



LB8111V

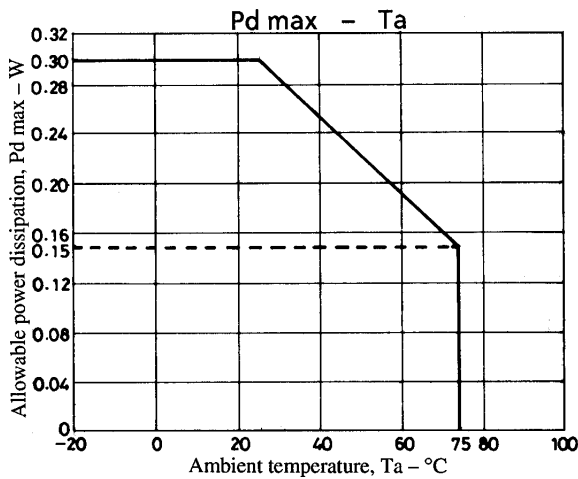
8mm VCR Sensor Amplifier

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

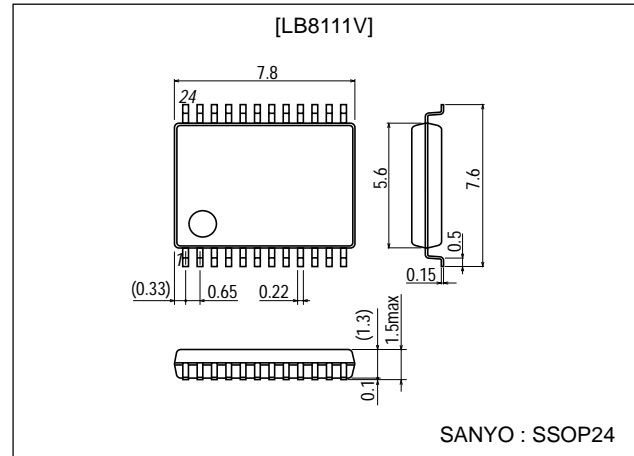
- Built-in 2-channel reed FG amplifier.
- Built-in drum FG amplifier.
- Built-in drum PG amplifier.



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

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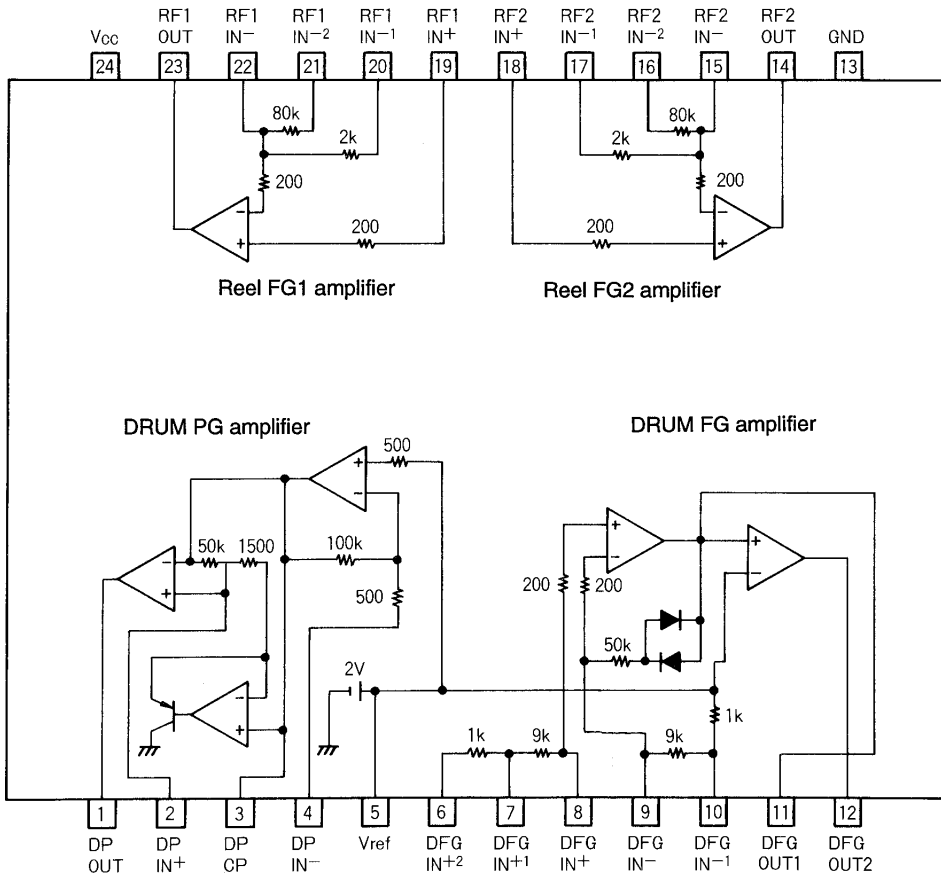
Electrical Characteristics at Ta = 25°C, VCC=5V

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.

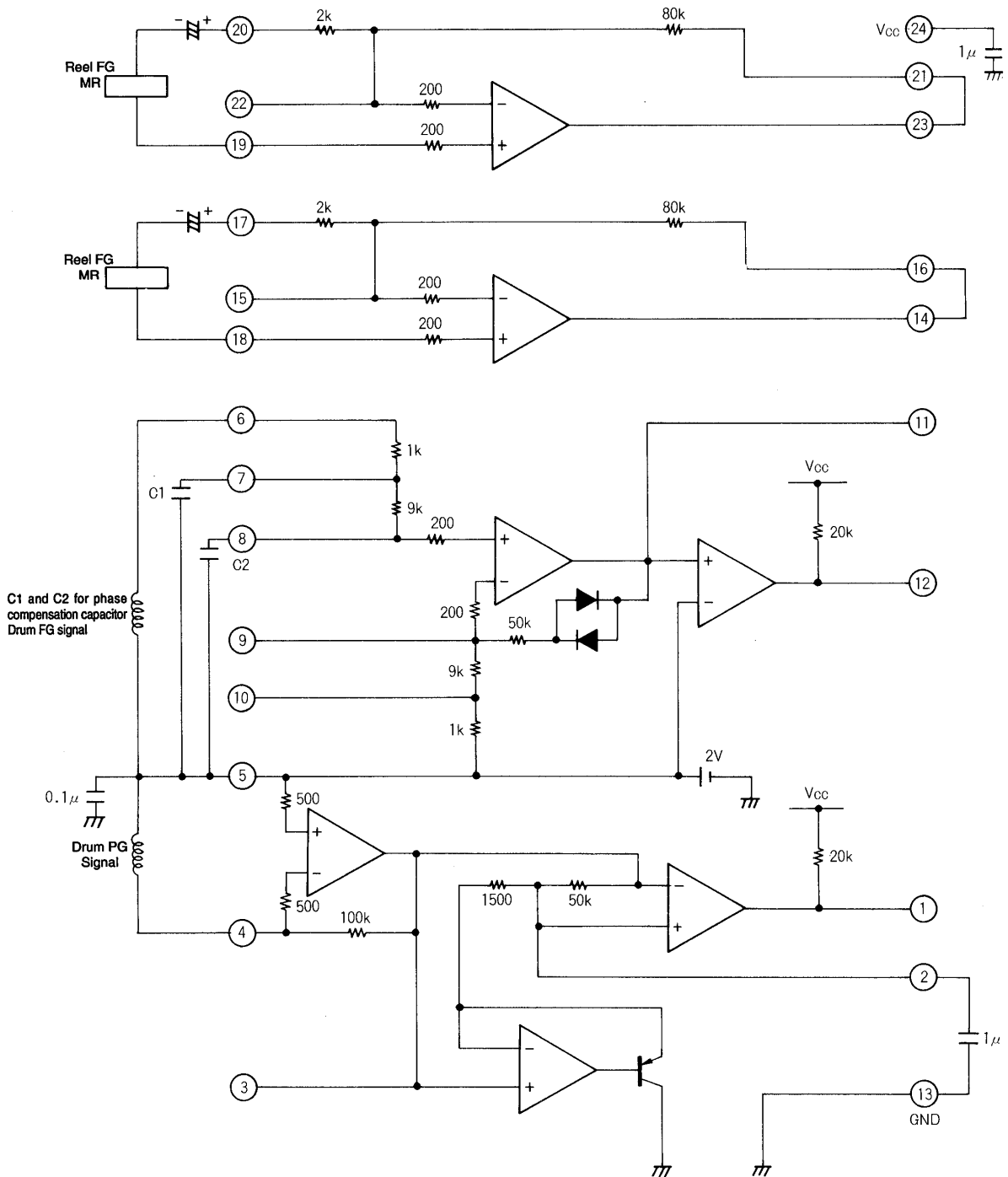
Pin Assignment

Unit (resistance: Ω)



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Block Diagram



Unit (resistance: Ω, capacitance: F)

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Pin Function

Unit (resistance : Ω)

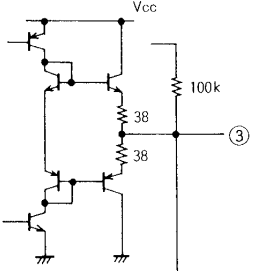
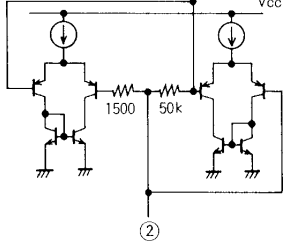
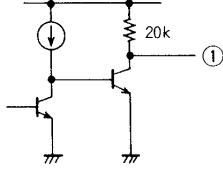
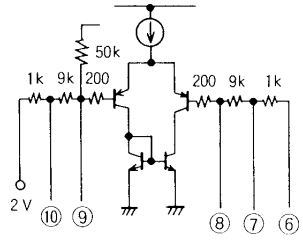
Pin No.	Pin Symbol	Pin Voltage	Equivalent Circuit	Pin Description
Power supply reel amplifier				
24	V _{CC}			This pin is for total circuit power supply.
13	GND			This pin is for total circuit ground (GND).
5	V _{ref}			This pin is for internal reference voltage (-2V). This voltage is reference voltage 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			These pins are for reel FG amplifier negative (-) inputs equipped with 80kΩ feed-back resistors.
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}			
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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Unit (resistance : Ω)

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 amplifier negative (-) input equipped with a 9k input resistor.
9	DRUM FGin ⁻			This pin is for Drum FG amplifier negative (-) input.

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Unit (resistance : Ω)

Pin No.	Pin Symbol	Pin Voltage	Equivalent Circuit	Pin Description
11	DRUM FG _{OUT1}			<p>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.)</p>
12	DRUM FG _{OUT2}			<p>This pin is for the Drum FG amplifier output pin.</p>

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