

SANYO	No. 4184	Monolithic Digital IC
		LB8111V
8 mm VTR Sensor Amplifier		

Overview

The LB8111V is equipped with built-in amplifiers for use with reel FG, drum FG and drum PG applications to make this IC most suitable for portable VTR (Video Tape Recorder) applications.

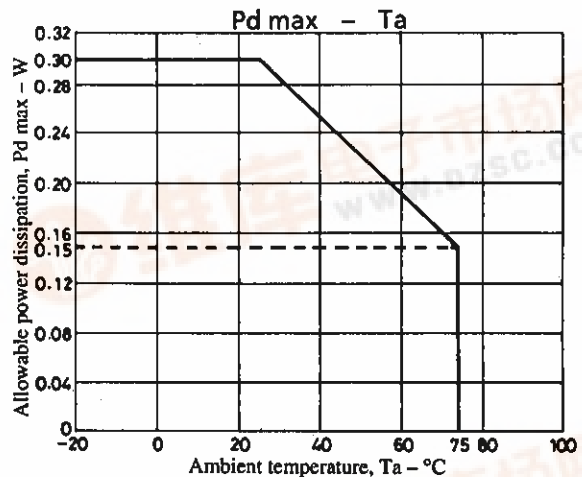
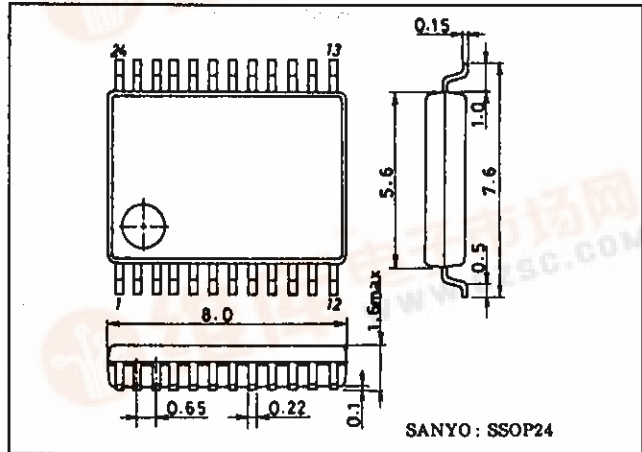
Features

- Built-in 2-channel reel FG amplifier
- Built-in drum FG amplifier
- Built-in drum PG amplifier

Package Dimensions

unit : mm

3175A-SSOP24



Specifications

Absolute Maximum Ratings at Ta = 25°C

Maximum supply voltage	V _{CC} max	7	unit
Allowable power dissipation	Pd max	0.3	W
Operating temperature	T _{opr}	-20 to +75	°C
Storage temperature	T _{stg}	-55 to +125	°C

Allowable Operating Conditions at Ta = 25°C

Supply voltage	V _{CC}	4.0 to 5.5	unit
			V

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Electrical Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC} = 5\text{V}$

		min	typ	max	unit	note
Supply current	I_{CC}		3	5	mA	
Internal reference voltage	V_{REF}	1.8	2.0	2.2	V	

[Reel FG amplifier]						
Input offset voltage	V_{IO}		± 1	± 5	mV	
Input bias current	I_B			250	nA	
In-phase input voltage range	V_{ICM}	1		4	V	
In-phase signal clearance ratio	CMR	65	80		dB	*
Open-loop gain	G_V		55		dB	
Source side output saturation voltage	V_{OU}	$I_O = -500\mu\text{A}$	3.7		V	
Synch side output saturation voltage	V_{OD}	$I_O = 500\mu\text{A}$		1.3	V	

[Drum FG amplifier]

Input offset voltage	V_{IO}		± 1	± 5	mV	*
Input bias current	I_B			250	nA	*
In-phase input voltage range	V_{ICM}	1		4	V	*
Output current (sink)	I_{OL}			2	mA	
Output ON voltage	V_{OL}		0.2	0.4	V	
Output OFF voltage	V_{OH}	4.8			V	
Hysteresis width	V_{HIS}	70	100	130	mV	*

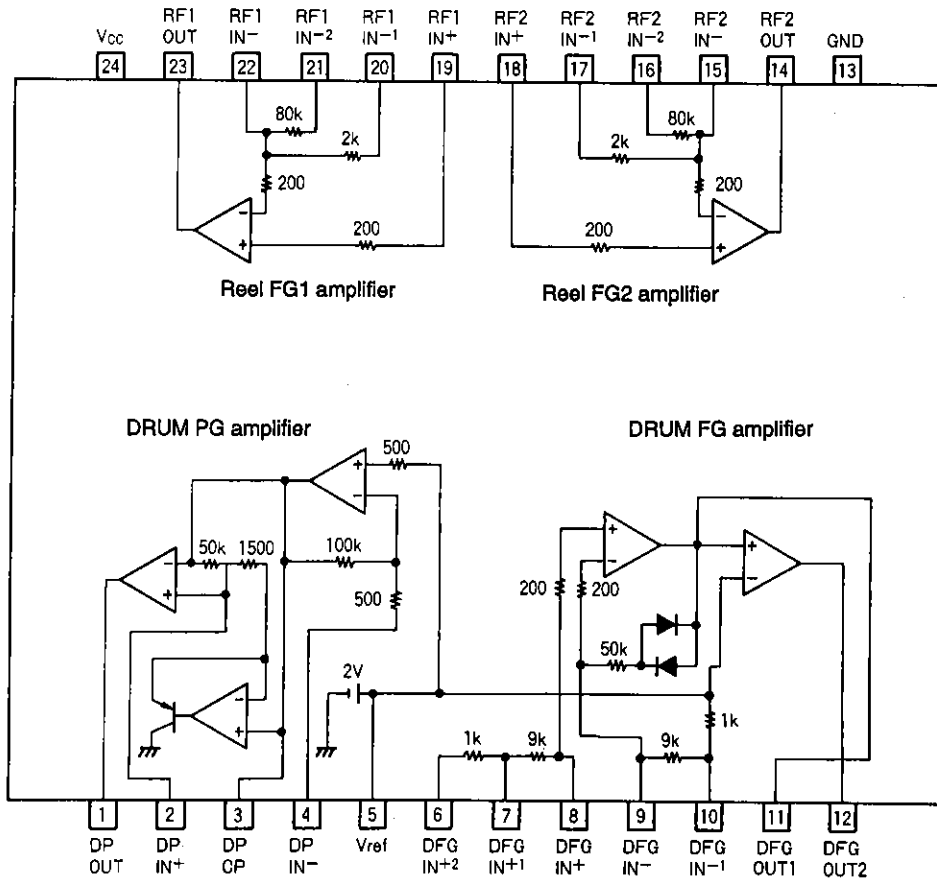
[Drum PG amplifier]

Input offset voltage	V_{IO}		± 1	± 5	mV	
Input bias current	I_B			500	nA	*
In-phase input voltage range	V_{ICM}	1		4	V	*
Output current (sink)	I_{OL}			2	mA	
Output ON voltage	V_{OL}		0.2	0.4	V	
Output OFF voltage	V_{OH}	4.8			V	
Schmitt amplifier hysteresis width	V_{SHIS}		20		mV	*

Note: * marks indicate items that were not subject to testing.

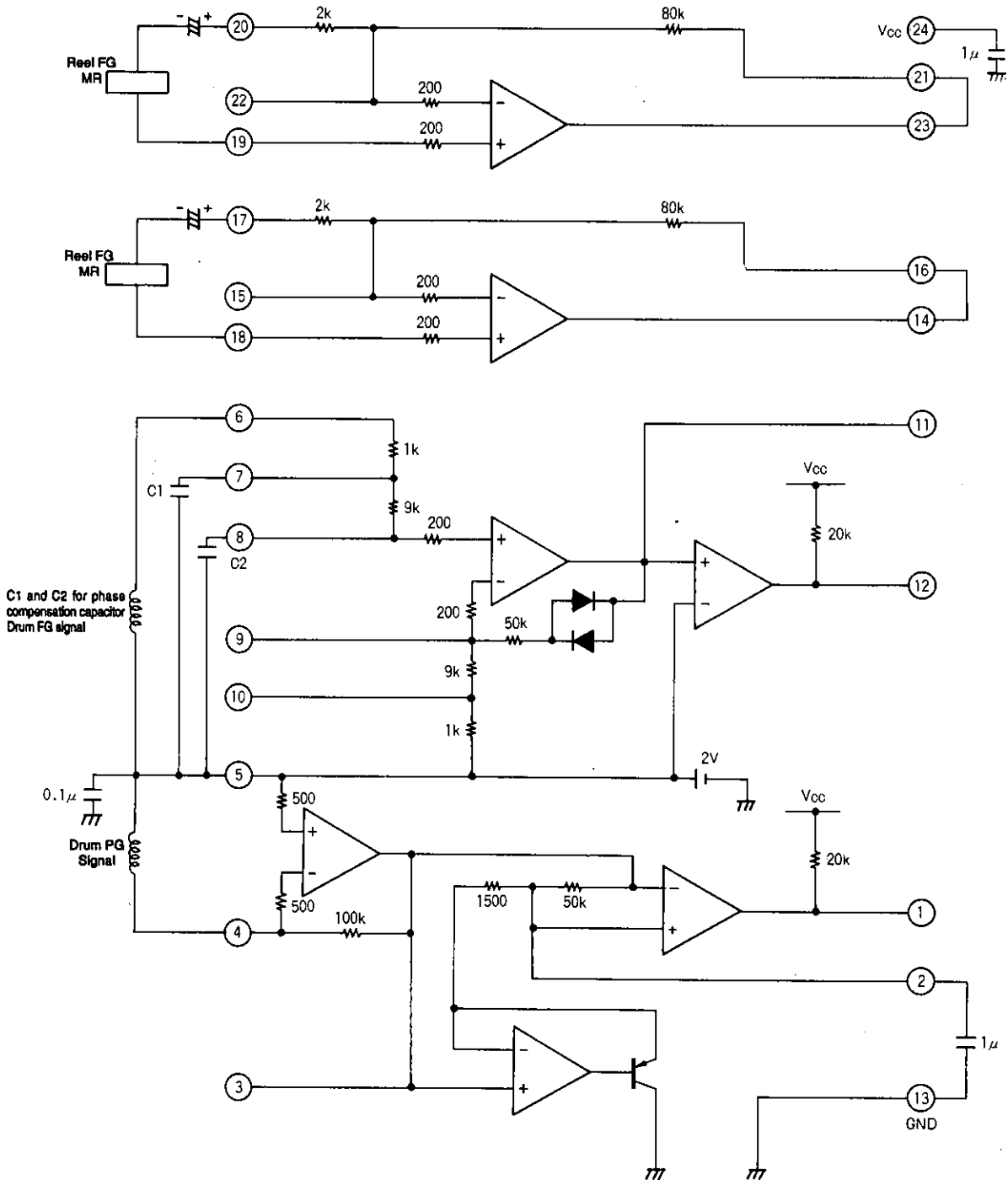
Pin Assignment

Unit (resistance: Ω)



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Block Diagram



Unit (resistance: Ω, capacitance: F)

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Pin Assignment

(Power supply reel amplifier)

Pin No.	Pin Symbol	Pin Voltage	Equivalent circuit	Pin Description
24	V_{CC}			This pin is for total circuit power supply.
13	GND			This pin is for total circuit ground (GND).
5	V_{ref}			This pin is for internal reference voltage ($\approx 2V$). This voltage is reference voltage for Drum FG and Drum PG amplifiers.
18	$R_{EE}LFG2_{in+}$			These pins are for positive (+) inputs for the reel FG amplifiers.
19	$R_{EE}LFG1_{in+}$			These pins are for negative (-) inputs for the reel FG amplifiers.
15	$R_{EE}LFG2_{in-}$			These pins are for reel FG amplifier negative (-) inputs equipped with 2k input resistors.
22	$R_{EE}LFG1_{in-}$			These pins are for reel FG amplifier negative (-) inputs equipped with 80kΩ feed-back resistors.
17	$R_{EE}LFG2_{in-1}$			
20	$R_{EE}LFG1_{in-1}$			
16	$R_{EE}LFG2_{in-2}$			
21	$R_{EE}LFG1_{in-2}$			
14	$R_{EE}LFG2_{out}$			These pins are for reel FG amplifier output pins.
23	$R_{EE}LFG1_{out}$			

Unit (resistance: Ω)

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(Drum PG amplifier)

Pin No.	Pin Symbol	Pin Voltage	Equivalent circuit	Pin Description
4	DRUM PGin ⁻			This pin is for Drum PG amplifier Input. Inputs PG signal to interval with V _{REF} .
3	DRUM PGC.P			This pin is for Drum PG amplifier first-stage amplifier output. This is the check pin for PG amplifier measurement. (With actual applications, this pin is not used.)
2	DRUM PGin ⁺			This pin is for connecting a Drum PG amplifier peak hold capacitor.
1	DRUM PG _{OUT}			This pin is the Drum PG amplifier output pin.

Unit (resistance: Ω)

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(Drum FG amplifier)

Pin No.	Pin Symbol	Pin Voltage	Equivalent circuit	Pin Description
6	DRUM FG _{in+2}			This pin is for Drum FG amplifier positive (+) Input equipped with a 1k input resistor. Inputs FG signal to interval with V _{REF} .
7	DRUM FG _{in+1}			This pin is for Drum FG amplifier positive (+) input equipped with a 9k input resistor.
8	DRUM FG _{in+}			This pin is for Drum FG amplifier positive (+) input.
10	DRUM FG _{in-1}			This pin is for Drum FG amplifier negative (-) input equipped with a 9k input resistor.
9	DRUM FG _{in-}			This pin is for Drum FG amplifier negative (-) input.
11	DRUM FG _{OUT 1}			This pin is for Drum FG amplifier first-stage amplifier output. This is the check pin for FG amplifier measurement. (With actual applications, this pin is not used.)
12	DRUM FG _{OUT 2}			This pin is for the Drum FG amplifier output pin.

Unit (resistance: Ω)

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