

Two-Channel Microphone Amplifier for Video Camera

Overview

The LA7471M is a stereo microphone amplifier for use in video camera products. It includes an automatic wind noise detection and removal circuit, an equalization circuit to compensate for microphone frequency characteristics and an L/R mixing circuit to provide a good stereo image. The LA7471M provides high quality audio for video camera applications.

Functions

- Microphone amplifier (two channels)
- Internal/external microphone switching
- Automatic wind noise detection/prevention circuit
- High-pass filter and disable switch
- Internal microphone power supply
- External microphone power supply (with carrent limiter)
- Ripple filter
- Stereo/mono detection for external microphones

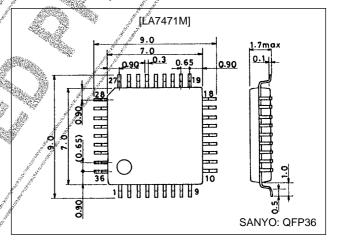
Features

- Automatic wind noise detection and exclusion circuit (The high-pass filter provides a first-order to third-order linear conversion.)
- High-quality audio (low noise, microphone frequency characteristic compensation, and stereo enhancement)

Package Dimensions

unit; mm

3162B-QFP36



Specifications

Maximum Ratings at $Ta \neq 25^{\circ}C$

The state of the s	10000000	N N		
Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V _{CC} max	A Part of the second of the se	7.0	V
Allowable power dissipation	Pd max	T.a ≤ 65°C	300	mW
Operating temperature	Topr	# pet	-10 to +65	°C
Storage temperature	Tstg 🗸		-55 to +150	ô

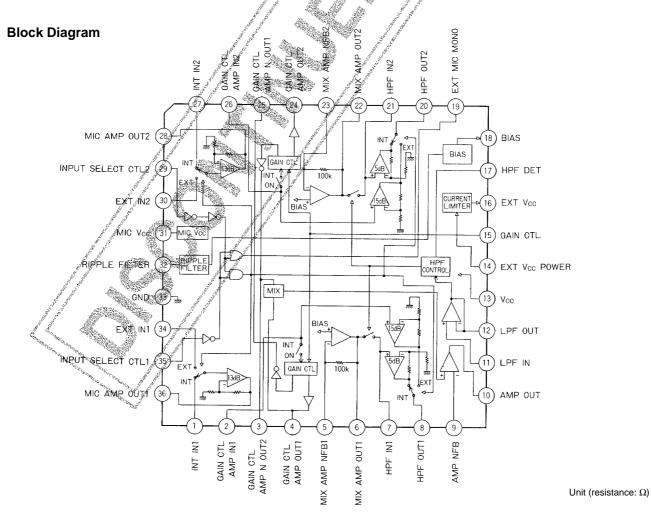
Operating Conditions at Ta = 25°C

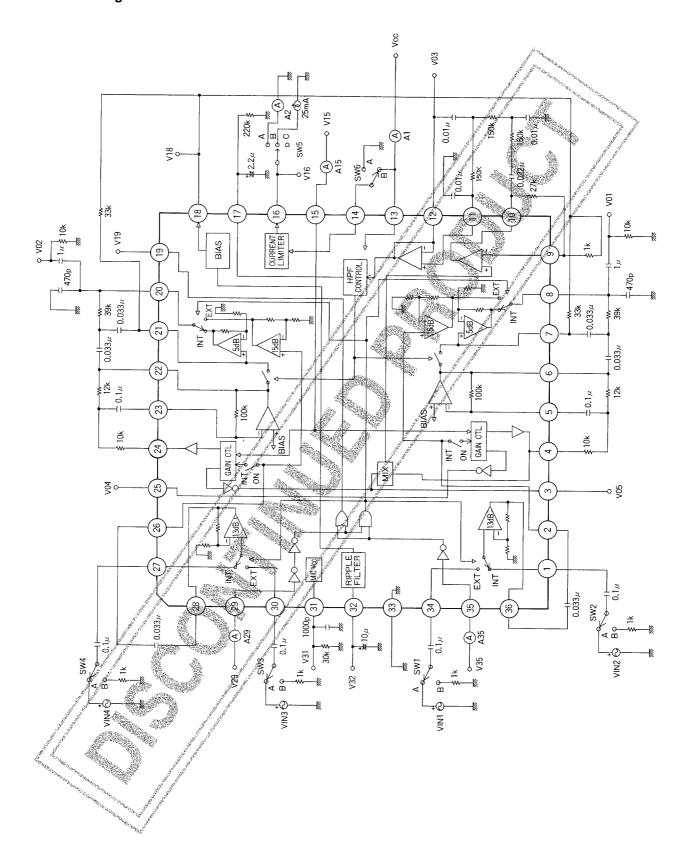
Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V _C C		5.0	V
Operating supply voltage range	V _{CC} op		4.5 to 5.5	V

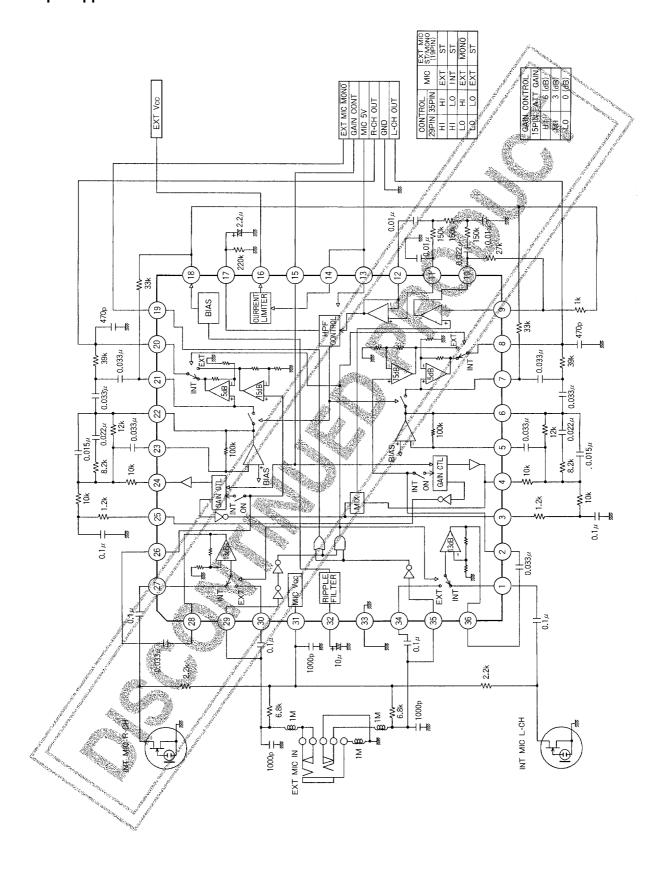
- Any and all SANYO products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your SANYO representative nearest you before using any SANYO products described or contained herein in such applications.
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Operating Characteristics at $Ta=25^{\circ}C,\,V_{CC}$ = 5.0 V, f = 1.0 kHz, R_{L} = 10 k Ω

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Parameter	Symbol	Conditions	min	typ	max	Unit
Current dissipation	I _{CC1}	INT MIC in, EXT V _{CC} off, L/Rch	5.5	8/ _	10.5	mA
Current dissipation	I _{CC2}	INT MIC in, EXT V _{CC} on, L/Rch	6	9.	12	mA
	VG ₁	EXT MIC in, L/Rch	27.3	27.8	28:3	dB
Voltage gain	VG ₂	INT MIC in, Gain CTL Hi, L/Rch	23.8	24.3	24.8	dB
Voltage gain	VG ₃	INT MIC in, Gain CTL Mi, L/Rch	20.8	21.3	21.8	dB
	VG ₄	INT MIC in, Gain CTL Lo, L/Rch	17.8 🔏 🌶	18.3	18.8	₹ødB
Total harmonic distortion	THD	INT MIC in, EXT MIC in V _O = 300 mVrms, L/Rch	aft de	0.05	0.2	%
Maximum output	V _{OM}	INT MIC in, EXT MIC in THD = 1%, L/Rch	1.0	1.4		Vrms
	V _{NO1}	EXT MIC in, L/Rch, Rg = 1 kΩ, JIS-A		22	32	μVrms
Output noise voltage	V _{NO2}	INT MIC in, L/Rch, Rg = 1 k Ω , JIS-A Gain CTL Hi, Mi, Lo		16	24	μVrms
Input switch crosstalk	SW _{CR}	INT MIC in \rightarrow EXT MIC in (Rg = 1 k Ω) f = 10 kHz, L/Rch		80	70	dB
Inter-channel crosstalk	CH _{CR}	INT/EXT MIC, Lch \rightarrow Rch, Rch \rightarrow Lch, f = 10 kHz		51	45	dB
Internal microphone power supply output voltage	V _{INM}	When pin 31 is DC, with 30 kΩ load	2,65	2.8	2.95	٧
External power supply output voltage	V _{EXM}	When connected to pin 16 (output current)	4.0	4.5		V
External power supply limiter current	I _{LIM}	When connected to pin 16 (output current)			30	mA
Input switching control voltage	CTL _H	High level, pin 29/pin 35 DC	1 .3		V _{CC}	V
input switching control voltage	CTLL	Low level, pin 29/pin 35 DC	/ / 0		0.7	V
Input impedance	Z _{IN}	INT/EXT MfC, fn, L/Rch	<i>f</i> 7 60	75	90	kΩ
Output impedance	Z _O	Pins 8 and 20	1	1	5	Ω







Switch Operation Table

Current dissipation 1	Item	Symbol	SW1	SW2	SW3	SW4	SW5	SW6	V15	V29	V35	Test point
Current dissipation 2												A ₁
Voltage gain 1 VG₁₁ 1 A B B B C A V 1 L V 2 V V 2 V V 3,1 2 B B A B C A V 1 L V 2 V 2 V 3,2 2 B B B A B C A H H L V 2 V 2 V 3,2 2 B B B A B B C A H H L V 2 V 2 V 3,2 2 B B B A C A H L V 2 V 3,2 2 B B B A C A H L V 2 V 2 V 3,2 2 B B B A C A H L V 2 V 2 V 3,2 2 B B B A C A H L V 2 V 2 T 1,2 1 A B B B B A B <th< td=""><td>·</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>,,,,,,,</td><td>15/4</td><td></td><td>· ·</td></th<>	·								,,,,,,,	15/4		· ·
Voltage gain 1 VC ₁₋₂ B B A B C A V L L VC Voltage gain 2 VG ₂₋₁ B A B B C A H H L VC VC VG ₂₋₂ B B B B C A H H L VC VC VC VC B B B B B A C A H H L VC VC VC VC VC A B B A B B C A H H L VC VC VC VC VC A B B A B B C A H H L VC VC VC VC A L L L VC VC A L L L VC A L L L L <	Current dissipation 2								- 0" - 5	Sec. 38.		
Voltage gain 2 Voltage gain 3 Voltage gain 4 Voltage gain 5 Voltage gain 6 Voltage gain 7 Voltage gain 9 Voltage gain 9	Voltage gain 1								11/	75.	D	V _{O2}
Voltage gain 2 VG ₂₂ B B B A C A H L Voltage gain 3 Voltage gain 3 VG ₃₂ B B B B B C A M H L Voltage Volta									Z H	/50a	Area San	
Voltage gain 3	Voltage gain 2							All and a second	387 32	AND	453.	
Voltage gain 3 VGs2								2 3	700		3	
Voltage gain 4	Voltage gain 3							.67 .67	300		- F	
Voltage gain 4 VG4.2 B B B B B A C A L L L L VC THD1.1 A B B B B C A L L L L VC THD2.1 B A B B B C A H H L VC THD2.1 B A B B B C A H H L VC THD2.1 B A B B B C A H H H L VC THD2.2 B B B B A B C A H H H L VC THD3.1 B A B B C A H H H L VC THD3.1 B A B B C A H H H L VC THD3.1 B A B B C A H H H L VC THD3.1 B A B B C A H H H L VC THD3.1 B A B B C A A H H H L VC THD3.1 B A B B C A A B B C A A B B C A A B B C A A B B C A A B B C A A B B C A A B B C A A B B C A A B B C A A B B C A A B B C A A B B C A B C A B C A B C A B C A B C A B C A B C C A B B B C C A B B C C A B B B B						-			1000	273.25	6 g	
ThD11 A B B B C A L L L V C ThD12 B B A B C A L L L V C ThD12 B B A B B C A B C A H H L V C ThD21 B A B B B C A H H H L V C ThD21 B A B B B C A H H H L V C ThD21 B A B B B C A L L L L V C ThD22 B B B B B C A C A H H L V C ThD31 B A B B C A L L L L V C ThD31 B A B B C A L L L L V C ThD32 B B B B A C A M H L L V C ThD32 B B B B A C A M H L L V C ThD32 B B B B A C A L L L L V C ThD32 B B B B A C A L L L L V C ThD32 B B B B A C A L L L L V C ThD32 B B B B A C A L L L L V C ThD32 B B B B A C A L L L L V C ThD32 B B B B A C A L L L L V C ThD33 B B B B A C A L L L L V C ThD34 B A B B C A L L L L V C ThD34 B A B B C A L L L L V C ThD34 B A B B C A L L L L V C ThD35 B B B B A C A L L L L V C ThD35 B B B B B C A L L L L V C ThD35 B B B B B C A L L L L V C ThD35 B B B B B C A L L L L V C ThD35 B B B B B C A L L L L V C ThD35 B B B B C A L L L L V C ThD35 B B B B B C A L L L L V C ThD35 B B B B B C A L L L L V C ThD35 B B B B B C A L L L L V C ThD35 B B B B B C A L L L L V C ThD35 B B B B B C A L L L L V C ThD35 B B B B B C A L L L L V C ThD35 B B B B B C A L L L L V C ThD35 B B B B B C A L L L L V C ThD35 B B B B B C A L L L L V C ThD35 B B B B B C A L L L L V C ThD35 B B B B B C A L L L L L V C ThD35 B B B B B C A L L L L L V C ThD35 B B B B B C A L L L L L V C ThD35 B B B B C A L L L L L V C ThD35 B B B B B C A L L L L L V C ThD35 B B B B C A L L L L L V C ThD35 B B B B B C A L L L L L V C ThD35 B B B B C A L L L L L V C ThD35 B B B B C A L L L L L V C ThD35 B B B B C A L L L L L V C ThD35 B B B B C A L L L L L V C ThD35 B B B B C A L L L L L V C ThD35 B B B B C A L L L L L V C ThD35 B B B B C A L L L L L V C ThD35 B B B B C A L L L L L V C ThD35 B B B B C A L L L L L V C ThD35 B B B B C A L L L L L L V C ThD35 B B B B C A L L L L L L V C ThD35 B B B B C A L L L L L L V C ThD35 B B B B C A L L L L L L V C ThD35 B B B B C A L L L L L L V C ThD35 B B B B C A L L L L L L V C ThD35 B B B B C A L L L L L L V C ThD35 B B B B C A L L L L L L V C ThD35 B B B B C A L L L L L L V C ThD35 B B B B C C A L L L L L L V C ThD35 B B C	Voltage gain 4						- 4	F 28 P		200	<i>a</i>)	1
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Total harmonic distortion ThD2-1 B B A B B C A H H H L VC ThD2-2 B B B B A B C A H H L VC ThD3-1 B A B B C A H H L VC ThD3-2 B B B B A B C A H H L VC ThD3-2 B B B B A B C A M H L L VC ThD4-1 B A B B A B B C A L L L L VC ThD4-1 B B A B B C A L L L L VC VOM1-1 A B B B B C A L L L L VC VOM2-1 B B B B B C A H H L VC VOM2-2 B B B B B C A H H L VC VOM3-1 B A B B C A H H L VC VOM3-1 B B B B C A H H L VC VOM3-1 B B B B C A H H L VC VOM4-2 B B B B B C A H H L VC VOM4-2 B B B B C A H H L VC VOM4-2 B B B B C A H H L VC VOM4-2 B B B B C A H H L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L VC VOM4-2 B B B B C A L L L VC VOM4-2 B B B B C A L L L VC VOM4-2 B B B B C A L L L VC VOM4-2 B B B B C A L L L VC VOM4-2 B B B B C A L L L VC VOM4-2 B B B B C A L L L VC VOM4-2 B B B B C A L L L VC VOM4-2 B B B B C A L L L VC VOM4-2 B B B B C A L L L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L L VC VOM4-2 B B B B C A L L L L L VC VOM4-2 B B B B C A L L L L L VC VOM4-2 B B B B C A L L L L L VC VOM4-2 B B B B C A L L L L L VC VOM4-2 B B B B C A L L L L L VC VOM4-2 B B B B C A L L L L L VC VOM4-2 B B B B C A L L L L L VC VOM5-2 B B B B C A L L L L L VC VOM5-2 B B B B C A L L L L L L VC VOM5-2 B B B B C C A L L L L L VC VOM5-2 B B B B C C A L L L L L VC VOM5-2 B B B B C C A L L L L L L VC VOM5-2 B B B B C C A L L L L L L VC VOM5-2 B B B B C C A L L L L L VC VOM5-2 B B B B C C A L L L L L L VC VOM5-2 B B B B C C A L L L L L L VC VOM5-2 B B B B C C A L L L L L L VC VOM5-2 B B B B C C A L L L L L L VC VOM5-2 B B B B C C A L L L L L L L VC VOM5-							8 4	1997	74 NEW CO. 7	J. 37		1
Total harmonic distortion THD2-2 B B B B A C A H H H L VC THD3-1 B A B B C A M H L L VC THD3-1 B A B B C A M H L VC THD4-1 B A B B C A L H L VC VOM1-2 B B B B A C A L L L VC VOM2-1 B A B B C A H H L VC VOM2-2 B B B B C A C A H H L VC VOM3-2 B B B B C A C A H C VC VOM3-2 B B B B C A C A M H L VC VOM3-2 B B B B C A C A M H L VC VOM3-2 B B B B C A C A M H L VC VOM3-2 B B B B C A C A M H L VC VOM4-1 B A B B C A M H L VC VOM4-1 B A B B C A L L L VC VOM4-1 B A B B C A L H L VC VOM4-2 B B B B A C A L L L VC VOM4-1 B A B B C A L L L VC VOM4-2 B B B B C A L L L VC VOM4-2 B B B B C A L L L VC VOM4-2 B B B B C A L L L VC VOM4-2 B B B B C A L L L VC VOM4-2 B B B B C A L L L VC VOM4-2 B B B B C A L L L VC VOM4-2 B B B B C A L L L VC VOM2-1 B B B B C A L L L VC VOM2-2 B B B B C A L L L VC VOM2-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L VC VOM4-2 B B B B C A L L L L VC VOM2-4 B B B B C A L L L L VC VOM2-4 B B B B C A L L L L VC VOM2-4 B B B B C A L L L L VC VOM2-5 B B B B C A L L L L VC VOM2-6 B B B B C A L L L L VC VOM2-7 B B B B C A L L L L VC VOM2-8 B B B C A L L L L VC VOM2-8 B B B C A L L L L VC VOM2-9 B B B C A L L L L VC VOM2-1 B B B B C A L L L L VC VOM2-1 B B B B C A L L L L VC VOM2-2 B B B B C A L L L L VC VOM2-3 B B B B C A L L L L VC VOM2-4 B B B B C A L L L L VC VOM2-5 B B B B C A L L L L L VC VOM2-6 B B B B C A L L L L L VC VOM2-8 B B B C A L L L L L VC VOM2-9 B B B B C A L L L L L VC VOM2-9 B B B B C A L L L L L VC VOM2-9 B B B B C A L L L L L VC VOM2-9 B B B B C A L L L L L VC VOM2-9 B B B B C A L L L L L VC VOM2-9 B B B B C A L L L L L VC VOM2-9 B B B B C A L L L L L VC VOM2-9 B B B B C A L L L L L VC VOM2-9 B B B B C A C A L L L L L VC VOM2-9 B B B B C A C A L L L L L VC VOM2-9 B B B B C A L L L L L VC VOM2-9 B B B B C A C A L L L L L VC VOM2-9 B B B B C A C A L L L L L VC VOM2-9 B B B B C A C A L L L L L VC VOM2-9 B B B B C A C A L L L L L VC VOM2-9 B B B B C A C A L L L L L VC VOM2-9 B B B B C A C A L L L L L VC VOM2-9 B C A C A L L L L L VC VOM2-9 B C A C A L L L L L L VC VOM2-9 B C A C A L L L							C 15	- ACCES - 53		A A		
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THD3-2	Total harmonic distortion						F 68.22	- CASSA	7 9	g .		
THD4-1		1 LD 3-1				3 3	3,933.	# No.	8 3			
THD42		TUD				8 8	2377100	A 100 100 100 100 100 100 100 100 100 10	30 30			
Vomition		TUD					2007 2000		5 1			
None					3"	(A)	**************************************	-	A 600			
Maximum output Nome					- F - F	- 10 m	1000	\$ 3				1
Maximum output VOM2-2 B B B B A C A H H L VOM2-2 VOM3-1 B A B B C A M H L VOM2-2 VOM3-2 B B B B B C A M H L VO VOM4-1 B A B B C A L H L VO VOM4-2 B B B B B B C A L H L VO Output noise voltage 1 VNO1-1 B B B B B C A L L L L L VO VNO1-2 B B B B B C A H H L VO VNO2-2 B B B B B B B					F F	1,02080	280					V _{O2}
Maximum output					5° 50°	. • •/200 c	2000	N 6				V _{O1}
VoM3-2 B B B B C A M H L Vo Vo A B B B B C A L H L Vo C A L L L L Vo C A L L L L Vo C A L L L L L L L L L	Maximum output				4	783636	A.C.	1				V _{O2}
VoM4-1					775.000	3000	S1: 32					V _{O1}
Vomuse voltage 1					1200 No.	-40.00 English	41 8					V _{O2}
Output noise voltage 1 VNO1-1 B B B B B C A L L L V C VNO2-1 B B B B C A H H L V C VNO2-1 B B B B B C A H H L V C VNO2-2 B B B B B B C A H H L V C VNO2-3 B B B B B B C A H H L V C VNO2-3 B B B B B B B C A H H L V C VNO2-3 B B B B B B C A H H L V C VNO2-3 B B B B B B B C A H H L V C VNO2-6 B B B B B B C A L H L V C V C C C C C C C C C C C C C C C C				5' A'	70 70 70	1880	- 12°					V _{O1}
Output noise voltage 1 VNO1-2 B B B B B C A H H L V C VNO2-1 B B B B B C A H H L V C VNO2-2 B B B B B B C A H H L V C V C C C C C C C C C C C C C C C C			8	J 198		100 pt	2					V _{O2}
V _{NO2-1}	Output noise voltage 1		8. 6	200	100,000	20 A						V _{O1}
Output noise voltage 2 VNO2-2			4 5		12 de	2.5		Α		L	L	V _{O2}
Output noise voltage 2 VNO2 ¹ 3 B B B B C A M H L VC VNO2 ¹ 4 B B B B C A M H L VC VNO2 ¹ 5 B B B B C A L H L VC VNO2 ¹ 6 B B B B C A L H L VC VNO2 ¹ 7 B A B B C A L L L VC Input switch crosstalk SCR1 B A B B C A L L L VC SCR2 B B B A C A L L L VC SCR2 B B B A B C A L L L VC SCR2 B B B A B C A L L L VC SCR2 B B B A B C A L L L VC SCR2 B B B A B C A L L L VC SCR2 B B B A B C A L L L VC SCR2 B B B A B C A C A C A C A C A C C			∫ B	1 (Sept.)	В	В		Α	Н	Н	L	V _{O1}
VNO2-4				В	В	В		Α	Н	Н	L	V _{O2}
VNO24 B	Output noise voltage 2	V _{NO2} *3 /	В	В	27.	/ В	С	Α	М	Н	L	V ₀₁
No2-6	Cupat Holos Voltage 2	V _{NO2-4}	В	В	B/* /	В	С	Α	М	Н	L	V _{O2}
Input switch crosstalk		√V _{NO2-5}		STYPES.	B	В	С	Α	L	Н	L	V _{O1}
Input switch crosstalk	Jog ^{di}	[₩] NO2-6	* В	В	B	В	С	Α	L	Н	L	V _{O2}
SCR2 B B B A C A L L L V _C	Input switch crosstalk	S _{CR1}	200	A A	₿ B	В	С	Α	L	L	L	V _{O1}
Inter-channel crosstalk Cont2	l · * * * * * * * * * * * * * * * * * *	S _{CR2}	190771 5055		В	Α	С	Α	L	L	L	V _{O2}
Inter-channel crosstalk		C _{cn1-1}	A		В	В	С	Α	L	L	L	V _{O2}
C _{cn2-1}	Inter channel grosstall	C _{cn1-2}	В	_g ∕/B	А	В	С	А	L	L	L	V _{O1}
C _{cn22} B B B A C A H H L V _C	miler-channel crosstalk	C _{cn2-1}	В	A A	В	В	С	Α	Н	Н	L	V _{O2}
Internal microphone power		C _{cn2.2}	В	В	В	А	С	Α	Н	Н	L	V _{O1}
supply output voltage	Internal microphone power supply output voltage	VINM	B	В	В	В	С	Α	L	L	L	V ₃₁
External power supply	External power supply output voltage	V _{EXM}		В	В	В	В	В	L	L	L	V ₁₆
External power septity	External power supply	ILIM	В	В	В	В	А	В	L	L	L	A ₂

Pin Functions

Unit (resistance: Ω)

Pin No.	Function	Internal Circuit	DC Voltage	Description
1 27	INT in	V _{REF} 75k	2.1 V	Internal microphone input The input impedance is 75 k Ω .
2 26	Gain CTL AMP in	2 26	2.1 V , , , , , , , , , , , , , , , , , ,	Gain control amplitier input The input impedance is 100 kΩ.
3 25	Gain CTL AMP N out	10k 33 g	2.130	Gain control amplifier inverted output
4 24	Gain CTL AMP out	10k (4)	2.1 V	Gain control amplifier output
5 23	Mix AMP NFB	(5) (23) 100K (6) (22)	2.1 V	Mixer amplifier NFB pin
6 22	Mix AMP out	(5) 100k (3) (3) (6) (2)	2.1 V	Mixer amplifier output
7 21	HPF in	\$ 500 K	2.1 V	High-pass filter amplifier input This is a high impedance input.

Continued from preceding page.

Unit (resistance: Ω)

				Unit (resistance: Ω)
Pin No.	Function	Internal Circuit	DC Voltage	Description
8 20	HPF out	14k — W 600µ	2.1 V	Output for the high-pass filter 5 dB amplifier and the EXT mode 15 dB amplifier
9	AMP NFB	500 W	2.1 V	NFB for the amplifier that adjusts the wind noise exclusion high pass filter on off level
10	AMP out		21.9	Output for the amplifier that adjusts the wind noise exclusion high-pass filter on/off level This is a low impedance output.
11	LPF in	200k \$ 500 0-W	2.10	Buffer input for forming a low-pass filter. The input impedance is 200 k Ω .
12	LPF out	¥ 500 ×	2.1 V	Buffer output for forming a low-pass filter. This is a low impedance output.
13	V _{CC}		V _{CC}	Power supply for circuits other than the external V _{CC} circuit
14	EXT.V _{CC} power			External V _{CC} circuit power supply
15.	Gain CTE	\$50k ₩ 50k		Gain control pin High level (4 V or higher): 6 dB Mid level (2 to 3 V): 3 dB Low level (1 V or lower): 0 dB

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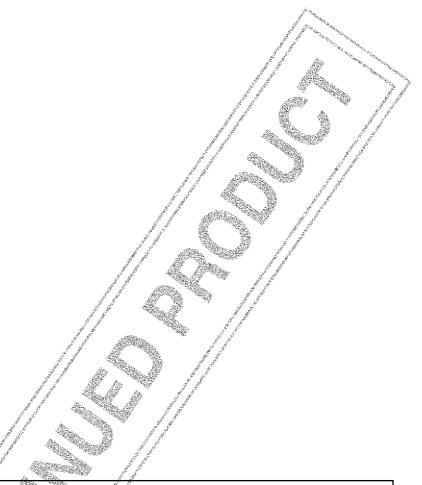
Unit (resistance: Ω)

			I	Unit (resistance: Ω)
Pin No.	Function	Internal Circuit	DC Voltage	Description
16	EXT V _{CC}	10k 20k 16		External power supply with current limiter Capable of providing at least 4-V when an output current is 25 mA. When the output voltage is 0 V, the output current is less than 25 mA.
17	HPF DET	22k ***********************************		Detegris the level used to turn, the high-pass filter on and off.
18	BIAS		2.1 V	Reference voltage
19	EXT MIC mono	500 30R		Outputs a low level only when the external microphone is monophonic.
28 36	Mic AMP out	1.2k	2.1 V	Microphone amplifier output This is a low-impedance output.
29	Input seject CTL2	23 S W 100k ≸		Internal/external switch Control pin used to determine stereo or monophonic operation

Continued from preceding page.

Unit (resistance: Ω)

Pin No.	Function	Internal Circuit	DC Voltage	Description Description
30 34	EXT in	V _{REF} 75k 30 34	2.1 V	External microphone input The input impedance is ₹5 kΩ.
31	Mic V _{CC}	\$15k \$29k \$15k ₹15k ₹29k	28 9	Power supply for the internal microphone
32	Ripple filter	75k 💸 73k 🕷	2.1 V	This pin is used to exclude ripple from internal circuits. Connect a capacitor and a resistor of 75 k Ω externally to exclude ripple.
33	GND	// * ***	,00 j	
35	Input select CTL1	25k 10k 10k 10k 10k 10k 10k 10k 10k 10k 10		Internal/external switch Control pin used to determine stereo or monophonic operation



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