

M62438FP

Simplified SRS 3D Sound Processor

REJ03F0217-0201

Rev.2.01

Mar 31, 2008

Description

M62438FP is an SRS 3D sound processor for PC, TV and audio equipment.

This IC has only simplified SRS circuit and packed in a small 10-pin SOP.

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Features

- SRS 3D sound circuit
- SRS on/off function switch included

Application

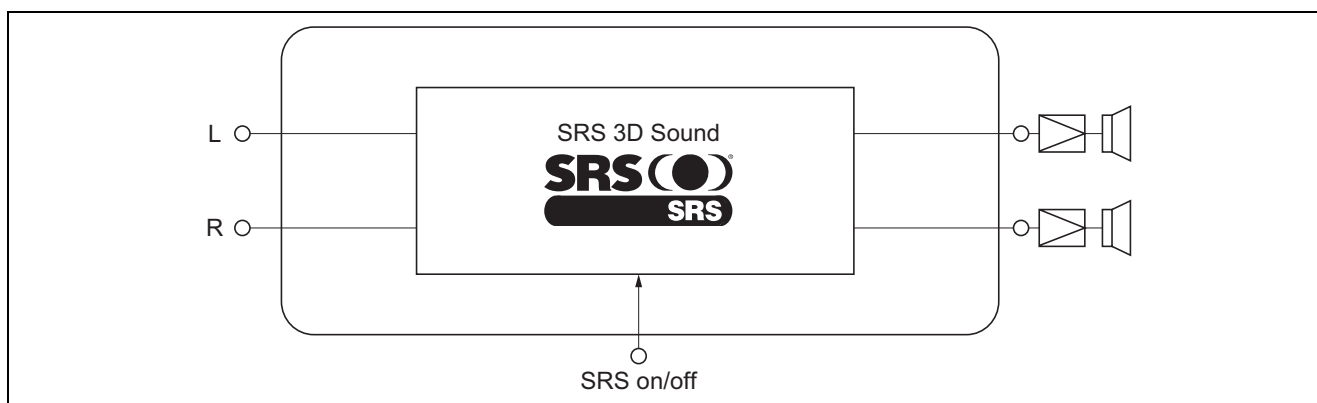
PC, TV, Mini Stereo, etc

Recommended Operating Condition

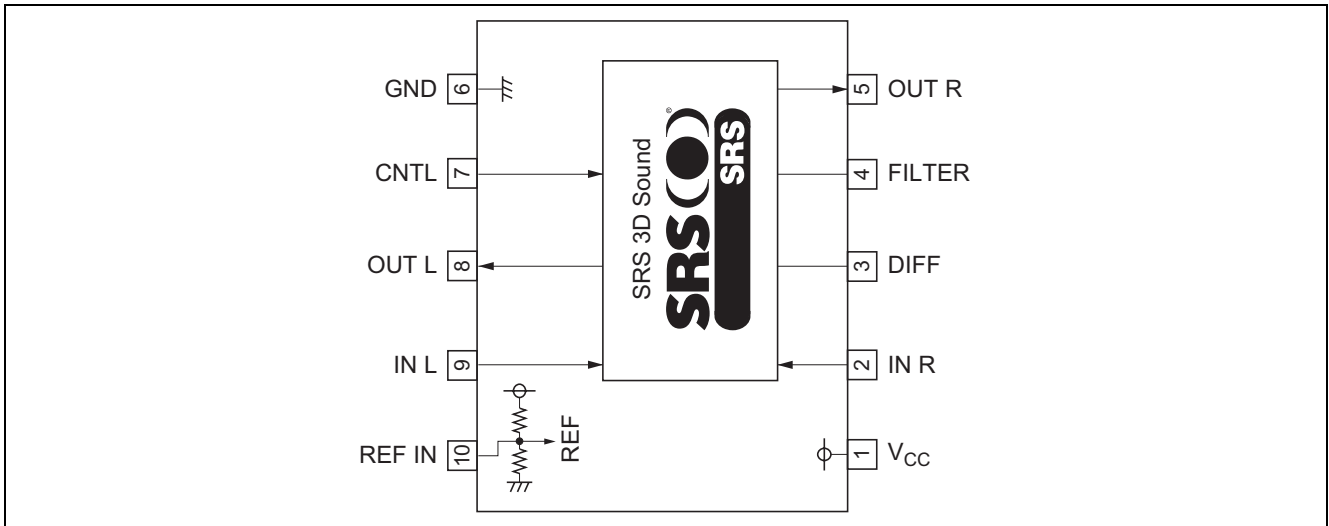
Supply voltage range: 4.5 to 12.0 V

Rated supply voltage: 9 V

System Block Diagram



Block Diagram



Absolute Maximum Ratings

Item	Symbol	Ratings	Unit	Condition
Supply voltage	V_{CC}	13.0	V	
Power dissipation	P_d	400	mW	$T_a < 25^\circ\text{C}$
Thermal derating	$K\theta$	4	mW/ $^\circ\text{C}$	$T_a > 25^\circ\text{C}$
Operating temperature	T_{opr}	-20 to 75	$^\circ\text{C}$	
Storage temperature	T_{stg}	-40 to 125	$^\circ\text{C}$	

Recommended Operating Condition

Item	Symbol	Min	Typ	Max	Unit	Condition
Supply voltage	V_{CC}	4.5	9.0	12.0	V	
High level input voltage	V_{IH}	2.1	—	V_{DD}	V	Pin-7 (SRS on)
Low level input voltage	V_{IL}	0	—	0.8	V	Pin-7 (SRS off)

Electrical Characteristics

(1) Power Supply Characteristics

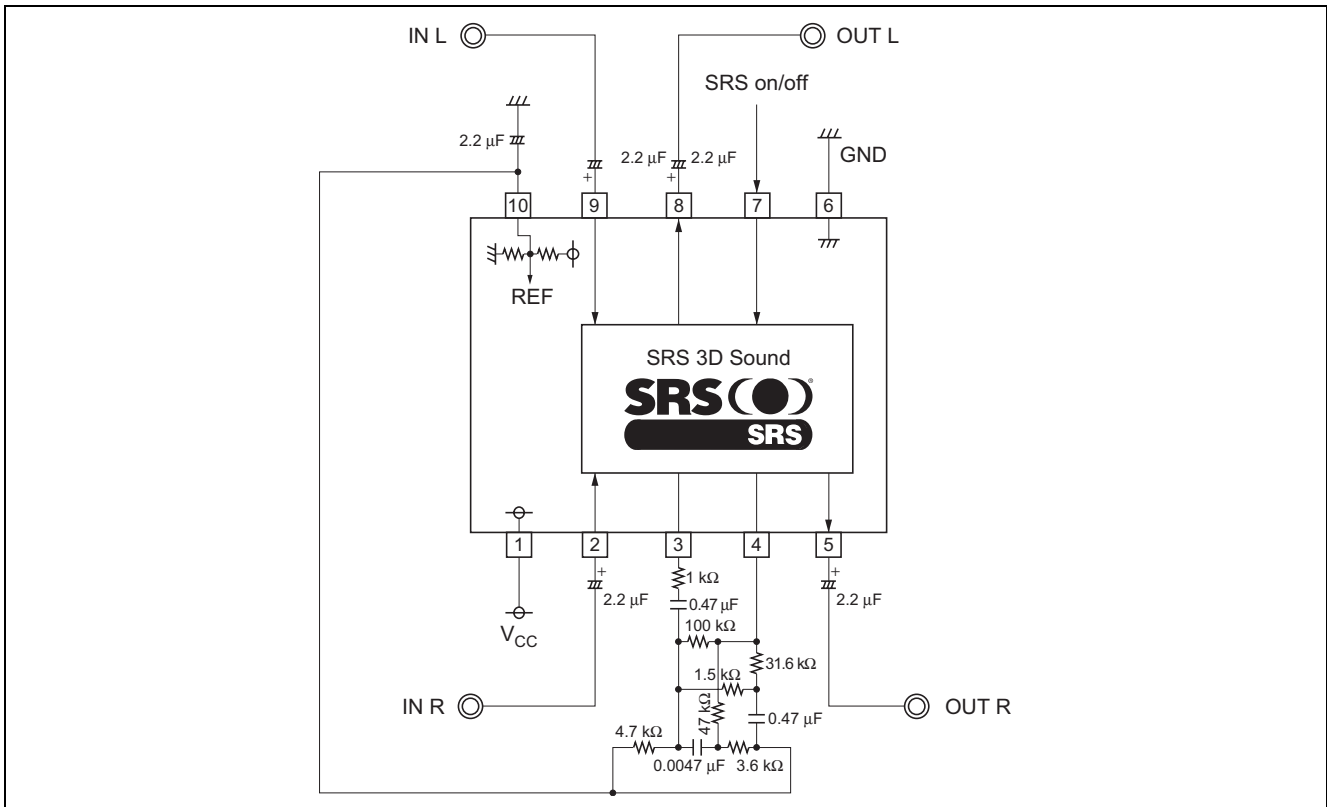
Item	Symbol	Min	Typ	Max	Unit	Conditions
Circuit current	I_{CC}	—	15	30	mA	

(2) -1 Input/Output Characteristics

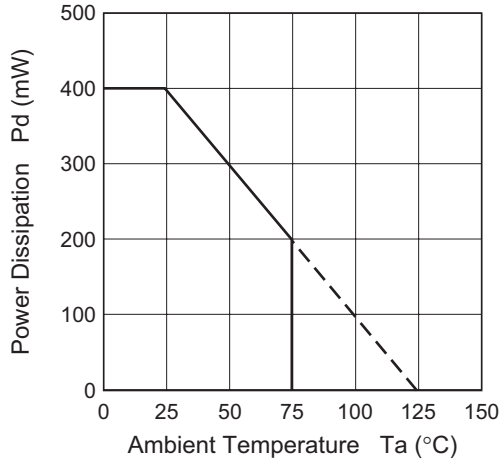
($V_{CC} = 9\text{ V}$, $T_a = 25^\circ\text{C}$, $V_i = 500\text{ mVrms}$)

Item	Symbol	Limits			Unit	Conditions		Conditions
		Min	Typ	Max		Input	Output	
Input-output voltage gain1	Gv1	-3	0	+3	dB	$f = 1\text{ kHz}$	$R_L = 10\text{ k}\Omega$	SRS off
Input-output voltage gain2	Gv2	+3.5	+6.5	+9.5	dB	$f = 1\text{ kHz}$	$R_L = 10\text{ k}\Omega$	SRS on
Input-output voltage gain3	Gv3	+9.5	+12.5	+15.5	dB	$f = 100\text{ Hz}$	$R_L = 10\text{ k}\Omega$	SRS on
Input-output voltage gain4	Gv4	+7	+10	+13	dB	$f = 10\text{ kHz}$	$R_L = 10\text{ k}\Omega$	SRS on
Maximum output voltage	V_{OM}	1.8	2.2	—	Vrms	$f = 1\text{ kHz}$	THD = 1% IHF-A filter $R_L = 10\text{ k}\Omega$	SRS on/off
Total harmonic distortion	THD	—	0.01	0.05	%	$f = 1\text{ kHz}$ $V_i = -10\text{ dBV}$	DIN-A filter $R_L = 10\text{ k}\Omega$	SRS off
Output noise voltage1	V_{NO1}	—	5	10	μVrms	—	IHF-A filter	SRS off
Output noise voltage2	V_{NO2}	—	50	100	μVrms	—	IHF-A filter	SRS on

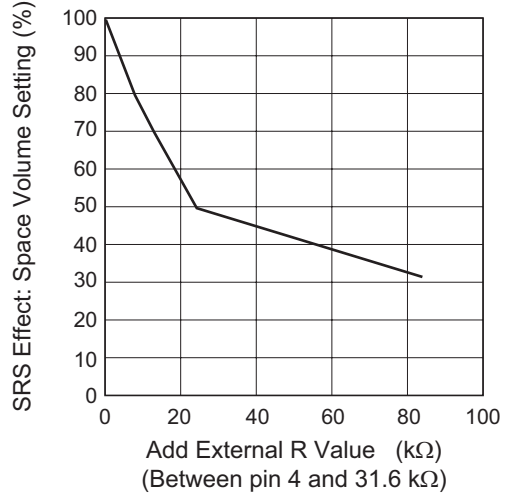
Application Example



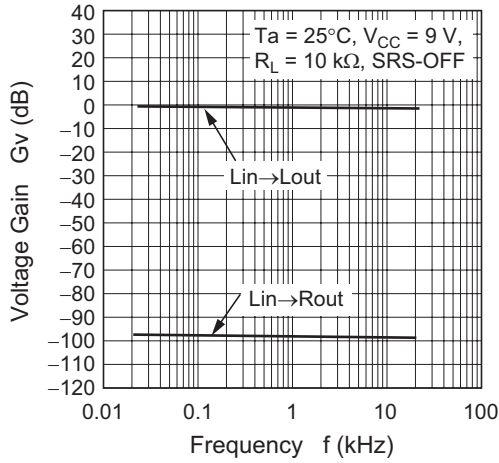
Thermal Derating



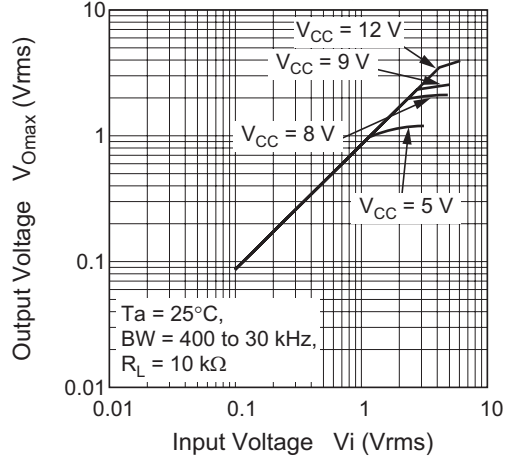
Space Volume as a Function of Add External R



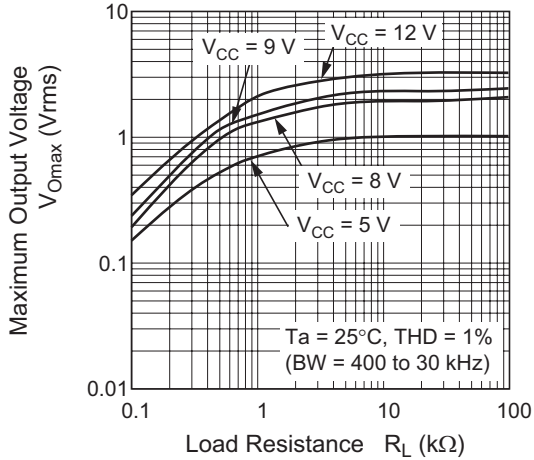
Voltage Gain vs. Frequency



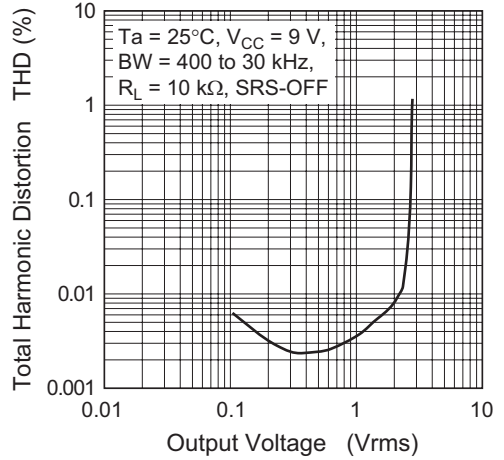
Output Voltage vs. Input Voltage

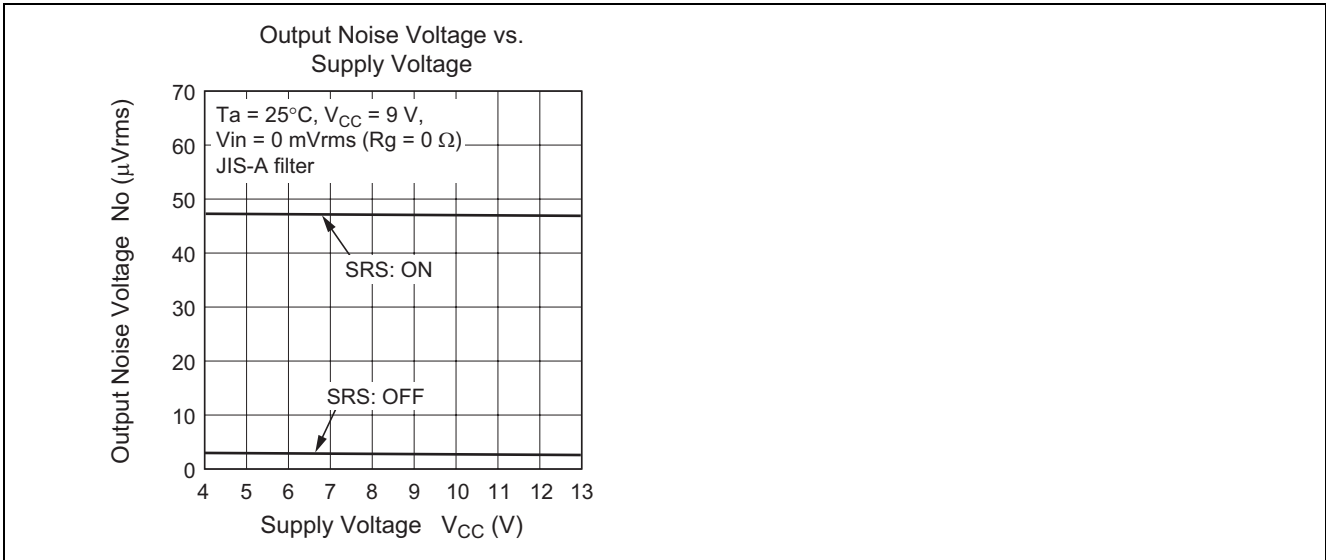


Maximum Output Voltage vs. Load Resistance



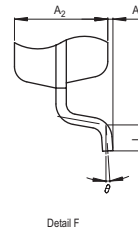
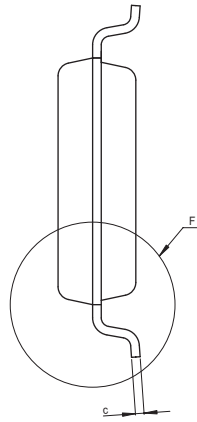
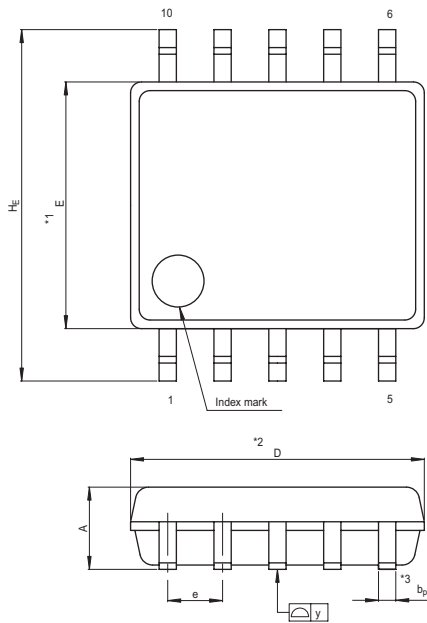
Output Voltage vs. Total Harmonic Distortion





Package Dimensions

JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
P-SOP10-5.7x6.8-1.27	PRSP0010DB-A	10P2N-A	0.2g



NOTE)
 1. DIMENSIONS **1" AND **2"
 DO NOT INCLUDE MOLD FLASH.
 2. DIMENSION **3" DOES NOT
 INCLUDE TRIM OFFSET.

Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	6.7	6.8	6.9
E	5.6	5.7	5.8
A ₂	—	1.8	—
A ₁	0	0.1	0.2
A	—	—	2.1
b _p	0.35	0.4	0.5
c	0.18	0.2	0.25
θ	0°	—	8°
H _E	7.82	8.12	8.42
e	1.12	1.27	1.42
y	—	—	0.1
L	0.3	0.5	0.7

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