CONTROLLER FOR TV

NOTE

Each switches (SRS ON/OFF, SRS MONO ON/OFF Switches) does not have the countermeasure for click noise, so that we recommend outside mute circuit.

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