Ordering number:ENN2906A

Monolithic Linear IC

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.

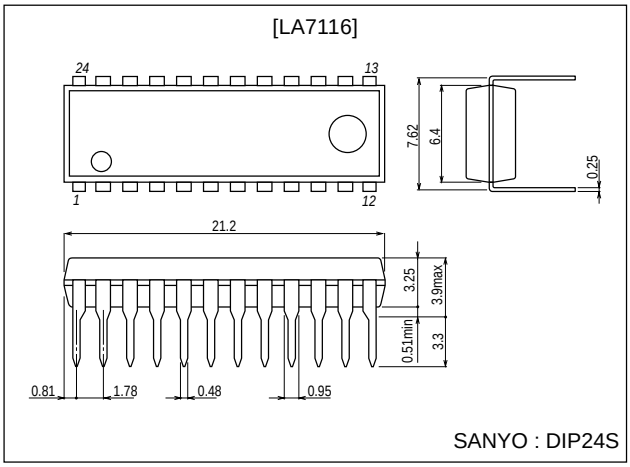
Features

- 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	$V_{CC}1$		7.0	V
	$V_{CC}2$	Ta≤65˚C	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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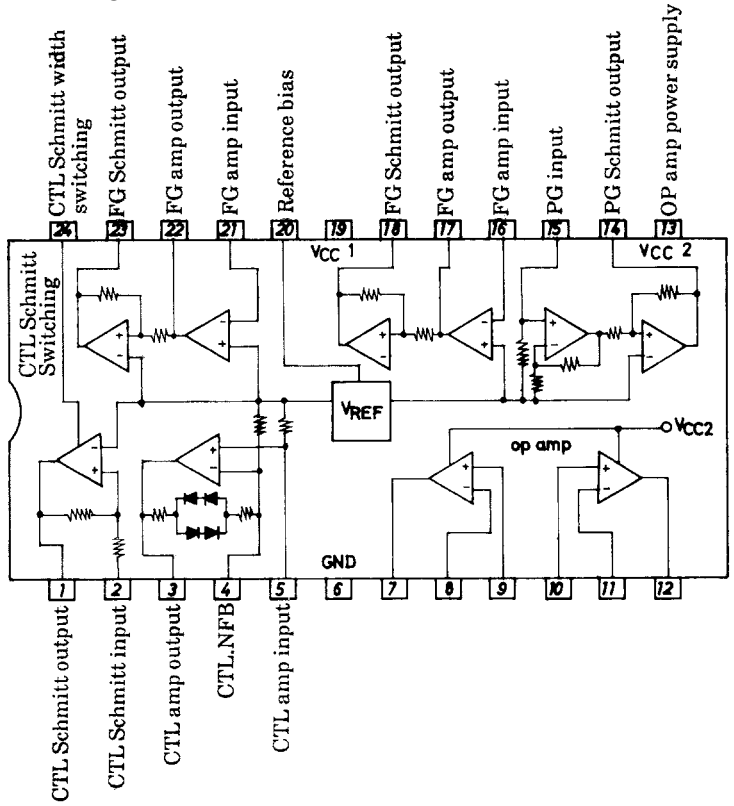
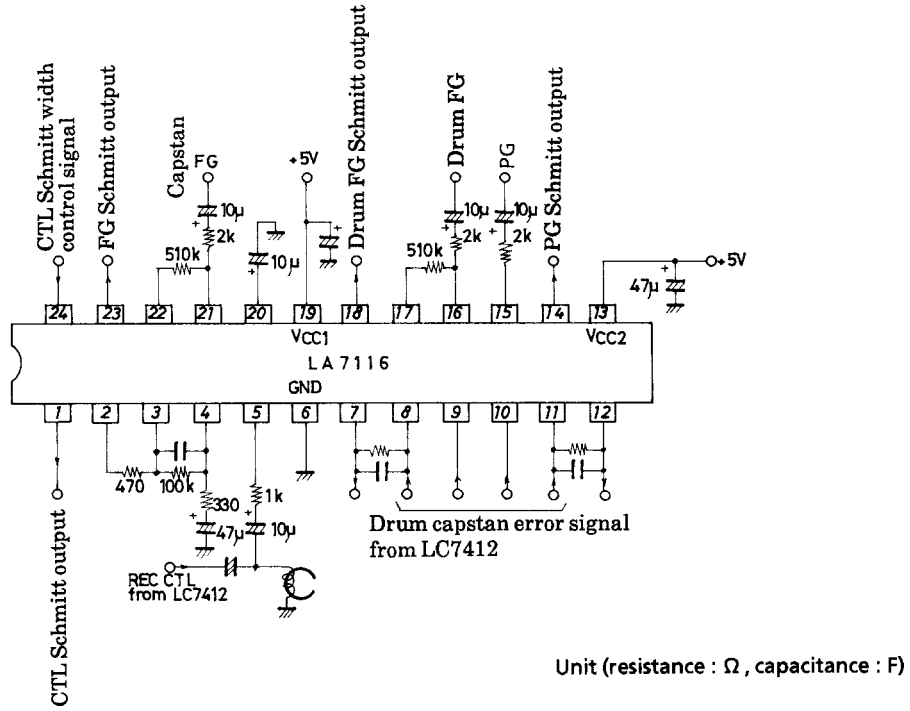
Operating Characteristics at Ta = 25˚C, V_{CC}=5V

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Circuit current	$I_{CC}1$	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 characterristics] at V_{CC}=5 to 12V						
Circuit current	$I_{CC}2$		0.3	0.8	1.2	mA
Input offset voltage	$V_{IO}1$			±2	±7	mV
	$V_{IO}2$			±2	±7	mV
Input offset current	$I_{IO}1$			±5	±50	nA
	$I_{IO}2$			±5	±50	nA
Input bias current	I_B1			45	250	nA
	I_B2			45	250	nA
Output current (source)	$I_{OSOC}1$		10			mA
	$I_{OSOC}2$		10			mA
Output current (sink)	$I_{OSNK}1$		10			mA
	$I_{OSNK}2$		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

Equivalent Circuit Block Diagram



Sample Application Circuit



Unit (resistance : Ω , capacitance : F)