

Analog Servo Processor

YAMAHA CORP OF AMERICA/

GDR101 ASP

T-77-21

OUTLINE

GDR101 is a bipolar LSI for analog signal processing and for servo control of compact disc players, suitable for 3-beam system. CD player system can be constructed easily by combining with YM3805(SPC), YM7121C(SPC5), YM7402(CDVP).

FEATURES

- Single power supply(+5V) or dual power supply system($\pm 5V$) are selectable.
- CD player system can be made by using Digital Signal Processor such as YM7121C.
- Almost all the functions for analog system are incorporated.

RF amplifier
 focus error amp
 tracking error amp
 slice level control (SLC) amplifier
 VCO control amplifier
 focus (FCS) switch
 tracking switch(TSOFF, TRFD, TRGL)
 laser on/off switch

- Timing signals FRF, /FZC, HF, TWR are output.
- 48 pin QFP.

ELECTRICAL CHARACTERISTICS

Absolute maximum ratings

Parameter	Symbol	Conditions	Ratings	Unit
Maximum Power supply voltage	VCC/VEE		± 7	V
Power consumption	Pd max	Ta $\leq 75^\circ\text{C}$	430	mW
Operating temperature	Top		-25 ~ + 75	$^\circ\text{C}$
Storage temperature	Tstg		-40 ~ +125	$^\circ\text{C}$

Recommended operating conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power supply voltage	VCCop	+4	+5	+6	V
	VEEop	-6	-5	-4	V
Operating temperature	Top	0	25	75	$^\circ\text{C}$

Operating characteristics (Condition: Ta=25 $^\circ\text{C}$, VCC=+5V, VEE=-5V)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Consumption current	ICC		12	17	22	mA
	IEE	LDSW off	11	15.5	20	mA

< RF amp. section >

Offset voltage	V36-0	41,42 pins open	-300	-120	0	mV
Voltage gain	GV36	36~37 pins: 22K Ω 41,42 pins: Rg=10K Ω f=200KHz	25	28	31	dB
Maximum output amplitude	V36H	RL=10K Ω	+4.0	+4.2	+4.3	V
	V36L	RL=10K Ω	-1.6	-1.3	-1.2	V
Frequency characteristics		1MHz/200KHz	-3.0	-0.5	+3.0	dB

< Focus error amp. section >

Offset voltage	V31-0	41,42 pins open	-150	0	+150	mV
Voltage gain	GV31	33 pin~GND=120K Ω 31~32 pins=120K Ω f=1KHz	31	34	37	dB
Voltage gain difference	dGV	41 pin input and 42 pin input	-1.0	0	+1.0	dB
Maximum output amplitude	V31H	RL=10K Ω	+4.1	+4.25	+4.6	V
	V31L	RL=10K Ω	-4.6	-4.25	-4.1	V
Frequency characteristics	fmax		-3.0	-0.5	+3.0	dB

< Peak hold circuit section >

Offset voltage	V35-36	41,42 pins open	-100	-40	20	mV
Output voltage	V35-0	41,42 pins input current=5 μA	1.0	1.2	1.4	V

< Bottom hold circuit section >

Offset voltage	V34-35	41,42 pins open	-100	0	100	mV
Output voltage	V34-0	41,42 pins input current=5 μA	1.0	1.2	1.4	V

< FRF comparator section >

Comparator output	V27H	41,42 pins input current=3 μA	4.0	4.2	4.5	V
	V27L	41,42 pins input current=1 μA	0	0	0.5	V
Offset voltage	V35-1	35 pin voltage when V27=H	0.7			V
	V35-2	35 pin voltage when V27=L			0.1	V

< /FZC comparator section >

Comparator output	V18H	41,42 pins open	4.0	4.2	4.5	V
	V18L	42 pin input current =1 μA		0	0.5	V
Offset voltage	V31-1	31 pin voltage when V18=H	-0.35			V
	V31-2	31 pin voltage when V18=L			-0.65	V

< HF comparator >

Comparator output	V17H	41,42 pins open	4.0	4.2	4.5	V
	V17L	35 pin=0.8V 34 pin=0V	0	0	0.5	V
Offset voltage	V35-1	35 pin voltage when V17=L, 34 pin=0V	0.7			V
	V35-2	35 pin voltage when V17=H, 34 pin=0V			0.3	V
Maximum operating frequency	fmax		100	500		KHz

NOTE: This LSI can be supplied only combination with YAMAHA signal processors such as YM7121C, YM3805 etc. Please contact YAMAHA before design start.



