



LA7116

VCR Servo Interface

Overview

The LA7116 is a VCR servo interface IC that can be used in conjunction with the LC7412, 7413 to form a servo system with a good cost performance.

Functions

- Drum FG amplifier.
- Capstan FG amplifier.
- CTL amplifier.
- Drum PG amplifier.
- OP amplifier × 2.

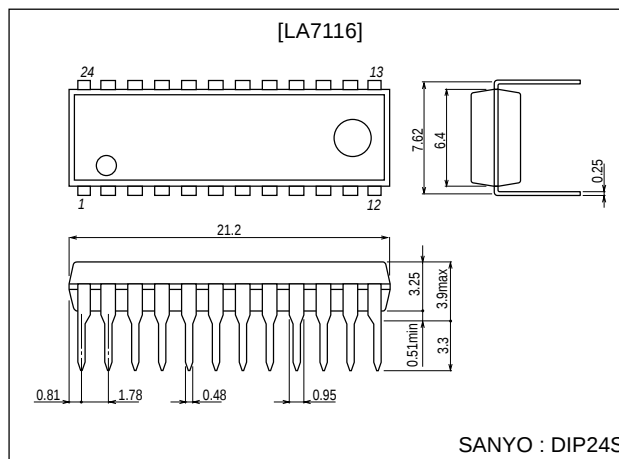
Features

- The operational amplifier section can be operated from a voltage of up to 12V.
- Selectable threshold voltage of CLT Schmitt section.

Package Dimensions

unit:mm

3067-DIP24S



Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V _{CC1}	Ta ≤ 65°C	7.0	V
	V _{CC2}		15.0	V
Allowable power dissipation	Pd max		200	mW
Operating temperature	Topr		−20 to +65	°C
Storage temperature	Tstg		−40 to +125	°C

Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V _{CC}		5.0	V
Operating voltage	V _{CC op1}		4.5 to 5.5	V
	V _{CC op2}		4.5 to 13.0	V

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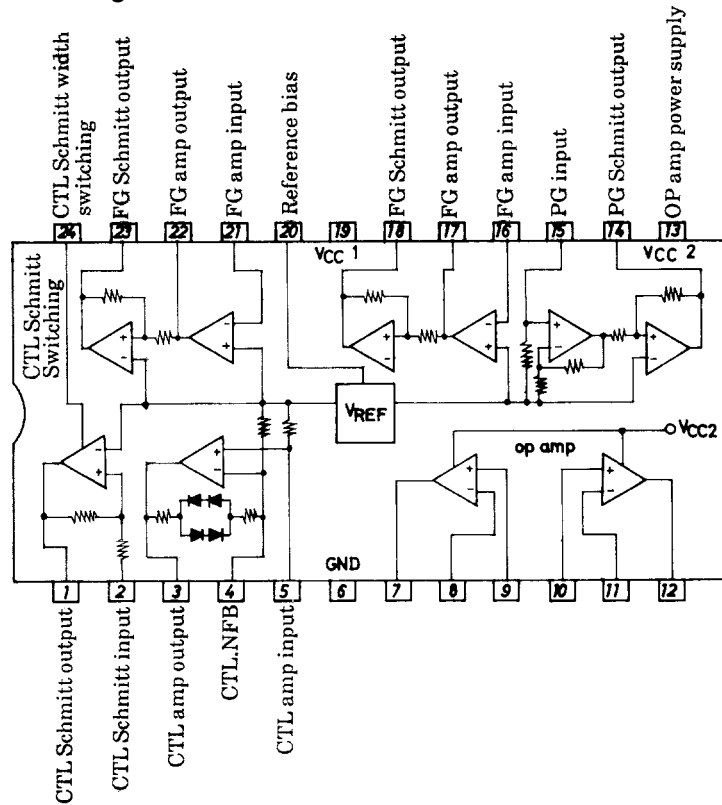
LA7116

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

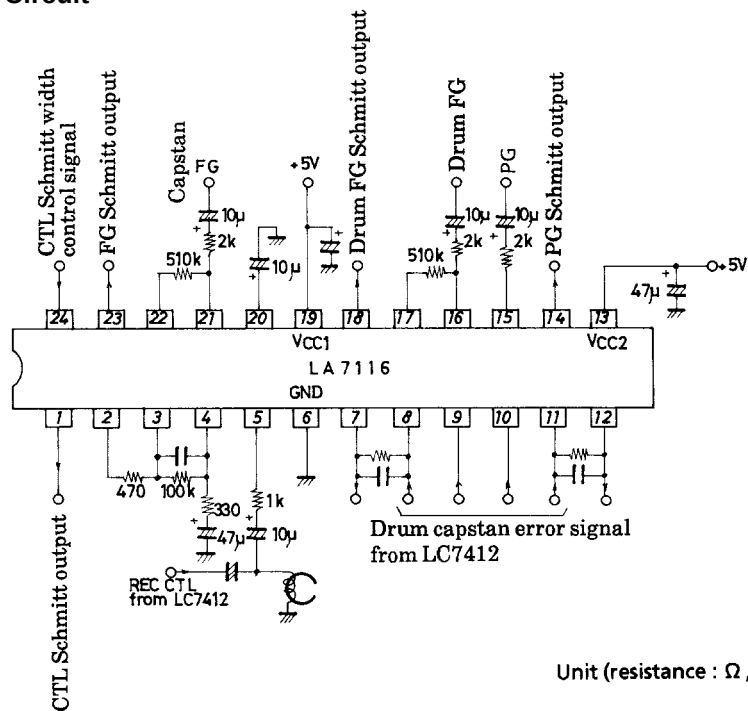
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Circuit current	I _{CC1}	Quiescent, no load	2.0	4.0	6.0	mA
CTL amplifier bias voltage	V ₅	Quiescent, no load	2.4	2.5	2.6	V
PG amplifier bias voltage	V ₁₅	Quiescent, no load	2.4	2.5	2.6	V
PG amplifier bias voltage	V ₁₆	Quiescent, no load	2.4	2.5	2.6	V
	V ₂₁	Quiescent, no load	2.4	2.5	2.6	V
Reference voltage	V ₂₀	Quiescent, no load	2.4	2.5	2.6	V
CTL output voltage	V _{OHCTL}	I ₁ =+0.5mA	4.0			V
	V _{OLCTL}	I ₁ =-0.5mA			1.0	V
PG output voltage	V _{OHPG}	I ₁₄ =+0.5mA	4.0			V
	V _{OLPG}	I ₁₄ =-0.5mA			1.0	V
FG output voltage	V _{OHFG1}	I ₁₈ =+0.5mA	4.0			V
	V _{OLFG1}	I ₁₈ =-0.5mA			1.0	V
	V _{OHFG2}	I ₂₃ =+0.5mA	4.0			V
	V _{OLFG2}	I ₂₃ =-0.5mA			1.0	V
CTL amplifier gain	G _{CTL}	SG1 : 500Hz, 1Vp-p, V ₃ =1Vp-p	48	50	52	dB
CTL amplifier frequency characteristic	ΔG _{CTL}	SG1 : 10Hz, 1Vp-p, V ₃ =1Vp-p	-6	-2		dB
FG amplifier gain	G _{FG1}	SG3 : 500Hz, 1Vp-p, V ₁₇ =1Vp-p	46	48	50	dB
	G _{FG2}	SG4 : 500Hz, 1Vp-p, V ₂₂ =1Vp-p	46	48	50	dB
FG amplifier frequency characteristic	ΔG _{FG1}	SG3 : 20kHz, 1Vp-p, V ₁₇ =1Vp-p	-10	-6		dB
	ΔG _{FG2}	SG4 : 20kHz, 1Vp-p, V ₂₂ =1Vp-p	-10	-6		dB
PG schmitt width	V _{HPG}	SG2 : 500Hz	48	60	72	mVp-p
FG schmitt width	V _{HFG1}	SG3 : 500Hz	185	230	275	mVp-p
	V _{HFG2}	SG4 : 500Hz	185	230	275	mVp-p
CTL schmitt width	V _{HCTL1}	SG1 : 500Hz, S1=a	160	200	240	mVp-p
CTL schmitt width (search)	V _{HCTL2}	SG1 : 500Hz, S1=b	320	400	480	mVp-p
CTL schmitt width (slow)	V _{HCTL3}	SG1 : 500Hz, S1=c	+72	+92	+112	mV
CTL schmitt width (slow)	V _{HCTL4}	SG1 : 500Hz, S1=c	+34	+54	+70	mV
CTL schmitt width switching level	V _{24H}	S1=d	3.0	3.5	4.0	V
	V _{24L}	S1=d	1.0	1.5	2.0	V
[Operational amplifier characteristics] at V _{CC} =5 to 12V						
Circuit current	I _{CC2}		0.3	0.8	1.2	mA
Input offset voltage	V _{IO1}			±2	±7	mV
	V _{IO2}			±2	±7	mV
Input offset current	I _{IO1}			±5	±50	nA
	I _{IO2}			±5	±50	nA
Input bias current	I _{B1}			45	250	nA
	I _{B2}			45	250	nA
Output current (source)	I _{OSOC1}		10			mA
	I _{OSOC2}		10			mA
Output current (sink)	I _{OSNK1}		10			mA
	I _{OSNK2}		10			mA
Common-mode input voltage range	V _{ICM}		0		V _{CC} to 1.5	V
Output voltage range	V _{OUT}		0		V _{CC} to 1.5	V

LA7116

Equivalent Circuit Block Diagram



Sample Application Circuit



Unit (resistance : Ω , capacitance : F)

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