Ordering number : EN4184

Monolithic Digital IC

No. 4184

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.

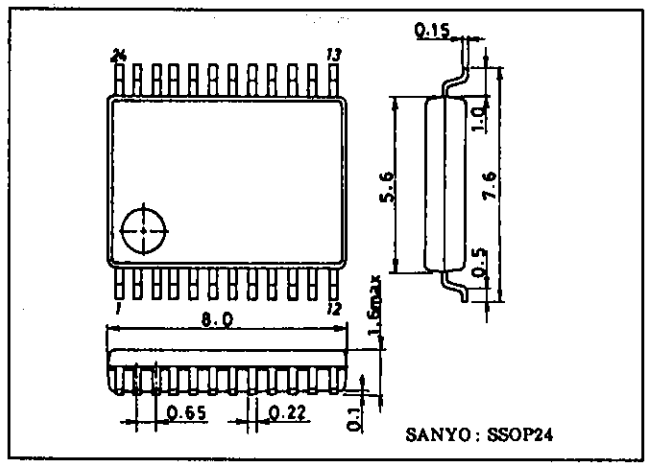
Features

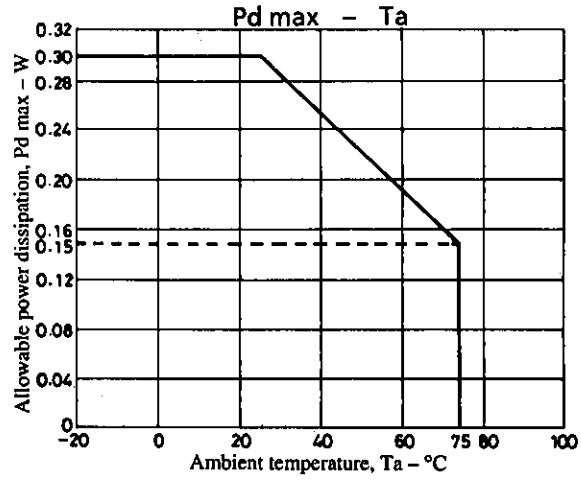
- Built-in 2-channel reel FG amplifier
- Built-in drum FG amplifier
- Built-in drum PG amplifier

Package Dimensions

unit : mm

3175A-SSOP24





Specifications

Absolute Maximum Ratings at Ta = 25°C

			unit
Maximum supply voltage	V_{CC} max	7	V
Allowable power disspation	Pd max	0.3	W
Operating temperature	Topr	–20 to +75	°C
Storage temperature	Tstg	–55 to +125	°C

Allowable Operating Conditions at Ta = 25°C

			unit
Supply voltage	V_{CC}	4.0 to 5.5	V

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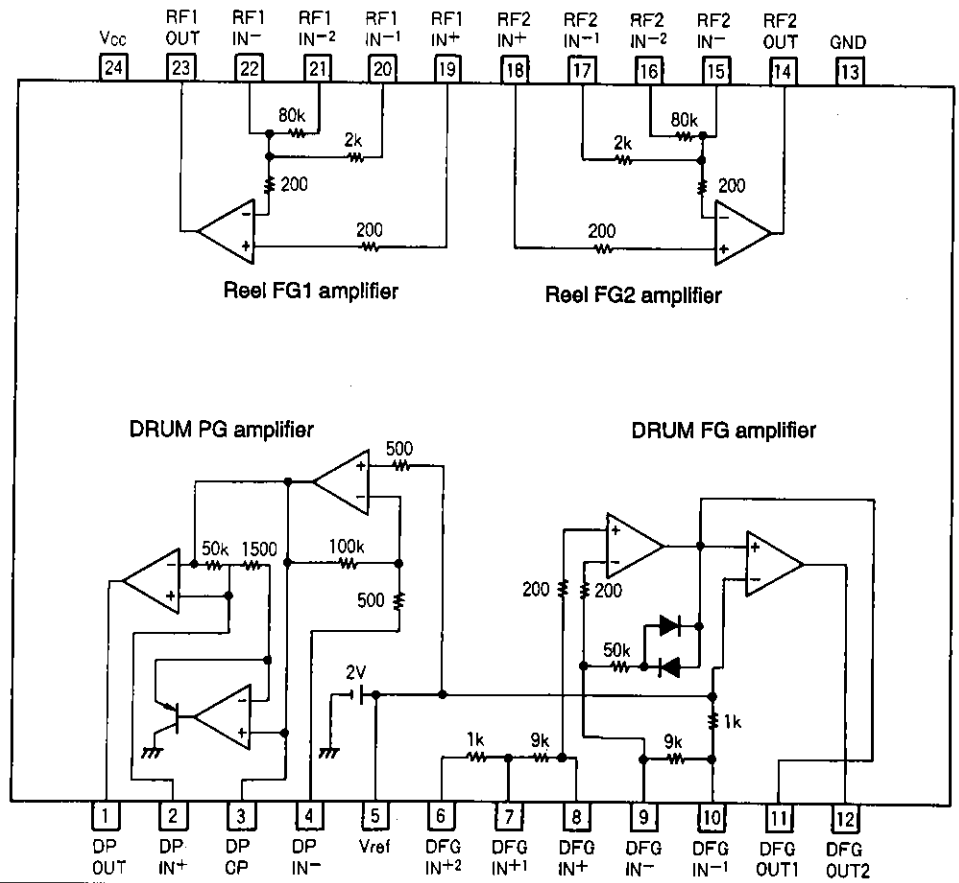
Electrical Characteristics at Ta = 25°C, V_{CC} = 5V			min	typ	max	unit	note
Supply current	I_{CC}			3	5	mA	
Internal reference voltage	V_{REF}		1.8	2.0	2.2	V	
[Reel FG amplifier]							
Input offset voltage	V_{IO}			±1	±5	mV	
Input bias current	I_B				250	nA	
In-phase input voltage range	V_{ICM}		1		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 = −500μA	3.7			V	
Synch side output saturation voltage	V_{OD}	I_O = 500μA			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	*

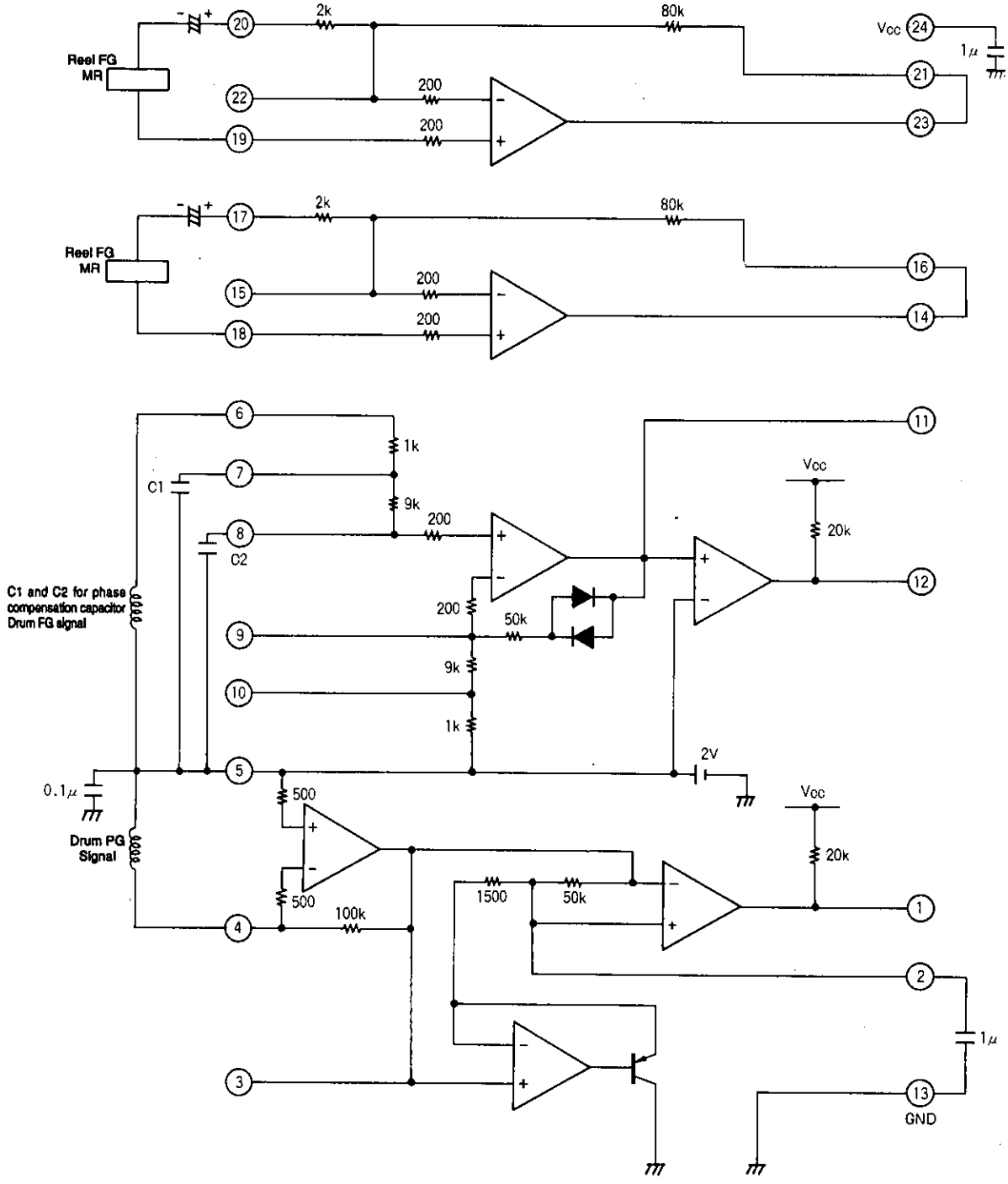
Note: * marks indicate items that were not subject to testing.

Pin Assignment

Unit (resistance: Ω)



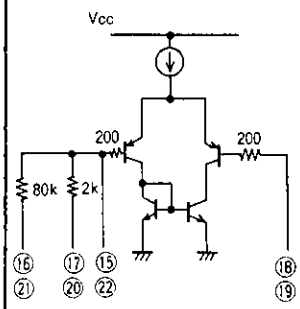
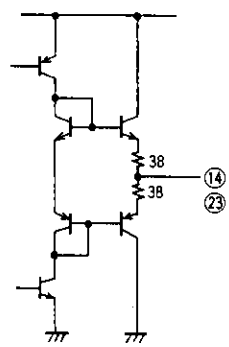
Block Diagram



Unit (resistance: Ω, capacitance: F)

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	Vref			This pin is for internal reference voltage (≈2V). This voltage is reference voltage for Drum FG and Drum PG amplifiers.
18 19	$R_{EE}LFG2_{in}+$ $R_{EE}LFG1_{in}+$			These pins are for positive (+) inputs for the reel FG amplifiers.
15 22	$R_{EE}LFG2_{in}-$ $R_{EE}LFG1_{in}-$			These pins are for negative (–) inputs for the reel FG amplifiers.
17 20	$R_{EE}LFG2_{in}$-1 $R_{EE}LFG1_{in}$-1			These pins are for reel FG amplifier negative (–) inputs equipped with 2k input resistors.
16 21	$R_{EE}LFG2_{in}$-2 $R_{EE}LFG1_{in}$-2			These pins are for reel FG amplifier negative (–) inputs equipped with 80kΩ feed-back resistors.
14 23	$R_{EE}LFG2_{out}$ $R_{EE}LFG1_{out}$			These pins are for reel FG amplifier output pins.

Unit (resistance: Ω)

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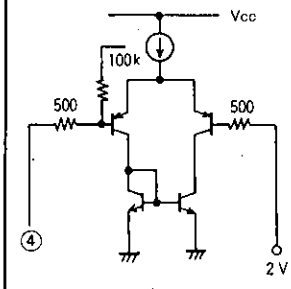
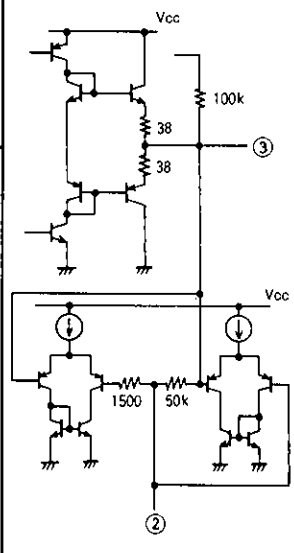
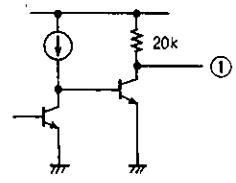
(Drum PG amplifier)

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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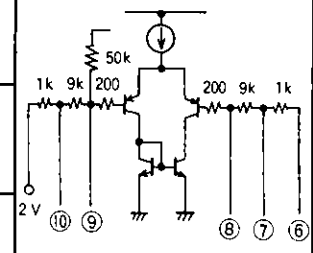
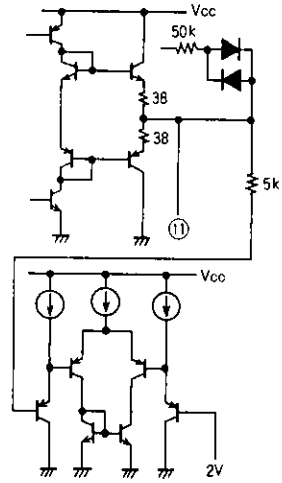
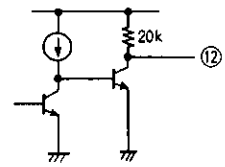
(Drum FG amplifier)

Pin No.	Pin Symbol	Pin Voltage	Equivalent circuit	Pin Description
6	DRUM FGin+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 FGin+1			This pin is for Drum FG amplifier positive (+) input equipped with a 9k input resistor.
8	DRUM FGin+			This pin is for Drum FG amplifier positive (+) input.
10	DRUM FGin−1			This pin is for Drum FG amplifier negative (−) input equipped with a 9k input resistor.
9	DRUM FGin−			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)