



No.4064A

Monolithic Linear IC

LA7155M

Audio Switch for PAL 21 Pin Connectors

Overview

The LA7155M is an audio switch of a stereophonic system for PAL21 pin connectors.

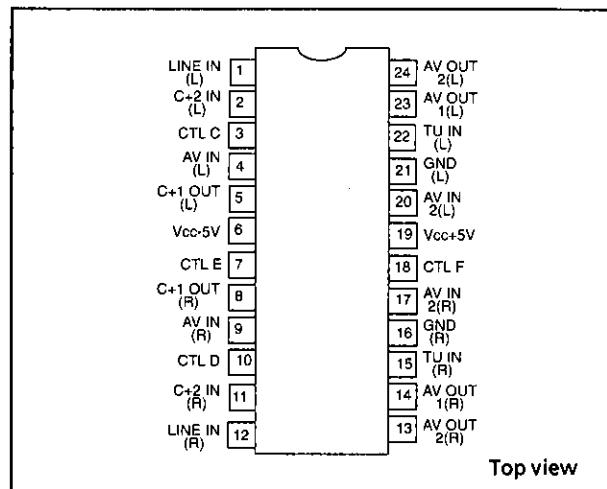
Features

- +5V power supply.
 - Smaller size allowing for saving space.
 - Low distortion factor.

Functions

- 4 audio switch circuits of 2 inputs and 1 output.
 - 2 audio switch circuits of 3 inputs and 1 output.
 - 2 audio amplifying circuits of 2dB.
 - 2 audio amplifying circuits of 12dB.

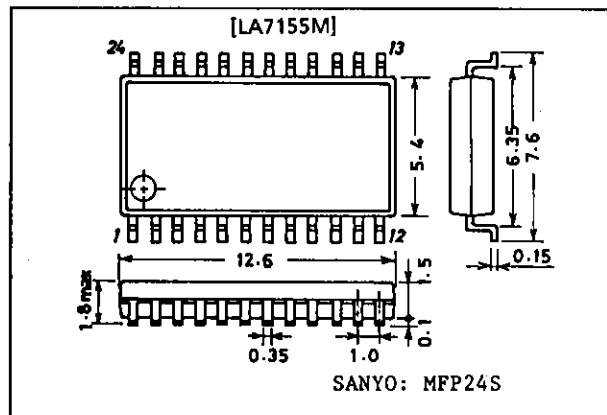
Pin Assignment



Package Dimensions

(unit : mm)

3112



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Maximum Ratings at Ta = 25°C

				Unit
Maximum supply voltage	V _{CC} max		±7	V
Allowable power dissipation	P _d max	Ta ≤ 75°C	300	mV
Operating temperature	T _{opr}		-20 to +75	°C
Storage temperature	T _{stg}		-55 to +150	°C

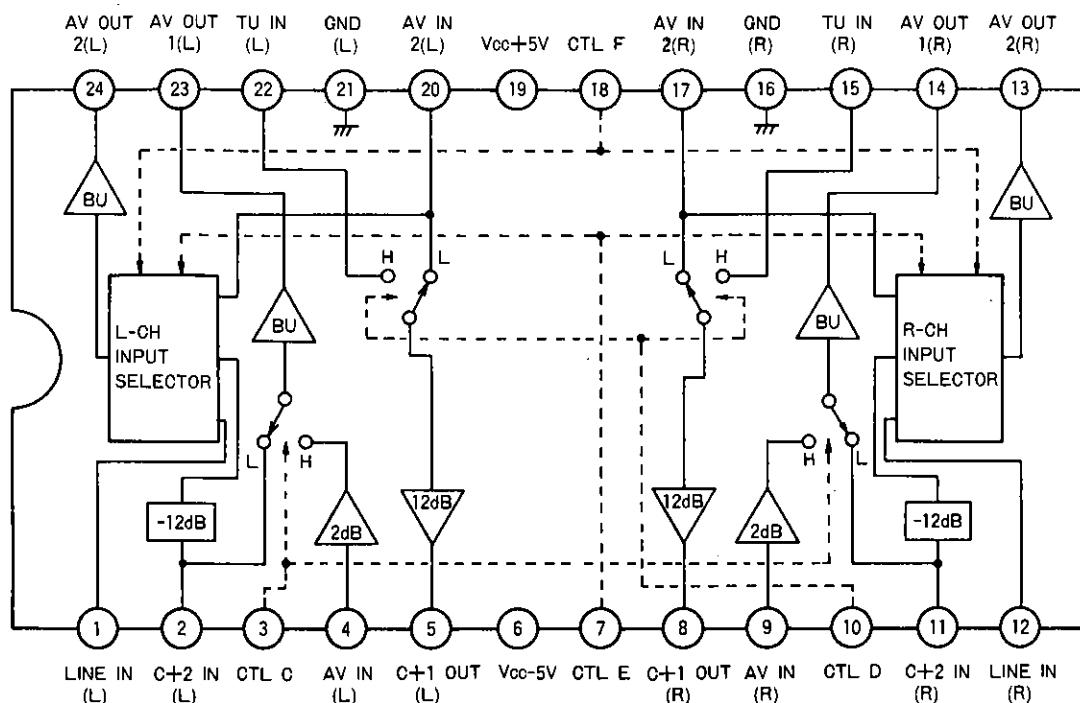
Operating Conditions at Ta = 25°C

				Unit
Recomended supply voltage	V _{CC}		±5	V
Operating voltage range	V _{CC op}		±4 to ±6	V

* Both + and - voltages of supply are required.

Operating characteristics at Ta=25°C, V_{CC}=±5V and f=1kHz

			min	typ	max	Unit
Current dissipation	I _{CC}	No signal	8	11	14	mA
Output voltage 1	V _{O1}	V _{IN} =-18dBV	-19	-18	-17	dBV
Output voltage 2	V _{O2}	V _{IN} =-6 dBV	-19	-18	-17	dBV
Output voltage 3	V _{O3}	V _{IN} =-6 dBV	-7	-6	-5	dBV
Output voltage 4	V _{O4}	V _{IN} =-8 dBV	-7	-6	-5	dBV
Output voltage 5	V _{O5}	V _{IN} =-18dBV	-7	-6	-5	dBV
Total harmonic distortion 1	THD ₁	V _{IN} =-18dBV		0.005	0.1	%
Total harmonic distortion 2	THD ₂	V _{IN} =-6 dBV		0.005	0.1	%
Total harmonic distortion 3	THD ₃	V _{IN} =-6 dBV		0.008	0.1	%
Total harmonic distortion 4	THD ₄	V _{IN} =-8 dBV		0.01	0.1	%
Total harmonic distortion 5	THD ₅	V _{IN} =-18dBV		0.01	0.1	%
Maximum output voltage 1	V _{OM1}	THD=1%	5.0	9.0		dBV
Maximum output voltage 2	V _{OM2}	THD=1%	-7	-3		dBV
Maximum output voltage 3	V _{OM3}	THD=1%	6.0	9.0		dBV
Maximum output voltage 4	V _{OM4}	THD=1%	6.0	9.0		dBV
Maximum output voltage 5	V _{OM5}	THD=1%	6.0	9.0		dBV
Output noise voltage 1	V _{ON1}			-110	-104	dBV
Output noise voltage 2	V _{ON2}	No signal		-110	-104	dBV
Output noise voltage 3	V _{ON3}	R _g =600Ω		-107	-101	dBV
Output noise voltage 4	V _{ON4}	DIN AUDIO FILTER		-105	-99	dBV
Output noise voltage 5	V _{ON5}			-101	-94	dBV
Input separation	V _{CR}	V _{IN} =-8dBV, Other input, R _g =600Ω	-80			dB
Switched DC offset	V _{DC}	Outputs at pins 13 and 24 No signal	-20	0	+20	mV
H mode hold voltage	V _{CHI}	V ₃ , V ₇ , V ₁₀ , V ₁₈		3.5	+V _{CC}	V
L mode hold voltage	V _{CLOW}	V ₃ , V ₇ , V ₁₀ , V ₁₈		0	1.0	V

Block Diagram

AV OUT 1

Control pin 3	Output L-CH	Output R-CH
L	C+2 IN (L)	C+2 IN (R)
H	AV IN (L)	AV IN (R)

AV OUT 2

Control pin 7	Control pin 18	Output L-CH	Output R-CH
L	L	AV IN 2(L)	AV IN 2(R)
L	H	LINE IN (L)	LINE IN (R)
H	L	C+2 IN (L)	C+2 IN (R)
H	H	LINE IN (L)	LINE IN (R)

C+1 OUT

Control pin 10	Output L-CH	Output R-CH
L	AV IN 2(L)	AV IN 2(R)
H	TU IN (L)	TU IN (R)

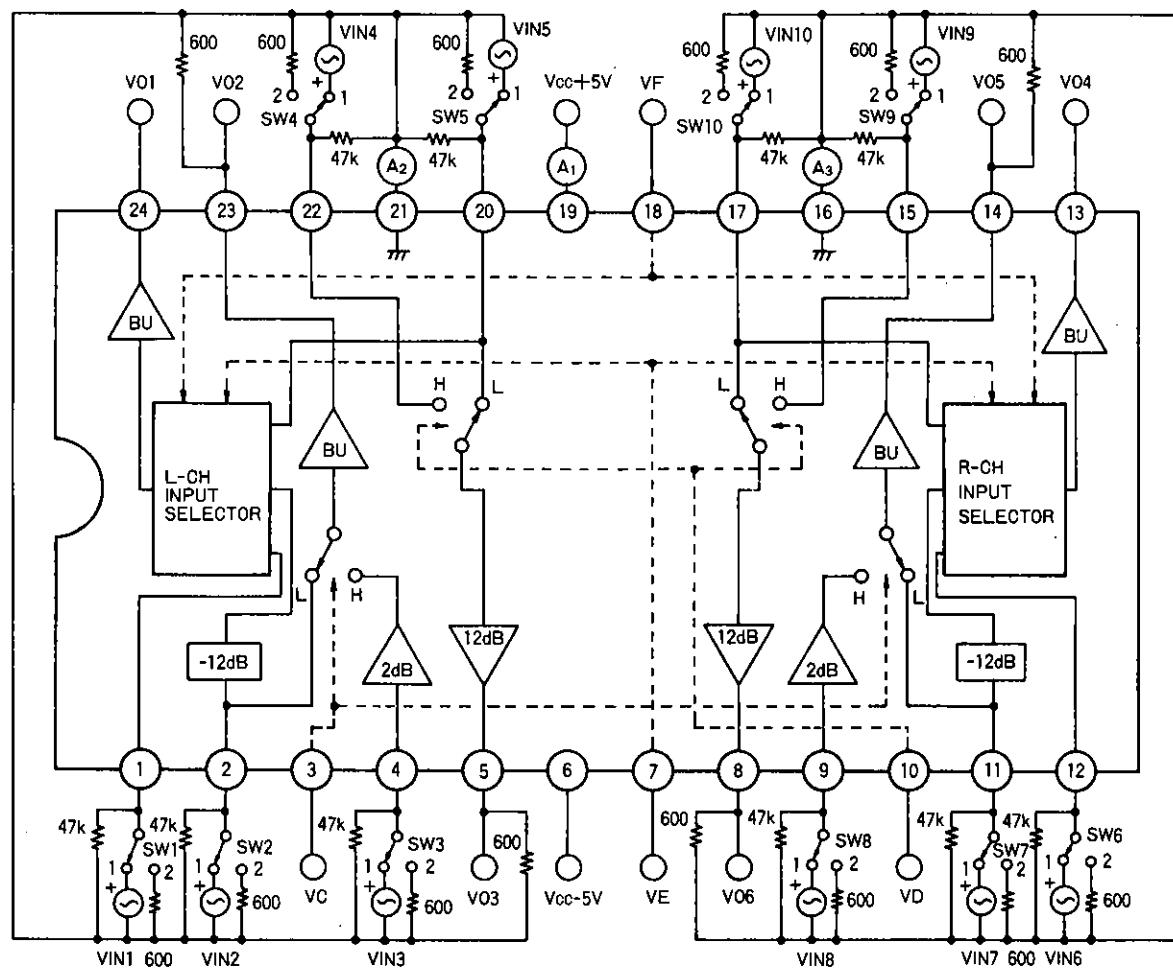
Test CircuitUnit (resistance: Ω)

Table of switch operation

Symbol	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	SW9	SW10	VC	VD	VE	VF	Measuring point
Icc	2	2	2	2	2	2	2	2	2	2	L	L	L	L	A ₁ +A ₂ +A ₃
V _{O1-1L}	1	2	2	2	2	2	2	2	2	2	L	L	L	H	V _{O1}
V _{O1-1R}	2	2	2	2	2	1	2	2	2	2	L	L	L	H	V _{O4}
V _{O1-2L}	2	2	2	2	1	2	2	2	2	2	L	L	L	L	V _{O1}
V _{O1-2R}	2	2	2	2	2	2	2	2	2	1	L	L	L	L	V _{O4}
V _{O2-1L}	2	1	2	2	2	2	2	2	2	2	L	L	H	L	V _{O1}
V _{O2-1R}	2	2	2	2	2	2	1	2	2	2	L	L	H	L	V _{O4}
V _{O3-1L}	2	1	2	2	2	2	2	2	2	2	L	L	H	L	V _{O2}
V _{O3-1R}	2	2	2	2	2	2	1	2	2	2	L	L	H	L	V _{O5}
V _{O4-1L}	2	2	1	2	2	2	2	2	2	2	H	L	H	L	V _{O2}
V _{O4-1R}	2	2	2	2	2	2	2	1	2	2	H	L	H	L	V _{O5}
V _{O5-1L}	2	2	2	1	2	2	2	2	2	2	H	H	H	L	V _{O3}
V _{O5-1R}	2	2	2	2	2	2	2	2	1	2	H	H	H	L	V _{O6}
V _{O5-2L}	2	2	2	2	1	2	2	2	2	2	H	L	H	L	V _{O3}
V _{O5-2R}	2	2	2	2	2	2	2	2	2	1	H	L	H	L	V _{O6}
THD _{1-1L}	1	2	2	2	2	2	2	2	2	2	L	L	L	H	V _{O1}
THD _{1-1R}	2	2	2	2	2	1	2	2	2	2	L	L	L	H	V _{O4}
THD _{1-2L}	2	2	2	2	1	2	2	2	2	2	L	L	L	L	V _{O1}
THD _{1-2R}	2	2	2	2	2	2	2	1	2	2	L	L	L	L	V _{O4}
THD _{2-1L}	2	1	2	2	2	2	2	2	2	2	L	L	H	L	V _{O1}
THD _{2-1R}	2	2	2	2	2	2	1	2	2	2	L	L	H	L	V _{O4}
THD _{3-1L}	2	1	2	2	2	2	2	2	2	2	L	L	H	L	V _{O2}
THD _{3-1R}	2	2	2	2	2	2	1	2	2	2	L	L	H	L	V _{O5}
THD _{4-1L}	2	2	1	2	2	2	2	2	2	2	H	L	H	L	V _{O2}
THD _{4-1R}	2	2	2	2	2	2	2	2	1	2	H	L	H	L	V _{O5}
THD _{5-1L}	2	2	2	1	2	2	2	2	2	2	H	H	H	L	V _{O3}
THD _{5-1R}	2	2	2	2	2	2	2	2	2	1	H	H	H	L	V _{O6}
THD _{5-2L}	2	2	2	2	1	2	2	2	2	2	H	L	H	L	V _{O3}
THD _{5-2R}	2	2	2	2	2	2	2	2	2	1	H	L	H	L	V _{O6}
V _{O M1-1L}	1	2	2	2	2	2	2	2	2	2	L	L	L	H	V _{O1}
V _{O M1-1R}	2	2	2	2	2	1	2	2	2	2	L	L	L	H	V _{O4}
V _{O M1-2L}	2	2	2	2	1	2	2	2	2	2	L	L	L	L	V _{O1}
V _{O M1-2R}	2	2	2	2	2	2	2	2	2	1	L	L	L	L	V _{O4}
V _{O M2-1L}	2	1	2	2	2	2	2	2	2	2	L	L	H	L	V _{O1}
V _{O M2-1R}	2	2	2	2	2	2	1	2	2	2	L	L	H	L	V _{O4}
V _{O M3-1L}	2	1	2	2	2	2	2	2	2	2	L	L	H	L	V _{O2}
V _{O M3-1R}	2	2	2	2	2	2	1	2	2	2	L	L	H	L	V _{O5}
V _{O M4-1L}	2	2	1	2	2	2	2	2	2	2	H	L	H	L	V _{O2}
V _{O M4-1R}	2	2	2	2	2	2	2	1	2	2	H	L	H	L	V _{O5}
V _{O M5-1L}	2	2	2	1	2	2	2	2	2	2	H	H	H	L	V _{O3}
V _{O M5-1R}	2	2	2	2	2	2	2	2	1	2	H	H	H	L	V _{O6}
V _{O M5-2L}	2	2	2	2	1	2	2	2	2	2	H	L	H	L	V _{O3}
V _{O M5-2R}	2	2	2	2	2	2	2	2	2	1	H	L	H	L	V _{O6}

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Symbol	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8	SW9	SW10	VC	VD	VE	VF	Measuring point
VON1-1L	2	2	2	2	2	2	2	2	2	2	L	L	L	H	V01
VON1-1R	2	2	2	2	2	2	2	2	2	2	L	L	L	H	V04
VON1-2L	2	2	2	2	2	2	2	2	2	2	L	L	L	L	V01
VON1-2R	2	2	2	2	2	2	2	2	2	2	L	L	L	L	V04
VON2-1L	2	2	2	2	2	2	2	2	2	2	L	L	H	L	V01
VON2-1R	2	2	2	2	2	2	2	2	2	2	L	L	H	L	V04
VON3-1L	2	2	2	2	2	2	2	2	2	2	L	L	H	L	V02
VON3-1R	2	2	2	2	2	2	2	2	2	2	L	L	H	L	V05
VON4-1L	2	2	2	2	2	2	2	2	2	2	H	L	H	L	V02
VON4-1R	2	2	2	2	2	2	2	2	2	2	H	L	H	L	V05
VON5-1L	2	2	2	2	2	2	2	2	2	2	H	H	H	L	V03
VON5-1R	2	2	2	2	2	2	2	2	2	2	H	H	H	L	V06
VON5-2L	2	2	2	2	2	2	2	2	2	2	H	L	H	L	V03
VON5-2R	2	2	2	2	2	2	2	2	2	2	H	L	H	L	V06
VCR-1L	1	2	2	2	2	2	2	2	2	2	L	L	L	H	V02, 3, 4, 5, 6
VCR-1R	2	2	2	2	2	1	2	2	2	2	L	L	L	H	V01, 2, 3, 5, 6
VCR-2L	2	2	2	2	1	2	2	2	2	2	L	L	L	L	V02, 3, 4, 5, 6
VCR-2R	2	2	2	2	2	2	2	2	2	1	L	L	L	L	V01, 2, 3, 5, 6
VCR-3L	2	1	2	2	2	2	2	2	2	2	L	L	H	L	V02, 3, 4, 5, 6
VCR-3R	2	2	2	2	2	2	1	2	2	2	L	L	H	L	V01, 2, 3, 5, 6
VCR-4L	2	1	2	2	2	2	2	2	2	2	L	L	H	L	V01, 3, 4, 5, 6
VCR-4R	2	2	2	2	2	2	1	2	2	2	L	L	H	L	V01, 2, 3, 4, 6
VCR-5L	2	2	1	2	2	2	2	2	2	2	H	L	H	L	V01, 3, 4, 5, 6
VCR-5R	2	2	2	2	2	2	2	2	1	2	H	L	H	L	V01, 2, 3, 4, 6
VCR-6L	2	2	2	1	2	2	2	2	2	2	H	H	H	L	V01, 2, 4, 5, 6
VCR-6R	2	2	2	2	2	2	2	2	2	1	H	H	H	L	V01, 2, 3, 4, 5
VCR-7L	2	2	2	2	1	2	2	2	2	2	H	L	H	L	V01, 2, 4, 5, 6
VCR-7R	2	2	2	2	2	2	2	2	2	1	H	L	H	L	V01, 2, 3, 4, 5
VDC-L	2	2	2	2	2	2	2	2	2	2	L	L	L/H	L/H	V01
VDC-R	2	2	2	2	2	2	2	2	2	2	L	L	L/H	L/H	V04
VCH1-3	2	2	1	2	2	2	2	2	2	2	-	L	H	L	VC
VCH1-7	2	1	2	2	2	2	2	2	2	2	L	L	-	L	VF
VCH1-10	2	2	2	1	2	2	2	2	2	2	H	-	H	L	VD
VCH1-18	1	2	2	2	2	2	2	2	2	2	L	L	L	-	VE
VCLOW-3	2	1	2	2	2	2	2	2	2	2	-	L	H	L	VC
VCLOW-7	2	2	2	2	1	2	2	2	2	2	L	L	-	L	VF
VCLOW-10	2	2	2	2	1	2	2	2	2	2	H	-	H	L	VD
VCLOW-18	2	2	2	2	1	2	2	2	2	2	L	L	L	-	VE

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