

SANYO Semiconductors DATA SHEET

Overview

This LA73060V is a wideband 75 Ω Video Driver IC. The LA73060V is ideal for use the video output driver such as TV-monitor and DVD-player equipment.

Functions

- 6channel output.
- 6MHz or 30MHz low pass filter.
- 6dB amplifier.
- Output mute.

- Y/C_MIX.
- Standby mode.

Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V _{CC} max		7.0	٧
Allowable power dissipation	Pd max	Ta ≤ 75°C *	780	mW
Operating temperature	Topr		-20 to +75	°C
Storage temperature	Tstg		-40 to +150	°C

^{*} When mounted on a 114.3×76.1×1.6mm³ glass epoxy board.

Recommended Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommending operation voltage	Vcc		5.0	V
Operating voltage range	V _{CC} op		4.75 to 5.25	V
Input pin voltage application range	V _{IN}		-0.3 to V _{CC} op + 0.3	V

- Any and all SANYO Semiconductor 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 Semiconductor representative nearest you before using any SANYO Semiconductor products described or contained herein in such applications.
- SANYO Semiconductor 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 Semiconductor products described or contained herein.

SANYO Semiconductor Co., Ltd.

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

Parameter	Symbol	SIG	Level	Freq.	IN	OUT	Conditions		Ratings		Unit
Parameter	Symbol	SIG	[Vp-p]	[Hz]	point	point	Conditions	min	typ	max	Unit
Current dissipation 1	I _{CC} 1						No signal.	69.0	87.0	105.0	mA
Current dissipation 2	I _{CC} 2						Standby mode,No signal.	0.3	0.4	0.5	mA
Reguratur voltage	REG3V					T27		2.8	3.0	3.2	V
Voltage gain 1	V _G 1	1	0.3	100k	T4A	T1	Output gain.	5.5	6.0	6.5	dB
					T6A	T35					
					T14A	T22					
					T12A	T30					
					T14A	T28					
					T16A	T26					
Voltage gain 2	V _G 2	3	0.3	100k	T8A	T32	Output gain.	5.5	6.0	6.5	dB
					T12A	T24					
					T16A	T19					
Frequency	V _F 1 (SD)	1	0.3	6M	T4A	T1	6MHz LPF is selected.	-3	0.0	3	dB
characteristics 1					T6A	T35	f = 6MHz / 100kHz.				
(CV,Y,P_y,R,G,B)					T14A	T22					
					T12A	T30					
					T14A	T28					
-)/ 0 (OD)		0.0	014	T16A	T26	OMIL I DE Constant		0.0	0	- 15
Frequency	V _F 2 (SD)	3	0.3	6M	T8A	T32	6MHz LPF is selected.	-3	0.0	3	dB
characteristics 2					T12A	T24	f = 6MHz / 100kHz.				
(C,P _r ,P _b)					T16A	T19					
Frequency	V _F 3 (SD)	1	0.3	27M	T4A	T1	6MHz LPF is selected.		-40	-35	dB
characteristics 3					T6A	T35	f = 27MHz / 100kHz.				
(CV,Y,P_y,R,G,B)					T14A	T22					
					T12A T14A	T30 T28					
					T16A	T26					
Frequency	V _F 4 (SD)	3	0.3	27M	T8A	T32	6MHz LPF is selected.		-40	-35	dB
characteristics 4	VF4 (3D)	3	0.3	27 101	T12A	T24	f = 27MHz / 100kHz.		-40	-55	uБ
(C,P _r ,P _b)					T16A	T19	1 = 27 WHZ / TOOK IZ.				
	\/_E (UD)	1	0.3	20M	T14A	T22	30MHz LPF is selected.	-1	0.0	1	dB
Frequency characteristics 5	V _F 5 (HD)	'	0.3	ZUIVI	T12A	T30	f =20MHz / 100kHz.	-1	0.0	'	uБ
Characteristics 3					T14A	T28	1 =201VII 12 / 100KI 12.				
					T16A	T26					
Frequency	V _F 6 (HD)	3	0.3	20M	T12A	T24	30MHz LPF is selected.	-1	0.0	1	dB
characteristics 6	VFO (1.12)		0.0	20111	T16A	T19	f = 20MHz / 100kHz.		0.0	•	u _D
Frequency	V _F 7 (HD)	1	0.3	30M		T22	30MHz LPF is selected.	-5	-2.5	0	dB
characteristics 7	1 (1.2)		0.0	00	T12A	T30	f = 30MHz / 100kHz.		2.0	ŭ	
					T14A	T28					
					T16A	T26					
Frequency	V _F 8 (HD)	3	0.3	30M	T12A	T24	30MHz LPF is selected.	-5	-2.5	0	dB
characteristics 8					T16A	T19	f = 30MHz / 100kHz.				
Frequency	V _F 9 (HD)	1	0.3	75M	T14A	T22	30MHz LPF is selected.		-40	-35	dB
characteristics 9					T12A	T30	f = 75MHz / 100kHz.				
					T14A	T28					
					T16A	T26					
Frequency	V _F 10 (HD)	3	0.3	75M	T12A	T24	30MHz LPF is selected.		-40	-35	dB
characteristics 10	1				T16A	T19	f = 75MHz / 100kHz.				

Continued on next page.

LA73060V

Continued from preceding page.

Parameter	Symbol	SIG	Level	Freq.	IN	OUT	Conditions		Ratings		Unit
Faiametei	Symbol	310	[Vp-p]	[Hz]	point	point	Conditions	min	typ	max	Offic
2nd order distortion 1	Dst1 (SD)	1	0.7	4M	T4A	T1A			-40	-35	dB
(SD)					T6A	T35A					
					T14A	T22A					
					T12A	T30A					
					T14A	T28A					
					T16A	T26A					
2nd order distortion 2	Dst2 (SD)	3	0.7	4M	T8A	T32A			-40	-35	dE
(SD)					T12A	T24A					
					T16A	T19A					
2nd order distortion 3	Dst3 (HD)	1	0.7	10M	T14A	T22A			-40	-35	dB
(HD)					T12A	T30A					
					T14A	T28A					
					T16A	T26A					
2nd order distortion 4	Dst4 (HD)	3	0.7	10M	T8A	T32A			-40	-35	dB
(HD)	, ,				T12A	T24A					
					T16A	T19A					
Clipping output level 1	V _O max1	3	2	100k	T4A	T1	Output level for clipping.	2.2	2.4		Vp-p
					T6A	T35					
					T14A	T22					
					T12A	T30					
					T14A	T28					
					T16A	T26					
Clipping output level 2	V _O max2	3	2	100k	T8A	T32	Output level for clipping.	2.2	2.4		Vp-p
11 0 1					T12A	T24					
					T16A	T19					
Amount of mute	V _M 1	1	0.3	4M	T4A	T1			-60	-50	dB
attenuation 1	141				T6A	T35					
					T14A	T22					
					T12A	T30					
					T14A	T28					
					T16A	T26					
Amount of mute	V _M 2	3	0.3	4M	T8A	T32			-60	-50	dB
attenuation 2	· IVI—				T12A	T24					
					T16A	T19					
Crosstalk between	V _{CT} 1	1	0.3	4M	T4A				-60	-50	dB
channels 1	701.	'	0.0		T6A				00	00	u.
					T14A						
					T12A						
					T14A						
					T16A						
0	V _{CT} ²	3	0.3	4M	T8A				-60	-50	dB
Crosstalk between	VCT2	3	0.3	-ivi	T12A				-00	-30	uE
channels 2	1	1			T16A						

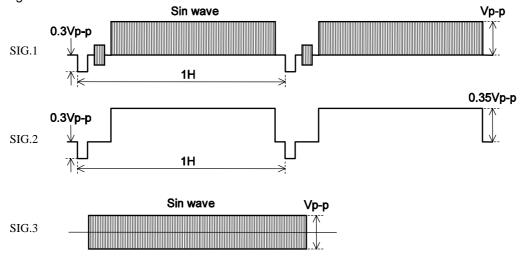
Continued on next page.

LA73060V

Continued from preceding page.

_			Level	Freq.	IN	OUT			Ratings		
Parameter	Symbol	SIG	[Vp-p]	[Hz]	point	point	Conditions	min	typ	max	Unit
Video S/N 1	V _{S/N} 1 (SD)	2	0.65		T4A	T1A	V _{IN} = Video (50% White),		-70	-60	dB
(SD)					T6A	T35A	The band is between 100kHz				
					T14A	T22A	and 4.2MHz				
					T12A	T30A					
					T14A	T28A					
					T16A	T26A					
Video S/N 2	V _{S/N} 2 (HD)	2	0.65		T14A	T22A	V _{IN} = Video (50% White),		-60	-50	dB
(HD)					T12A	T30A	The band is between 100kHz				
					T14A	T28A	and 30MHz				
					T16A	T26A					
Group delay 1	GD1 (SD)	1	0.3	6M	T4A	T1	Input / Output delay time.		20	30	ns
(SD)					T6A	T35	f=6MHz/100kHz				
					T14A	T22					
					T12A	T30					
					T14A	T28					
					T16A	T26					
Group delay 2	GD2 (SD)	3	0.3	6M	T8A	T32	Input / Output delay time.		20	30	ns
(SD)					T12A	T24	f=6MHz/100kHz				
					T16A	T19					
Group delay 3	GD3 (HD)	1	0.3	30M	T14A	T22	Input / Output delay time.		10	20	ns
(HD)					T12A	T30	f=30MHz/100kHz				
					T14A	T28					
					T16A	T26					
Group delay 4	GD4 (HD)	3	0.3	30M	T12A	T24	Input / Output delay time.		10	20	ns
(HD)					T16A	T19	f=30MHz/100kHz				



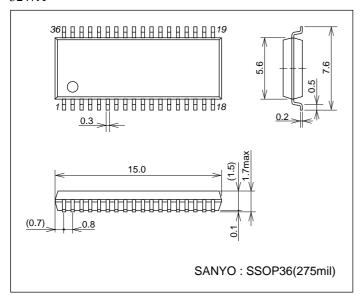


Truth Table

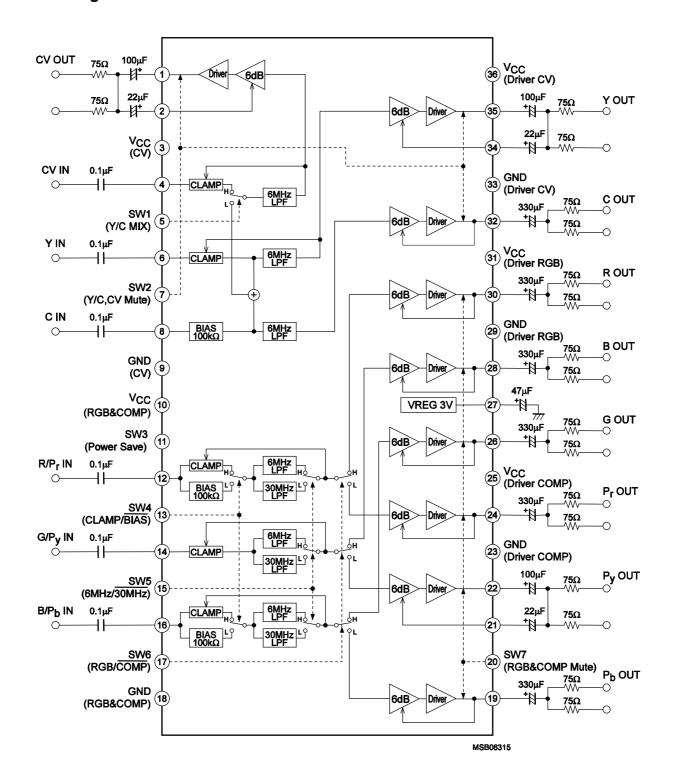
SW No.	Pin No.	Function	H (2.3V to V _{CC})	L (0 to 0.7V)	
SW1	5	Y/C MIX	OFF	ON	
SW2	7	CV Mute control	OFF	ON	
SW3	11	Power save control OFF		ON	
SW4	13	Input control CLAMP ON(RGB Mode)		BIAS ON(Component Mode)	
SW5	15	Filter control	6MHz LPF ON(RGB Mode)	30MHz LPF ON(Component Mode)	
SW6	17	Output control	RGB ON(RGB Mode)	Component ON(Component Mode)	
SW7	20	RGB&Component Mute control	OFF	ON	

Package Dimensions

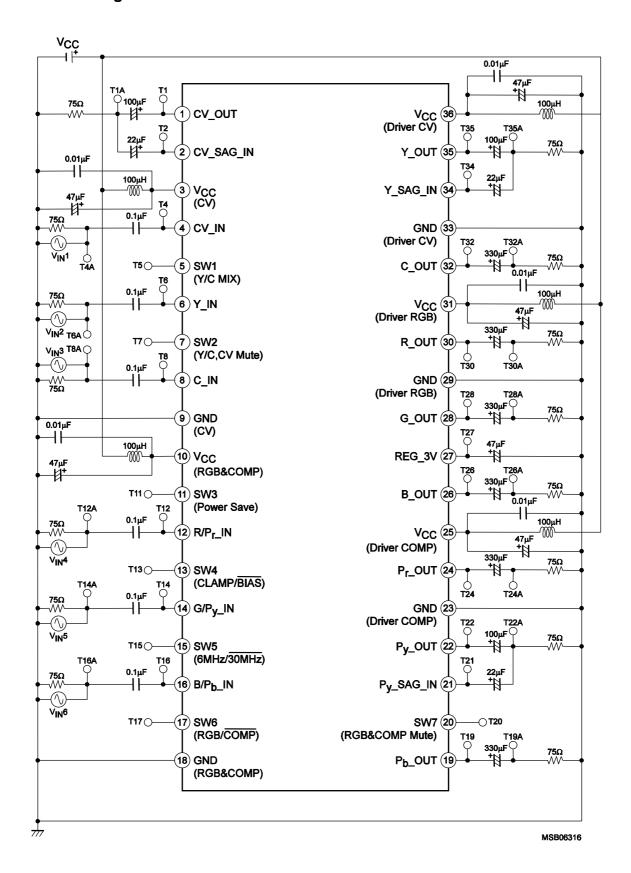
unit : mm 3247A



Block Diagram



Test Circuit Diagram



LA73060V

Pin Functions

Pin No.	Pin Name	Signal Wave Form	Equivalent Circuit
1	CV_OUT	2.0Vp-p	Equivalent Circuit
35	Y_OUT	2.0Vp-p 1.2V	SS
2	CV_SAG_IN	2.0Vp-p 1.2V	
21 34	P _y _SAG_IN Y_SAG_IN	2.0Vp-p 1.2V	1.1kΩ 1.25kΩ 400Ω
4	CV_IN	1.0Vp-p	↑
6	Y_IN	Y_IN,Py_IN 1.0Vp-p 1.75V	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
14	G/P _y _IN	0.7Vp-p 1.75V	## 130 m
5 7 11 13 15 17 20	SW1 SW2 SW3 SW4 SW5 SW6 SW7	*See the Truth Table.	100kg 10kg
3 10 25 31 36	V _{CC} (CV) V _{CC} (RGB&COMP) V _{CC} (Driver COMP) V _{CC} (Driver RGB) V _{CC} (Driver CV)		

Continued on next page.

		LA73060V	
Continued	from preceding page.		
Pin No.	Pin Name	Signal Wave Form	Equivalent Circuit
8	C_IN	2.3V ————————————————————————————————————	Augo Mario Ei
12 16	R/P _r _IN B/P _b _IN	0.7Vp-p	Clamp OFF WINCOUT WINC
26 28 30	B_OUT G_OUT R_OUT	1.4Vp-p 1.2V	\$gg
19 24	P _b _OUT P _r _OUT	2.3V 1.4Vp-p	1.3kΩ 1.5kΩ
32	C_OUT	2.3V 1.4Vp-p	
9 18 23 29 33	GND (CV) GND (RGB&COMP) GND (Driver COMP) GND (Driver RGB) GND (Driver CV)		
27	REG3V	DC: 3.0V	3260

- Specifications of any and all SANYO Semiconductor 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 Semiconductor 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 Semiconductor 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 Semiconductor 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 Semiconductor 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 Semiconductor 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 March, 2006. Specifications and information herein are subject to change without notice.