

M61530FP

4ch Electronic Volume with 5.1ch Analog Input

REJ03F0058-0100Z

Rev.1.0

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Description

The M61530FP is a four-channel volume IC which is optimal for combination with the M61519FP two-channel electronic volume. A multi-channel system is easily configured with the aid of these two chips.

Features

Function names	Features
Main volume control	0 to -87 dB in 1-dB steps, $-\infty$ Four independently controlled volumes (SL, SR, C, LFE)
Low pass filter (LPF)	On-chip operational amplifiers for configuration of post-filters through the addition of external C and R elements
AGC	AGC circuit is included to prevent clipping <SW ch>
Bass boost	HPF type, with on/off switch <SL/SR ch>
Output gain control	0, +6, +9, or +12 dB (four steps) <SW ch>
Input gain control	0, +5, +10 dB (three steps) <FL/FR ch>
Microcomputer I/F	Two-line serial data control

Application

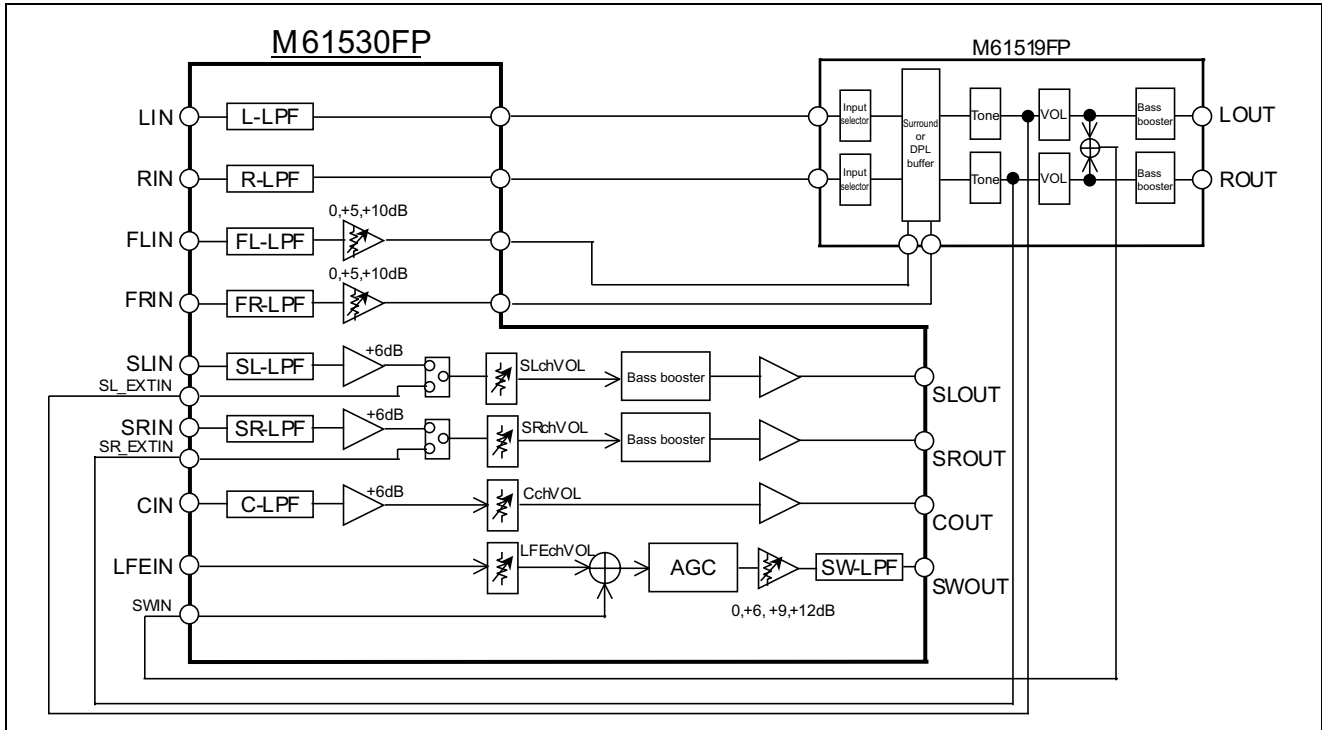
Mini-component systems, micro-component systems, etc.

Recommended Operating Conditions

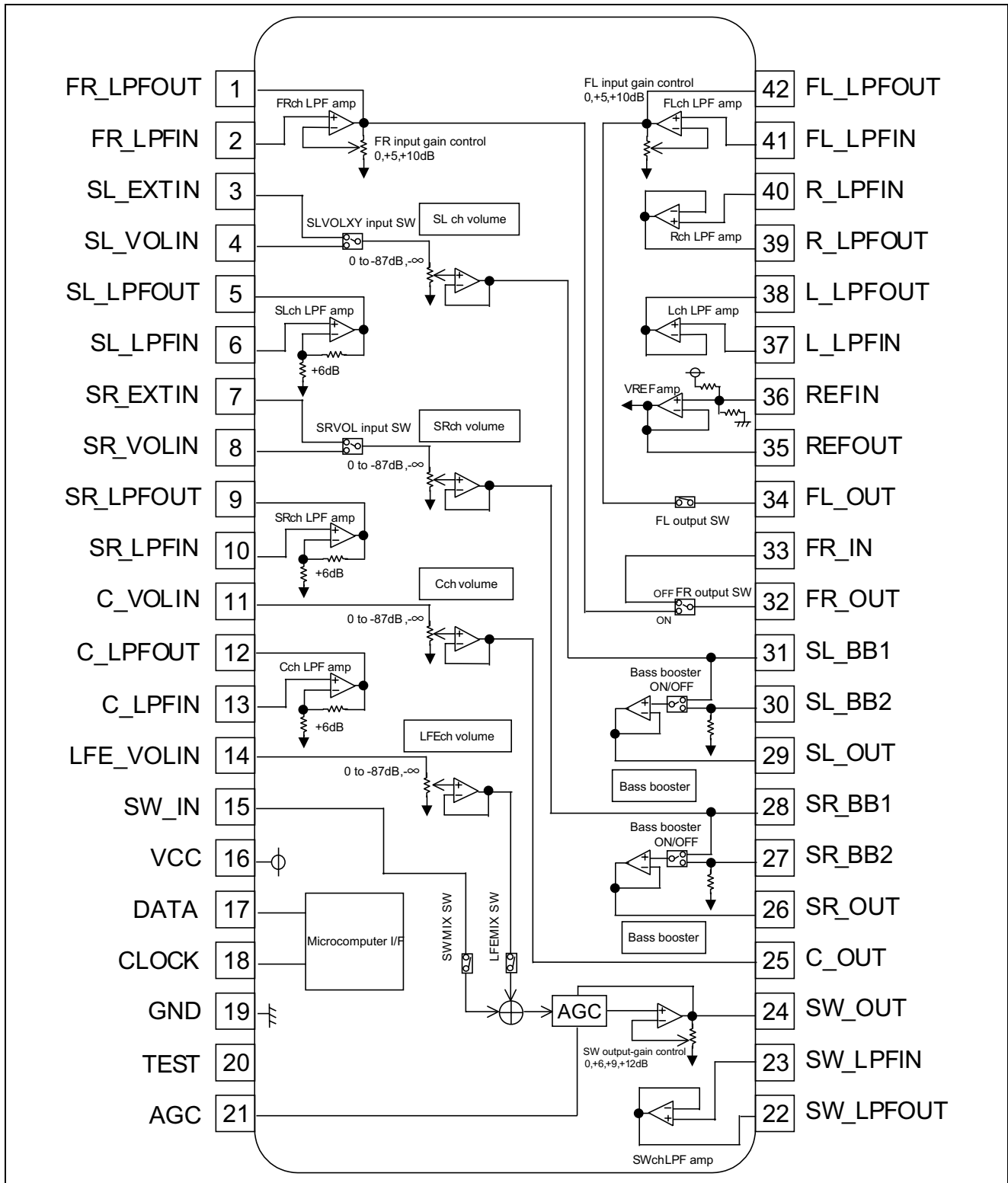
Power-supply voltage range: $V_{cc} = 8$ to 10 V

Rated power-supply voltage: $V_{cc} = 9$ V

System Block Diagram



Block diagram with pin connections

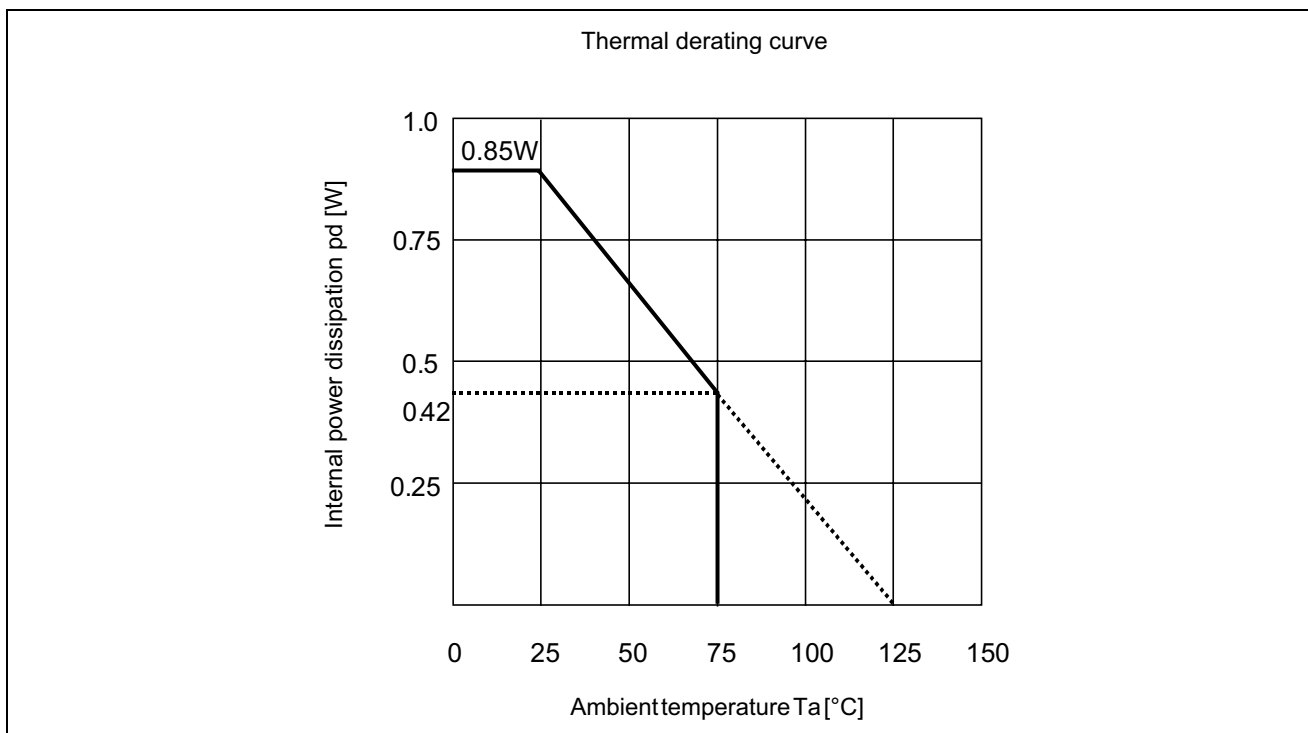


Pin description

Pin No.	Pin Name	Description
1	FR_LPFOUT	Configure a low-pass filter by adding external C and R elements to the input of the FR channel
2	FR_LPFIN	
3	SL_EXTIN	SL channel external input pin
4	SL_VOLIN	SL channel volume input pin
5	SL_LPFOUT	Configure a low-pass filter by adding external C and R elements to the input of the SL channel
6	SL_LPFIN	
7	SR_EXTIN	SR channel external input pin
8	SR_VOLIN	SR channel volume input pin
9	SR_LPFOUT	Configure a low-pass filter by adding external C and R elements to the input of SR channel
10	SR_LPFIN	
11	C_VOLIN	C channel volume input pin
12	C_LPFOUT	Configure a low-pass filter by adding external C and R elements to the input of the C channel
13	C_LPFIN	
14	LFE_VOLIN	LFE channel volume input pin
15	SW_IN	SW channel input pin
16	VCC	Power-supply pin for internal analog and digital circuitry (VCC = 9 V)
17	DATA	DATA input pin for serial data transfer
18	CLOCK	CLOCK input pin for serial data transfer
19	GND	GND pin for internal analog and digital circuitry
20	TEST	Pin for setting the test mode (normally fixed low)
21	AGC	C connection pin for setting attack/recovery time for AGC
22	SW_LPFOUT	Configure a low-pass filter by adding external C and R elements to the input of the SW channel
23	SW_LPFIN	
24	SW_OUT	SW channel output pin
25	C_OUT	C channel output pin
26	SR_OUT	SR channel output pin
27	SR_BB2	Pin for connecting external components that set bass-boost frequency characteristics for the SR channel
28	SR_BB1	
29	SL_OUT	SL channel output pin
30	SL_BB2	Pin for connecting external components that set bass-boost frequency characteristics for the SL channel
31	SL_BB1	
32	FR_OUT	FR channel output pin
33	FR_IN	Pin for interfacing with the M61519FP surround circuit
34	FL_OUT	FL channel output pin
35	REFOUT	Internal reference output pin
36	REFIN	Internal reference input pin
37	L_LPFI N	Configure a low-pass filter by adding external C and R elements to the input of the L channel
38	L_LPFOUT	
39	R_LPFOUT	Configure a low-pass filter by adding external C and R elements to the input of the R channel
40	R_LPFIN	
41	FL_LPFIN	Configure a low-pass filter by adding external C and R elements to the input the of FL channel
42	FL_LPFOUT	

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit	Conditions
Power-supply voltage	VCC	10.5	V	
Internal power dissipation	Pd	850	mW	Ta≤25°C
Thermal reduction rate	Kθ	8.6	mW/°C	Ta>25°C
Ambient operating temperature	Topr	-20 to +75	°C	
Storage temperature	Tstg	-40 to +125	°C	



Recommended Operating Condition

(Unless otherwise noted, $T_a = 25^\circ\text{C}$)

Item	Symbol	Limits			Unit	Condition
		Min.	Typ.	Max.		
Power-supply voltage	VCC	8	9	10	V	
Logical high level input voltage	V _{IH}	2.2	—	5.5	V	VCC=9V
Logical low level input voltage	V _{IL}	0	—	0.6	V	VCC=9V