Ordering number:ENN4184

Monolithic Digital IC

LB8111V

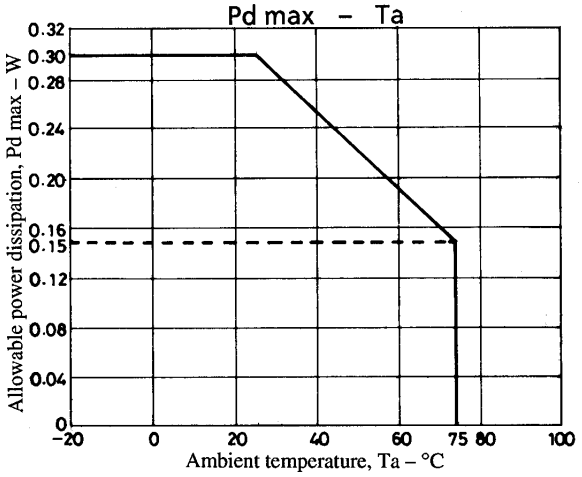
8mm VCR Sensor Amplifier

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 VCR (Video Cassette Recorder) applications.

Features

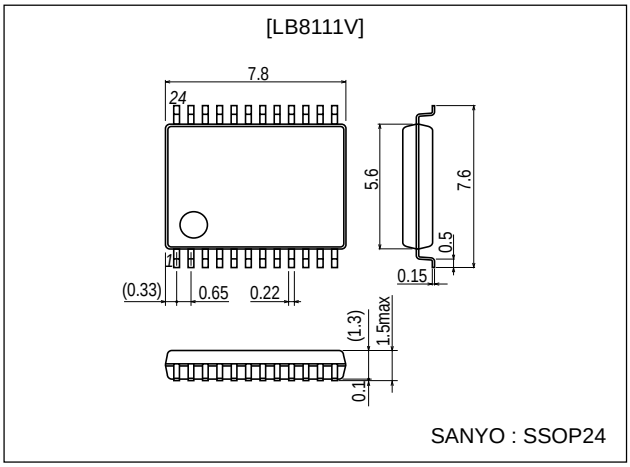
- Built-in 2-channel reed FG amplifier.
- Built-in drum FG amplifier.
- Built-in drum PG amplifier.



Package Dimensions

unit:mm

3175B-SSOP24



Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max		7	V
Allowable power dissipation	Pd max		0.3	W
Operating temperature	Topr		–20 to +75	˚C
Storage temperature	Tstg		–55 to +125	˚C

Allowable Operating Ranges at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{CC}		4.0 to 5.5	V

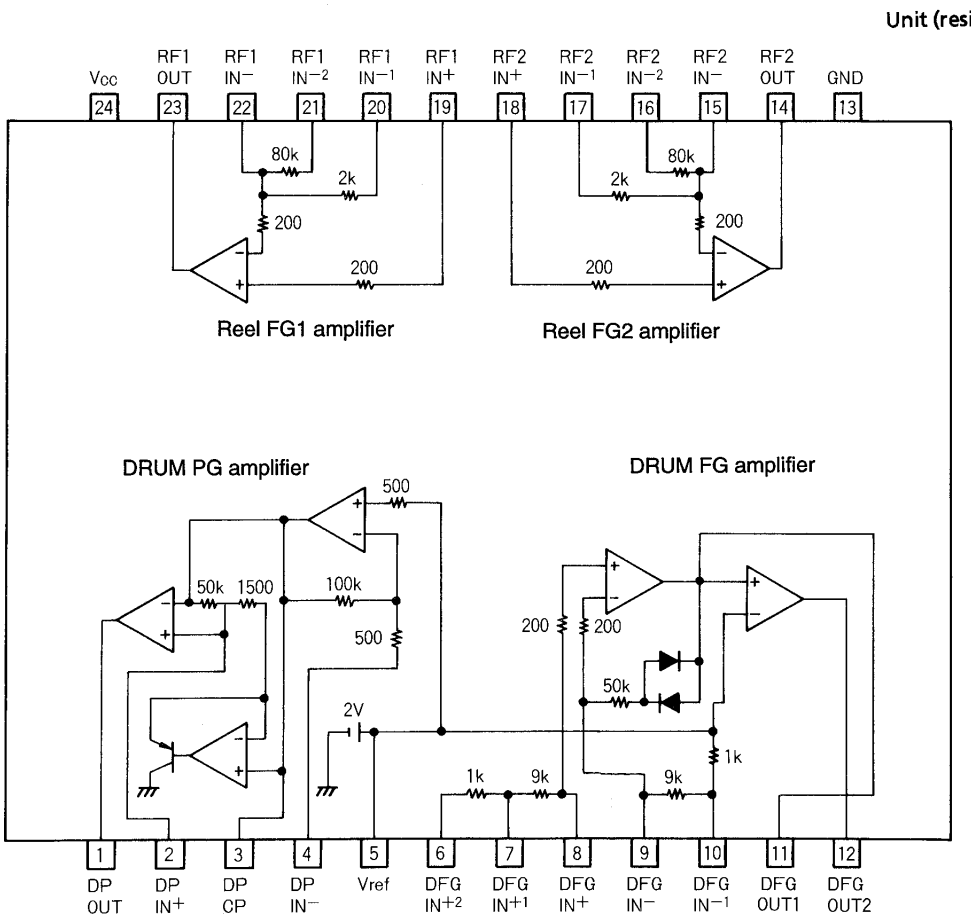
Electrical Characteristics at Ta = 25°C, V_{CC}=5V

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
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
Sink 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

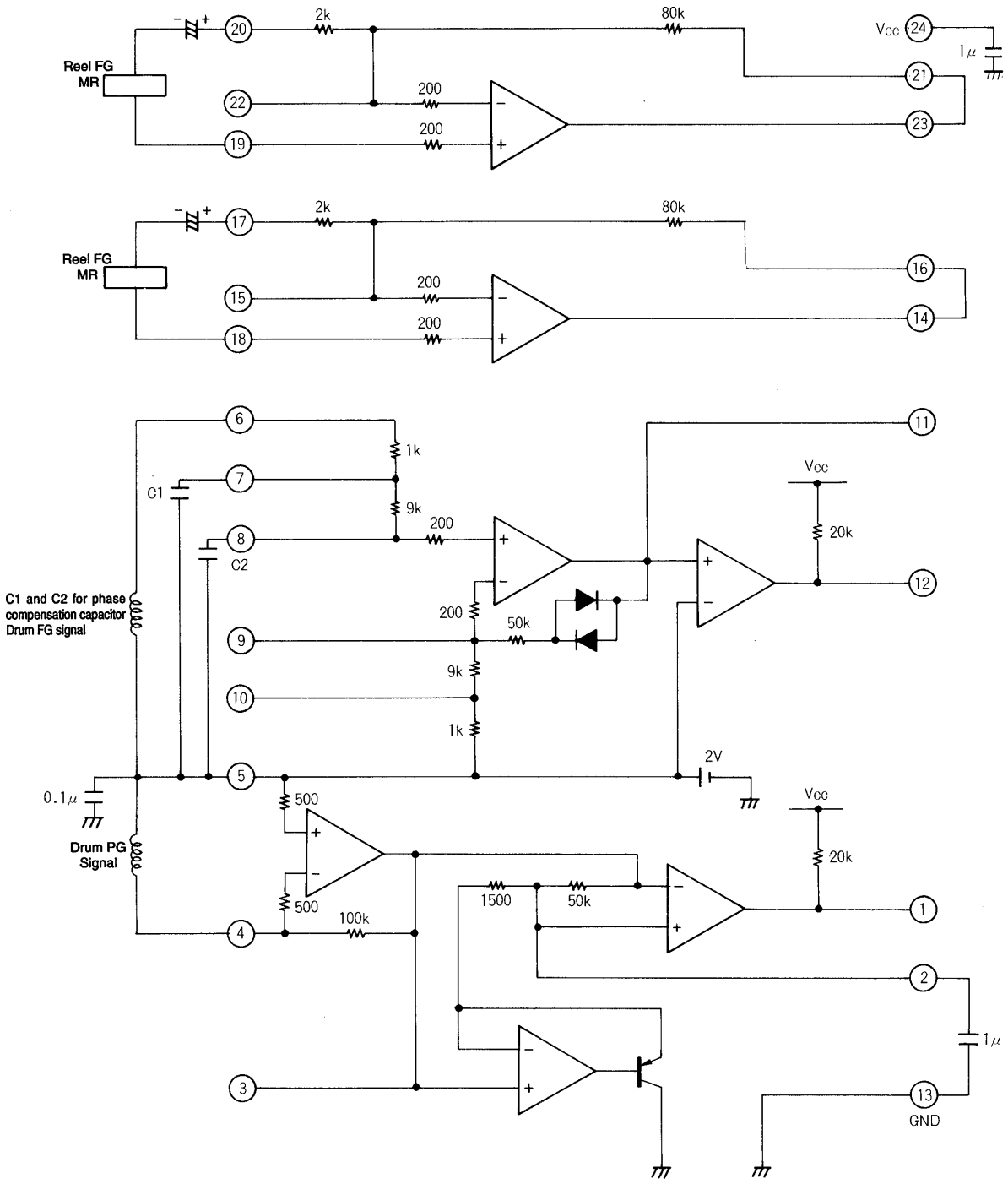
Note : * marks indicate items that were not subject to testing.

Pin Assignment

Unit (resistance: Ω)



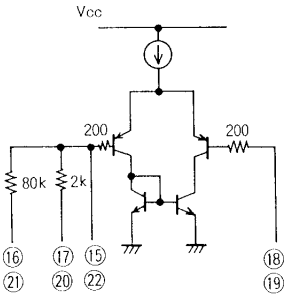
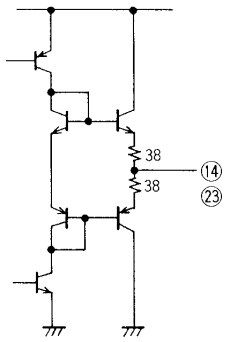
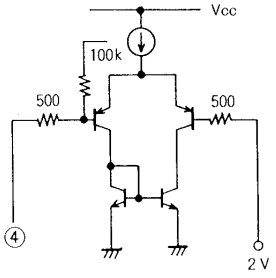
Block Diagram



Unit (resistance: Ω, capacitance: F)

Pin Function

Unit (resistance : Ω)

Pin No.	Pin Symbol	Pin Voltage	Equivalent Circuit	Pin Description
Power supply reel amplifier				
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.
Drum PG amplifier				
4	DRUM PGin–			This pin is for Drum PG amplifier input. Inputs PG signal to interval with V_{REF}.

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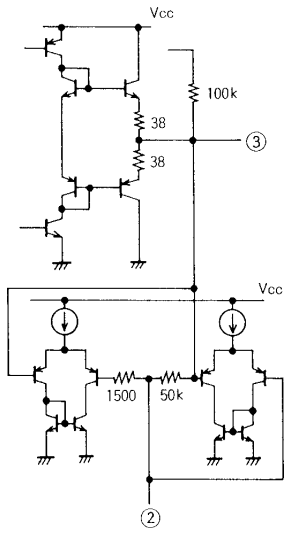
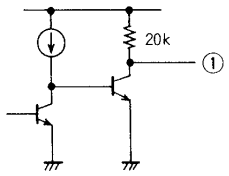
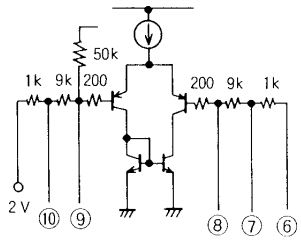
Pin No.	Pin Symbol	Pin Voltage	Equivalent Circuit	Pin Description
3	DRUM PGC.P			This pin is for Drum PG amplifier first-stage amplifier output. This is the check pin for PG amplifier measurement. (With actual applications, this pin is not used.)
2	DRUM PGin+			This pin is for connecting a Drum PG amplifier peak hold capacitor.
1	DRUM PG_{OUT}			This pin is the Drum PG amplifier output pin.
Drum FG amplifier				
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 amplifer negative (–) input equipped with a 9k input resistor.
9	DRUM $FGin^{-}$			This pin is for Drum FG amplifer negative (–) input.

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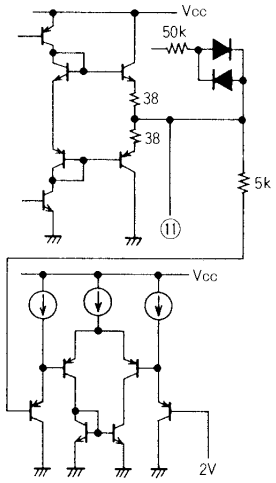
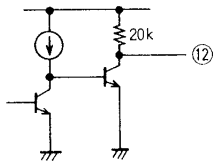
Continued form preceding page. Unit (resistance : Ω)

Pin No.	Pin Symbol	Pin Voltage	Equivalent Circuit	Pin Description
11	DRUM FG_{OUT1}			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_{OUT2}			This pin is for the Drum FG amplifier output pin.