

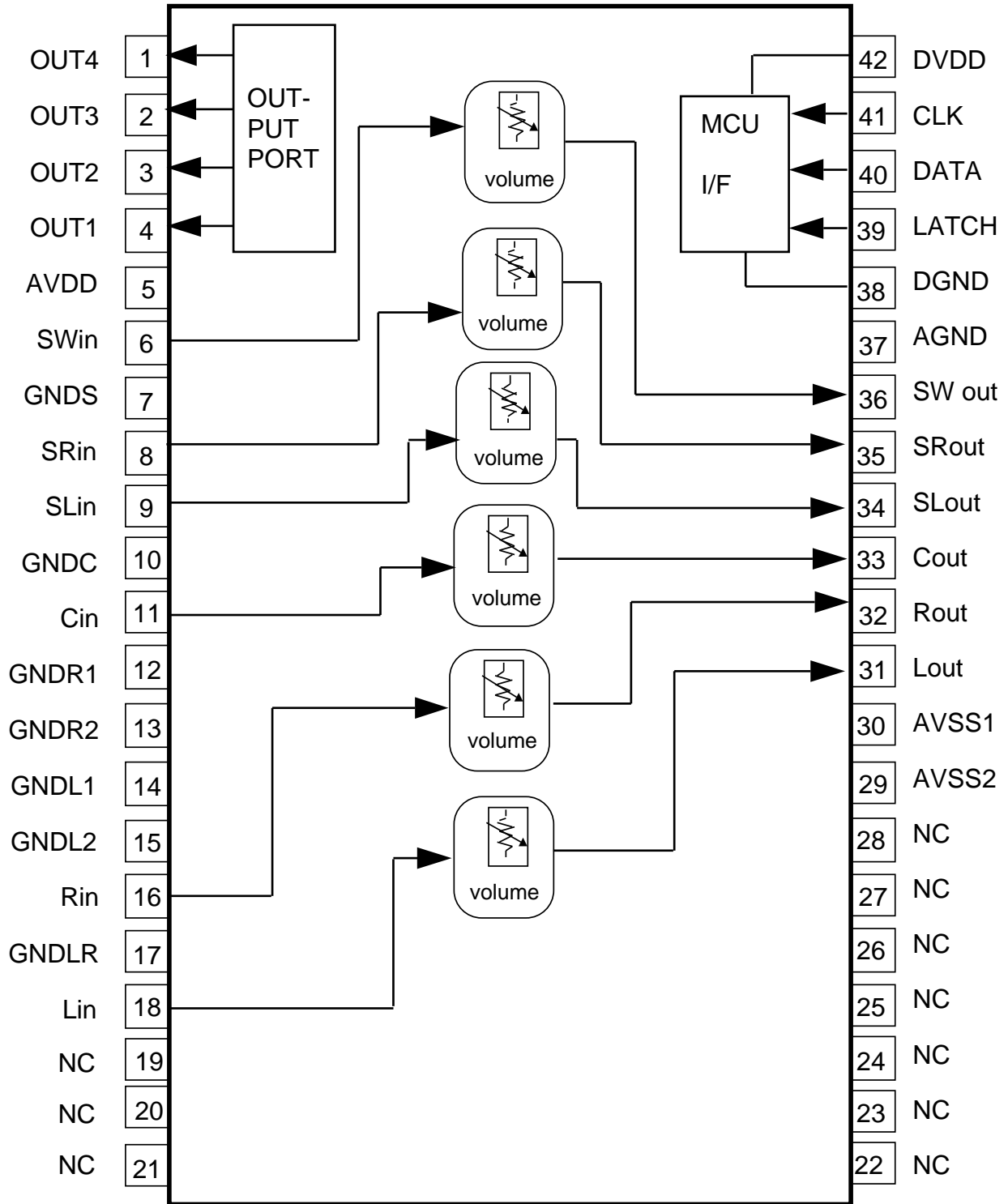
PRELIMINARY
 Notice ; This is not a final specification.
 some parametric limits are subject to change.

MITSUBISHI SOUND PROCESSORS

M62447SP

6CH ELECTRIC VOLUME

PIN CONFIGURATION AND IC INTERNAL BLOCK DIAGRAM



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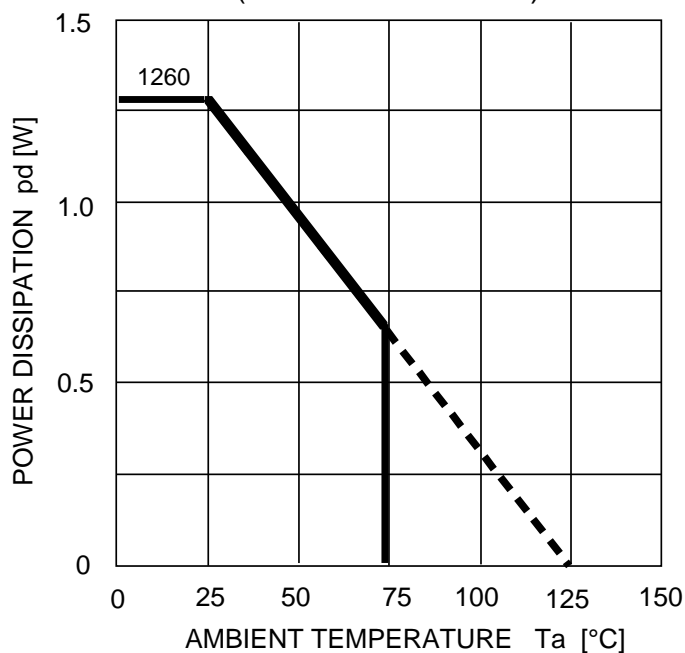
M62447SP

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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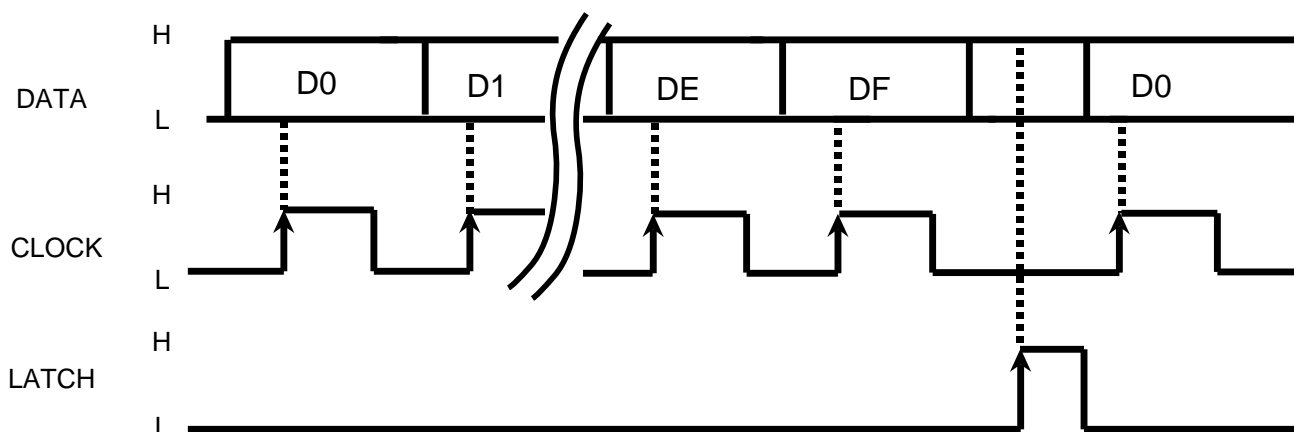
6CH ELECTRIC VOLUME

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 .

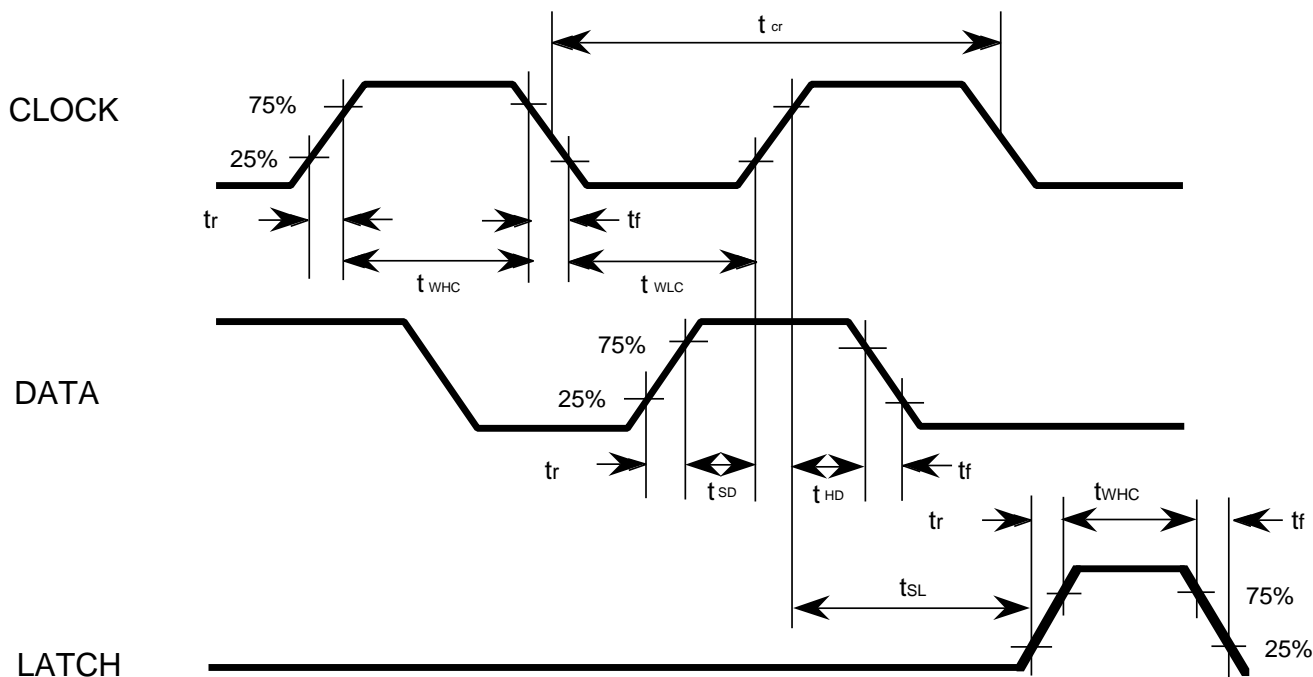
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6CH ELECTRIC VOLUME

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
0	0	0	0	1	2	3	4	0	0	0	0	0	1	0	0
OUTPUT PORT n 1: High 0: Low															

(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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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

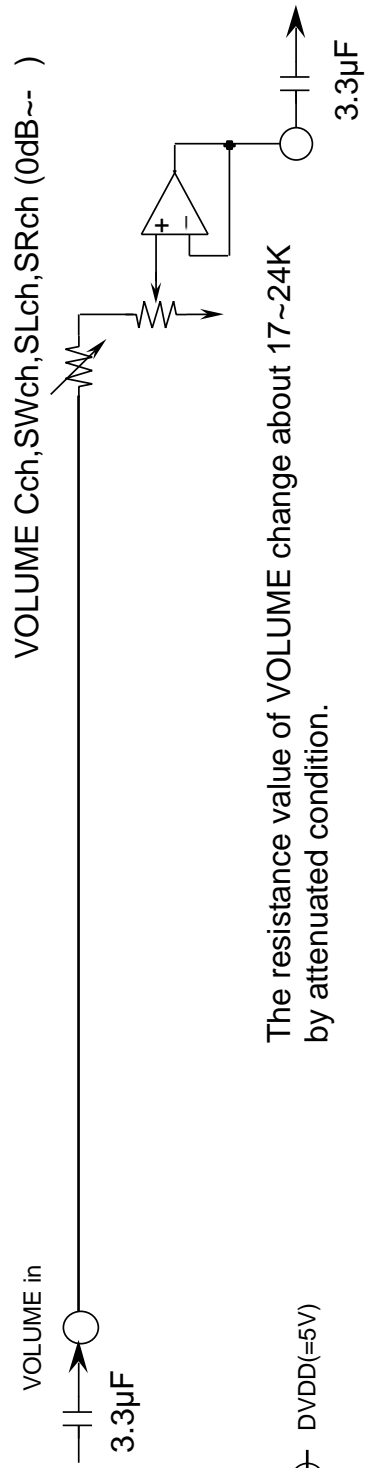
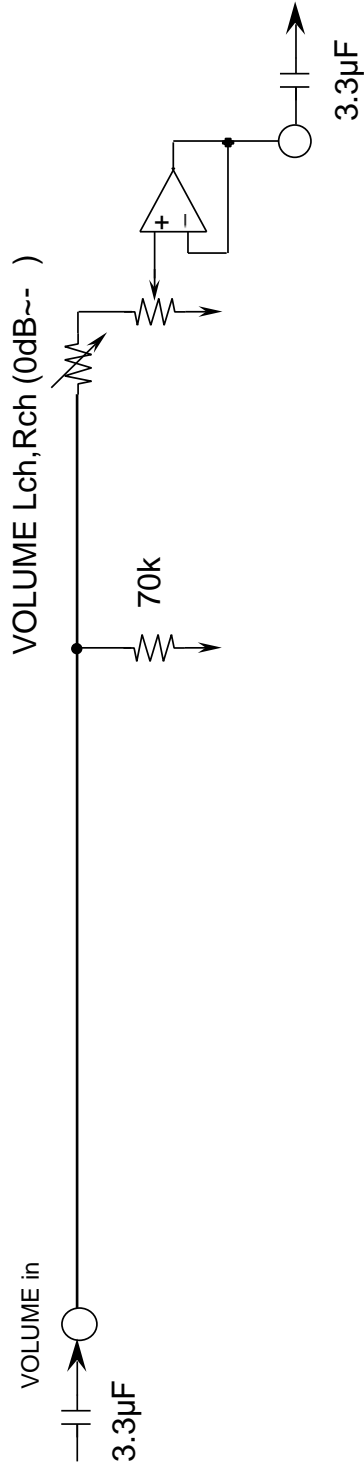
Parameter	Symbol	Test condition	Limits			Unit
			Min	typ	Max	
Maximum output voltage	VOM	6,8,9,11,16,18pin INPUT 31 ~ 36pin OUTPUT RL =10K ,THD=1%	3.0	4.0	—	Vrms
Pass gain	Gv	Vi=0.2Vrms,FLAT 6,8,9,11,16,18pin INPUT 31 ~ 36pin OUTPUT	-2.0	0	2.0	dB
Distortion	THD	BW=400 ~ 30kHz Vi=0.2Vrms , RL=10K	—	0.02	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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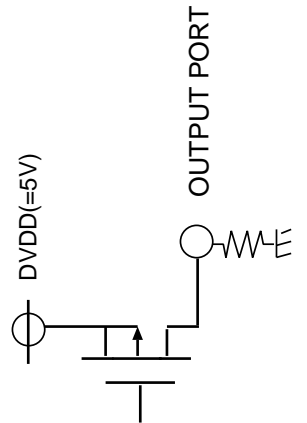
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 6CH ELECTRIC VOLUME

SYSTEM DIAGRAM



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



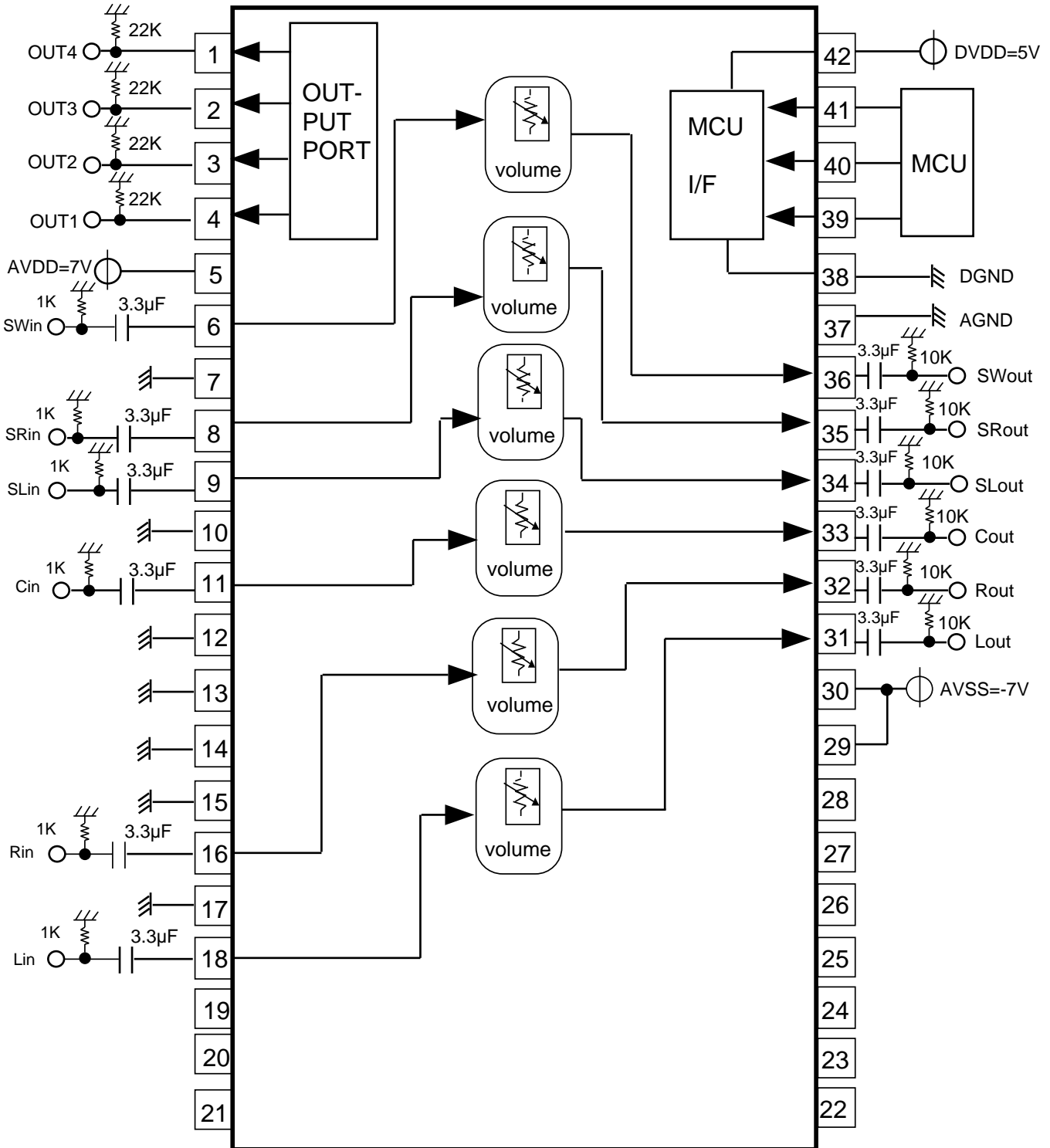
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APPLICATION EXAMPLE



Units Resistance :
 Capacitance : F