

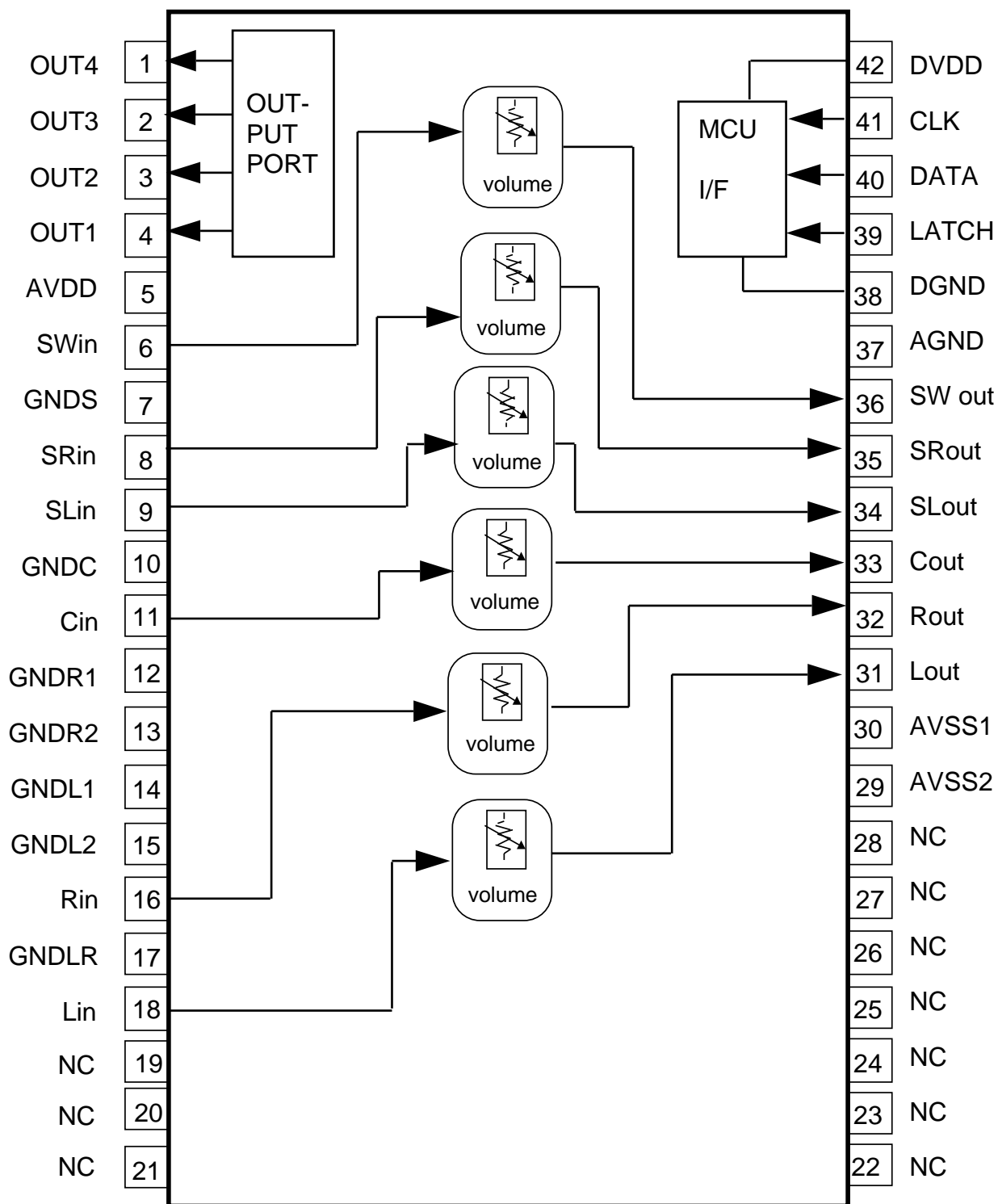
PRELIMINARY
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 some parametric limits are subject to change.

MITSUBISHI SOUND PROCESSORS

M62447SP

6CH ELECTRIC VOLUME

PIN CONFIGURATION AND IC INTERNAL BLOCK DIAGRAM



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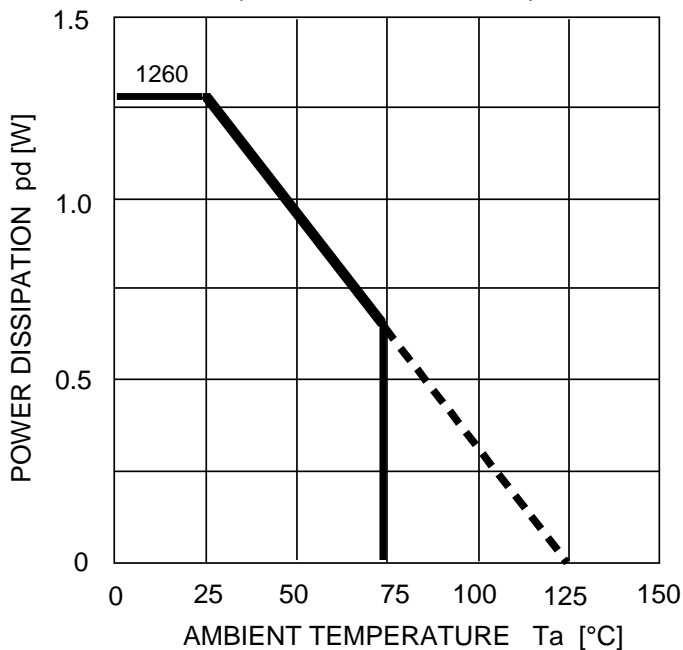
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6CH ELECTRIC VOLUME

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Conditions	Ratings	Unit
Vsupply	Supply Voltage	AVDD-AVSS	15.0	V
Pd	Power dissipation	Ta 25°C	1260	mW
K θ	Thermal derating	Ta>25°C, *standard board	12.6	mW/°C
Topr	Operating temperature		-20 ~ +75	°C
Tstg	Storage temperature		-40 ~ +125	°C

THERMAL DERATING
(MAXIMUM RATING)



*Standard board

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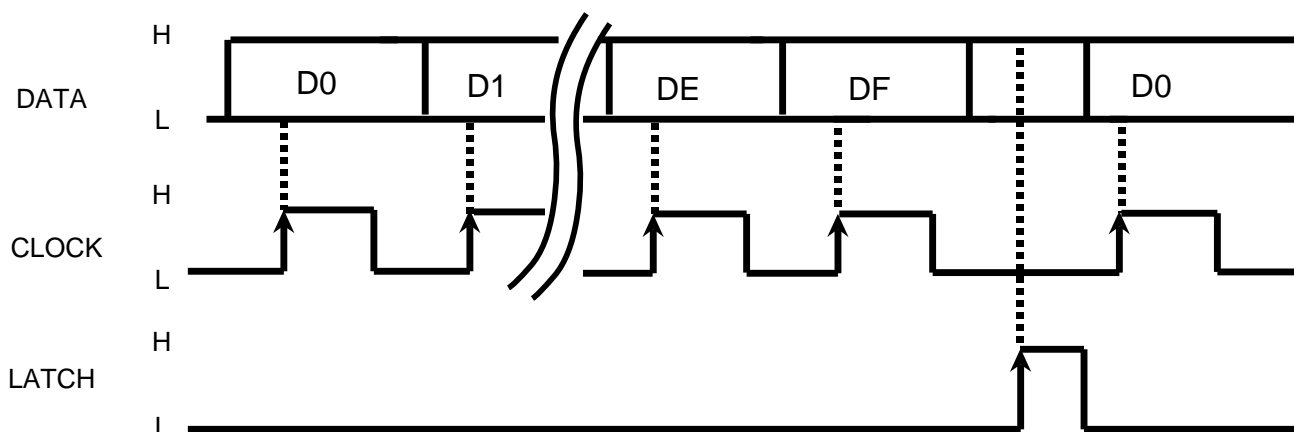
6CH ELECTRIC VOLUME

RECOMMENDED OPERATING CONDITION

Parameter	Symbol	Condition	MIN	TYP	MAX	Unit
Analog positive Supply Voltage	AVDD		4.5	7.0	7.3	V
Analog negative Supply Voltage	AVSS		-7.3	-7.0	-4.5	V
Digital Supply Voltage	DVDD		4.5	5.0	5.5	V
High-level Input Voltage	VIH		DVDD/2+1	—	DVDD	V
Low-level Input Voltage	VIL		DGND	—	DVDD/2-1	V

(note)AVSS DGND<DVDD AVDD

DATA TIMING (Recommended conditions)



note : CLOCK and LATCH function at raising edges of pulse .

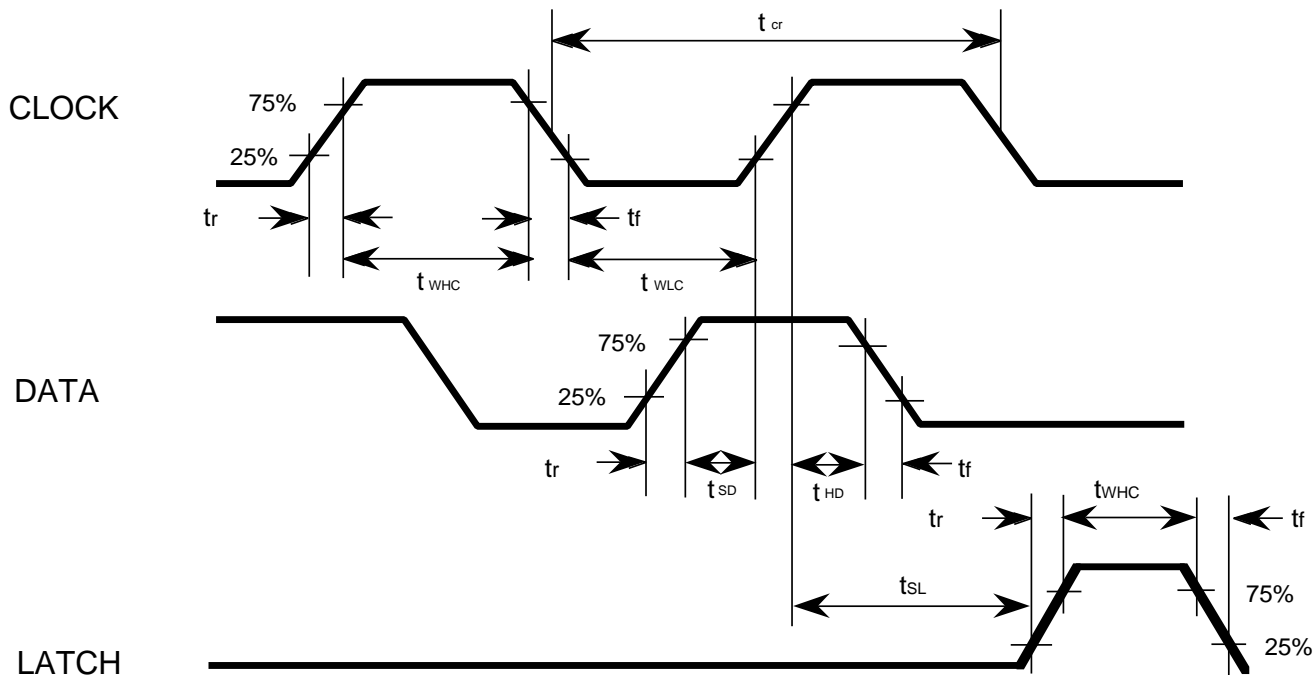
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6CH ELECTRIC VOLUME

CLOCK, DATA, LATCH TIMING



DIGITAL BLOCK TIMING REGULATION

Symbol	Parameter	Limits			Unit
		Min	typ	Max	
t_{cr}	CLOCK cycle time	8	-	-	μsec
t_{WHC}	CLOCK pulse width ("H" level)	3.2	-	-	
t_{WLC}	CLOCK pulse width ("L" level)	3.2	-	-	
t_r	CLOCK, DATA, LATCH rise time	-	-	0.8	
t_f	CLOCK, DATA, LATCH fall time	-	-	0.8	
t_{SD}	DATA setup time	1.6	-	-	
t_{HD}	DATA hold time	1.6	-	-	
t_{SL}	LATCH setup time	2	-	-	
t_{WHL}	LATCH pulse width	3.2	-	-	

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6CH ELECTRIC VOLUME

DIGITAL CONTROL SPECIFICATION

Fore kinds of input format options are available by changing slot settings of DE and DF.
 (When the IC is powered up , the internal settings are not fixed.)

(1)

DO1	D11	D21	D31	D41	D51	D61	D71	D81	D91	DA1	DB1	DC1	DD1	DE	DF
				1	2	3	4								
0	0	0	0	OUTPUT PORT n 1: High 0: Low				0	0	0	0	0	1	0	0

(2)

DO2	D12	D22	D32	D42	D52	D62	D72	D82	D92	DA2	DB2	DC2	DD2	DE	DF
VOLUME Lch							VOLUME Rch							0	1

(3)

DO3	D13	D23	D33	D43	D53	D63	D73	D83	D93	DA3	DB3	DC3	DD3	DE	DF
VOLUME Cch							VOLUME SWch							1	0

(4)

DO4	D14	D24	D34	D44	D54	D64	D74	D84	D94	DA4	DB4	DC4	DD4	DE	DF
VOLUME SLch							VOLUME SRch							1	1

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6CH ELECTRIC VOLUME

SETTING CODE

Note : Do not input other data than the above.

(1) Port output

		D41	D51	D61	D71
PORT1	0	L	-	-	-
	1	H			
PORT2	0	-	L	-	-
	1		H		
PORT3	0	-	-	L	-
	1			H	
PORT4	0	-	-	-	L
	1				H

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6CH ELECTRIC VOLUME

(2) VOLUME (0 ~ -39dB)

Note : Do not input other data than the above.

A T T	VOLUME	D0X	D1X	D2X	D3X	D4X	D5X	D6X
		D7X	D8X	D9X	DAX	DBX	DCX	DDX
- 0	dB	0	0	0	0	0	0	0
- 1	dB	0	0	0	0	0	0	1
- 2	dB	0	0	0	0	0	1	0
- 3	dB	0	0	0	0	0	1	1
- 4	dB	0	0	0	0	1	0	0
- 5	dB	0	0	0	0	1	0	1
- 6	dB	0	0	0	0	1	1	0
- 7	dB	0	0	0	0	1	1	1
- 8	dB	0	0	0	1	0	0	0
- 9	dB	0	0	0	1	0	0	1
- 10	dB	0	0	0	1	0	1	0
- 11	dB	0	0	0	1	0	1	1
- 12	dB	0	0	0	1	1	0	0
- 13	dB	0	0	0	1	1	0	1
- 14	dB	0	0	0	1	1	1	0
- 15	dB	0	0	0	1	1	1	1
- 16	dB	0	0	1	0	0	0	0
- 17	dB	0	0	1	0	0	0	1
- 18	dB	0	0	1	0	0	1	0
- 19	dB	0	0	1	0	0	1	1
- 20	dB	0	0	1	0	1	0	0
- 21	dB	0	0	1	0	1	0	1
- 22	dB	0	0	1	0	1	1	0
- 23	dB	0	0	1	0	1	1	1
- 24	dB	0	0	1	1	0	0	0
- 25	dB	0	0	1	1	0	0	1
- 26	dB	0	0	1	1	0	1	0
- 27	dB	0	0	1	1	0	1	1
- 28	dB	0	0	1	1	1	0	0
- 29	dB	0	0	1	1	1	0	1
- 30	dB	0	0	1	1	1	1	0
- 31	dB	0	0	1	1	1	1	1
- 32	dB	0	1	0	0	0	0	0
- 33	dB	0	1	0	0	0	0	1
- 34	dB	0	1	0	0	0	1	0
- 35	dB	0	1	0	0	0	1	1
- 36	dB	0	1	0	0	1	0	0
- 37	dB	0	1	0	0	1	0	1
- 38	dB	0	1	0	0	1	1	0
- 39	dB	0	1	0	0	1	1	1

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MITSUBISHI SOUND PROCESSORS

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6CH ELECTRIC VOLUME

VOLUME (-40 ~ - dB)

Note : Do not input other data than the above.

A T T	VOLUME	D0X	D1X	D2X	D3X	D4X	D5X	D6X
		D7X	D8X	D9X	DAX	DBX	DCX	DDX
- 40	dB	0	1	0	1	0	0	0
- 41	dB	0	1	0	1	0	0	1
- 42	dB	0	1	0	1	0	1	0
- 43	dB	0	1	0	1	0	1	1
- 44	dB	0	1	0	1	1	0	0
- 45	dB	0	1	0	1	1	0	1
- 46	dB	0	1	0	1	1	1	0
- 47	dB	0	1	0	1	1	1	1
- 48	dB	0	1	1	0	0	0	0
- 49	dB	0	1	1	0	0	0	1
- 50	dB	0	1	1	0	0	1	0
- 51	dB	0	1	1	0	0	1	1
- 52	dB	0	1	1	0	1	0	0
- 53	dB	0	1	1	0	1	0	1
- 54	dB	0	1	1	0	1	1	0
- 55	dB	0	1	1	0	1	1	1
- 56	dB	0	1	1	1	0	0	0
- 57	dB	0	1	1	1	0	0	1
- 58	dB	0	1	1	1	0	1	0
- 59	dB	0	1	1	1	0	1	1
- 60	dB	0	1	1	1	1	0	0
- 61	dB	0	1	1	1	1	0	1
- 62	dB	0	1	1	1	1	1	0
- 63	dB	0	1	1	1	1	1	1
- 64	dB	1	0	0	0	0	0	0
- 65	dB	1	0	0	0	0	0	1
- 66	dB	1	0	0	0	0	1	0
- 67	dB	1	0	0	0	0	1	1
- 68	dB	1	0	0	0	1	0	0
- 69	dB	1	0	0	0	1	0	1
- 70	dB	1	0	0	0	1	1	0
- 71	dB	1	0	0	0	1	1	1
- 72	dB	1	0	0	1	0	0	0
- 73	dB	1	0	0	1	0	0	1
- 74	dB	1	0	0	1	0	1	0
- 75	dB	1	0	0	1	0	1	1
- 76	dB	1	0	0	1	1	0	0
- 77	dB	1	0	0	1	1	0	1
- 78	dB	1	0	0	1	1	1	0
- 79	dB	1	0	0	1	1	1	1
-	dB	1	0	1	0	0	0	0

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 6CH ELECTRIC VOLUME

ELECTRICAL CHARACTERISTICS

(Ta=25°C, AVDD=7.0V, AVSS=-7.0V, DVDD=5.0V, f=1kHz, unless otherwise noted.)

TONE CONTROL, VOLUME are set to 0dB)

(1) Power supply characteristics

Parameter	Symbol	Test condition	Limits			Unit
			Min	typ	Max	
Analog positive circuit current	AIdd	Current at pin 5 No signal	—	25	35	mA
Analog negative circuit current	AISS	Current at pin 29 ~ 30 No signal	—	25	35	mA
Digital circuit current	DIdd	Current at pin 42 No signal	—	0.5	2.0	mA

(2) Input / Output characteristics

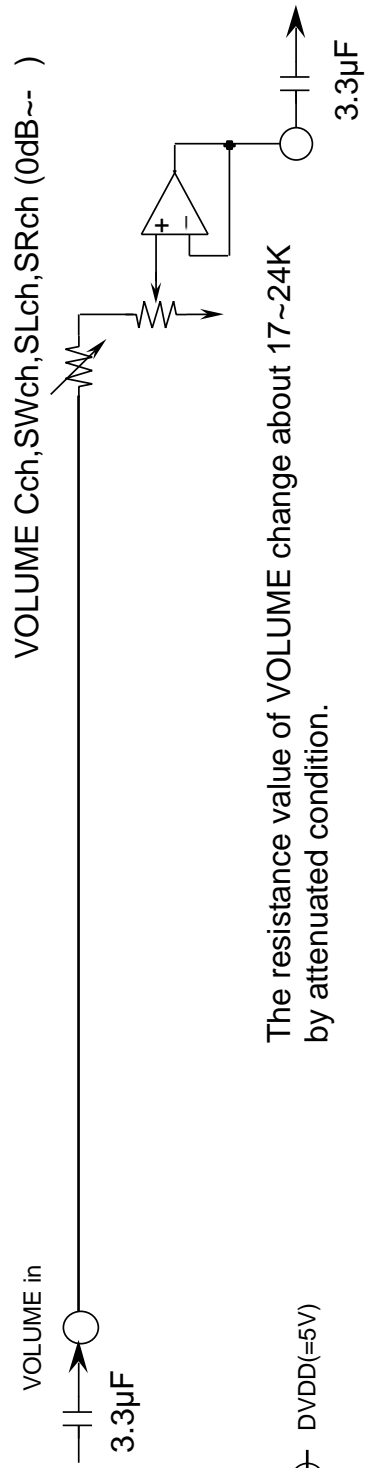
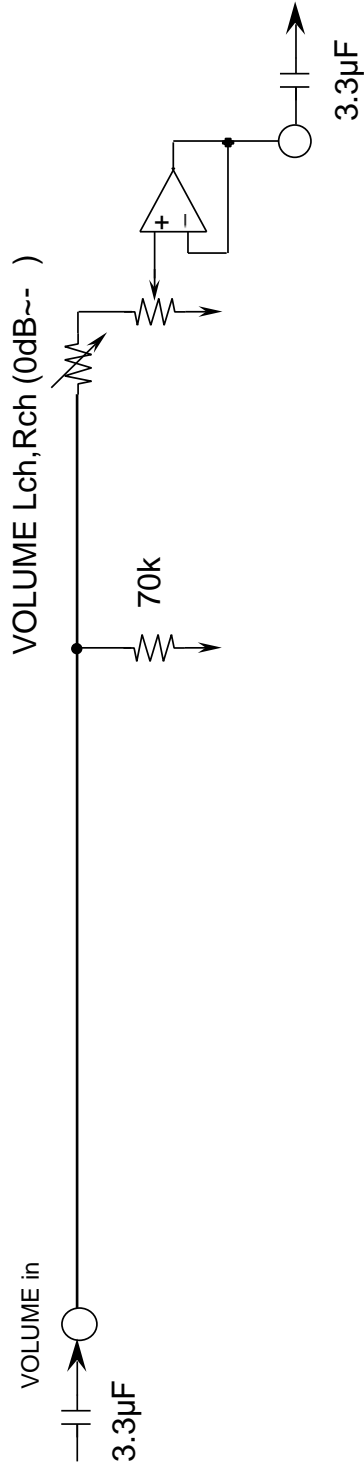
Parameter	Symbol	Test condition	Limits			Unit
			Min	typ	Max	
Maximum output voltage	VOM	6,8,9,11,16,18pin INPUT 31 ~ 36pin OUTPUT RL =10K, THD=1%	3.0	4.0	—	Vrms
Pass gain	Gv	Vi=0.2Vrms, FLAT 6,8,9,11,16,18pin INPUT 31 ~ 36pin OUTPUT	-2.0	0	2.0	dB
Distortion	THD	BW=400 ~ 30kHz Vi=0.2Vrms, RL=10K	—	0.02	0.09	%
Output noise voltage	Vn(VOL)	31 ~ 36pin, Rg=0K, JIS-A, VOL=0dB	—	2	6	µVrms
Maximum attenuation	ATTmax	31 ~ 36pin, Rg=1K, JIS-A, VOL=- dB	-86	—	—	dB
Volume gain between channels	Dvol		-1.5	0	1.5	dB
Crosstalk between channels	CT	Vo=0.5Vrms, RL=10K, JIS-A Rg=1K	—	-80	-65	dB
Port output current	IL		0.2	—	—	mA

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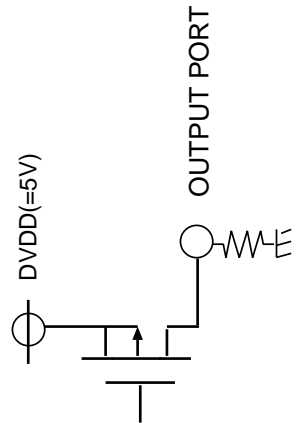
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 6CH ELECTRIC VOLUME

SYSTEM DIAGRAM



The resistance value of VOLUME change about 17~24K by attenuated condition.



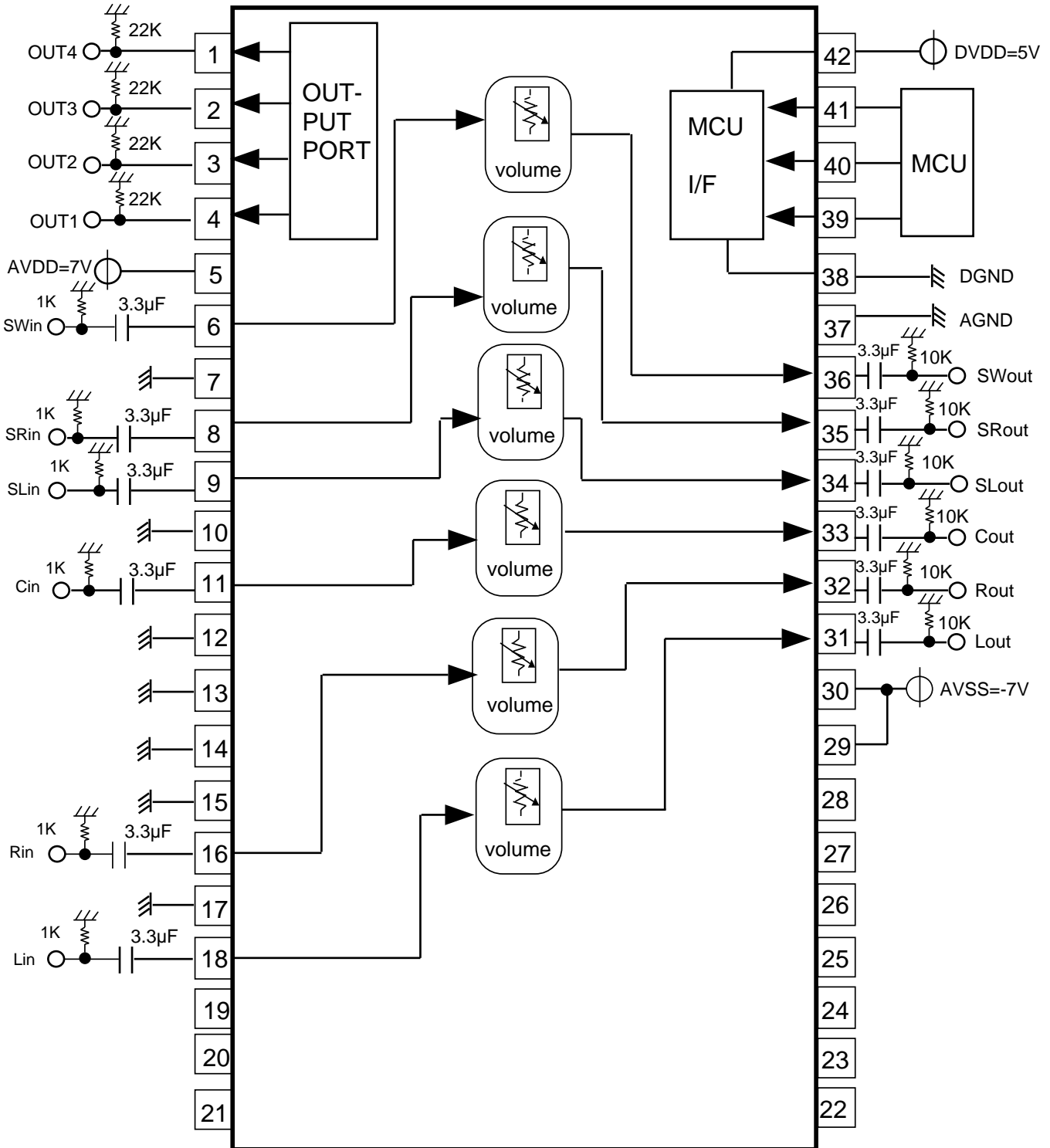
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APPLICATION EXAMPLE



Units Resistance :
 Capacitance : F