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.

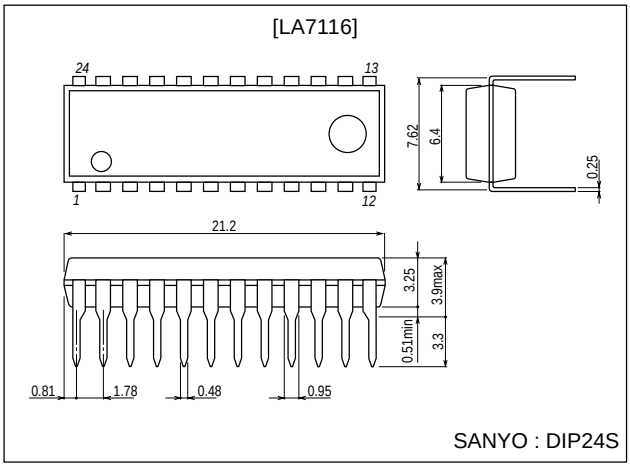
Features

- 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

■ Any and all SANYO products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your SANYO representative nearest you before using any SANYO products described or contained herein in such applications.

■ SANYO assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges,or other parameters) listed in products specifications of any and all SANYO products described or contained herein.

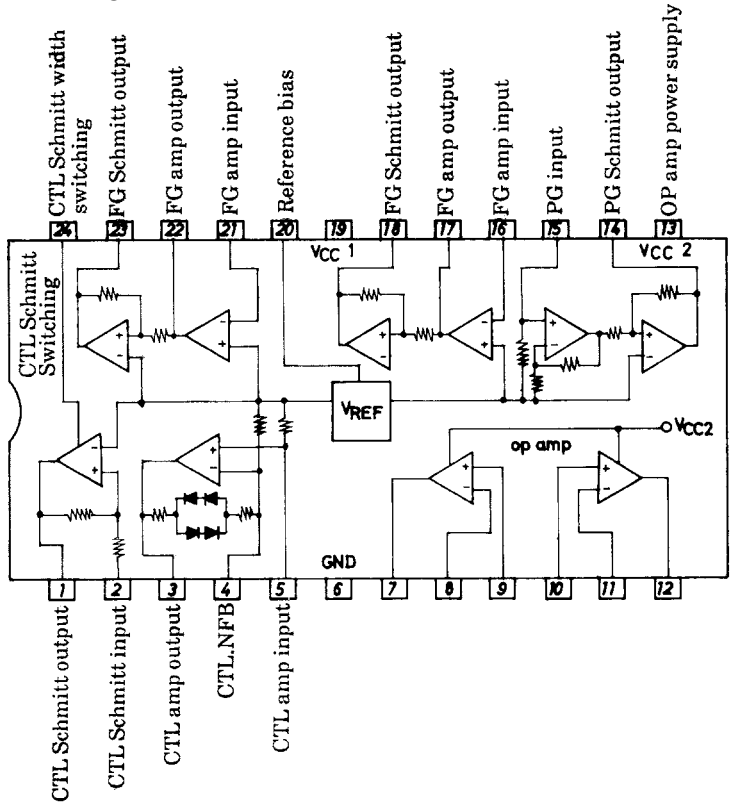
SANYO Electric Co.,Ltd. Semiconductor Company

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

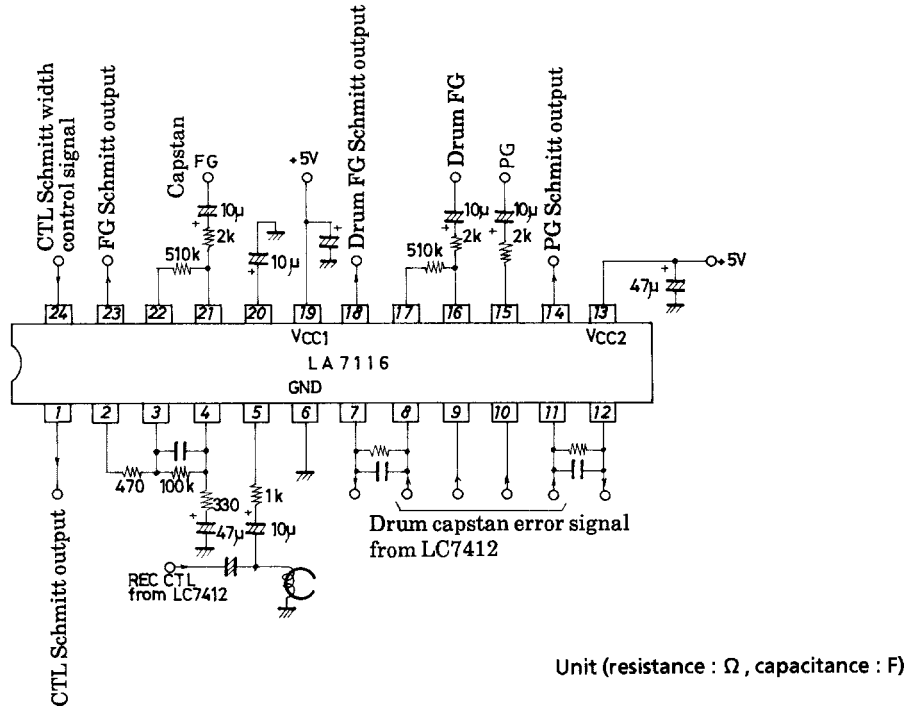
Operating Characteristics at Ta = 25˚C, V_{CC}=5V

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)

■ Specifications of any and all SANYO products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.

■ SANYO Electric Co., Ltd. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.

■ In the event that any or all SANYO products(including technical data,services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.

■ No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of SANYO Electric Co., Ltd.

■ Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the SANYO product that you intend to use.

■ Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

This catalog provides information as of April, 2000. Specifications and information herein are subject to change without notice.