



SANYO Semiconductors

DATA SHEET

LA73073CL — Monolithic Linear IC Video Driver for DSC

Overview

LA73073CL is 75Ω Video driver for DSC.

Functions/Features

- Not requires output coupling capacity.
- Low voltage drive ($V_{CC} = 2.8V$ to $3.6V$)
- V sag does not occur.
- Implements 6th Low Pass Filter ($f_c = 7.5MHz$)
- Current dissipation in stand-by mode : $0\mu A$
- Selectable amplifier gain of 6dB, 12dB and 16dB.
(Pin control (GND/Open/ V_{CC}))
- Output drive performance allows up to 75Ω output and single system.

Specifications

Maximum Ratings at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC\ max}$		4.0	V
Allowable power dissipation	$P_d\ max$	$T_a \leq 80^\circ C$, *Mounted on a board	160	mW
Operating temperature	T_{opr}		-25 to +80	$^\circ C$
Storage temperature	T_{stg}		-55 to +150	$^\circ C$

*($10 \times 20 \times 0.8mm$) Material : Paper phenol

Recommended Operating Conditions at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Recommended Operating supply voltage	$V_{CC\ STD}$		3.1	V
Operating supply voltage range	$V_{CC\ RANGE}$		2.8 to 3.6	V

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Electrical Characteristics at Ta = 25°C, VCC = 3.1V

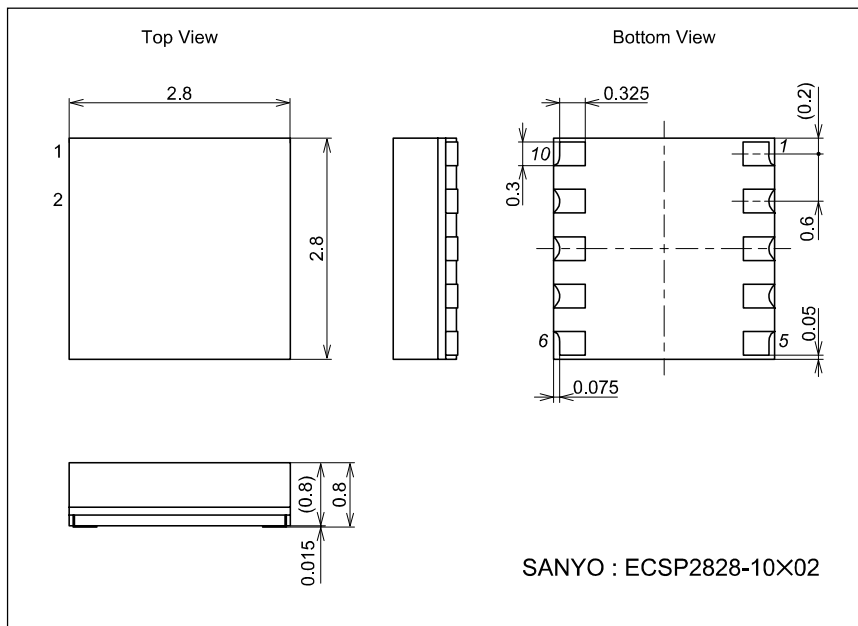
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[Current dissipation part]						
Current dissipation 1 (VIN = White50%)	ICC	4pin = Low Input = White50%	14	22	30	mA
Current dissipation 2 (Non-signal mode)	ICC2	4pin = Low Input = No signal	7	11.5	15	mA
Current dissipation 3 (Standby mode)	ICC-STBY	4pin = Open (High)		0	5	μA
[Video part]						
Voltage gain V6	VG-L	VIN = 1Vp-p 100% white 2pin = Low (GND)	5.7	6.2	6.7	dB
Voltage gain V12	VG-M	VIN = 0.5Vp-p 100% white 2pin = MID (Open)	11.7	12.2	12.7	dB
Voltage gain V16	VG-H	VIN = 317mVp-p 100% white 2pin = High (VCC)	15.7	16.2	16.7	dB
Freq. Characteristic	Vf	f = 100kHz/5MHz	-1.5	-0.5	+0.5	dB
Differential Gain	DG		-2.0	0	-2.0	%
Differential Phase	Dp		-2.0	0	-2.0	deg
[Control terminal part]						
Stand-by control terminal H voltage (SET = STANDBY MODE)	VTH-STBY-H	ICC ≤ 5μA 4-pin terminal voltage range	VCC-0.5		3.6	V
Stand-by control terminal L voltage (SET = ACTIVE MODE)	VTH-STBY-L	Active mode 4-pin terminal voltage range	GND		0.3	V
Gain selection control terminal H voltage (SET = 16dB)	VTH-G-H	Amp Gain = 16dB 2-pin terminal voltage range	VCC-0.3		VCC	V
Gain selection control terminal M voltage (SET = 12dB)	VTH-G-M	Amp Gain = 12dB 2-pin terminal voltage range	1.0	1.2 (OPEN)	1.4	V
Gain selection control terminal L voltage (SET = 6dB)	VTH-G-L	Amp Gain = 6dB 2-pin terminal voltage range	GND		0.3	V

Package Dimensions

unit : mm

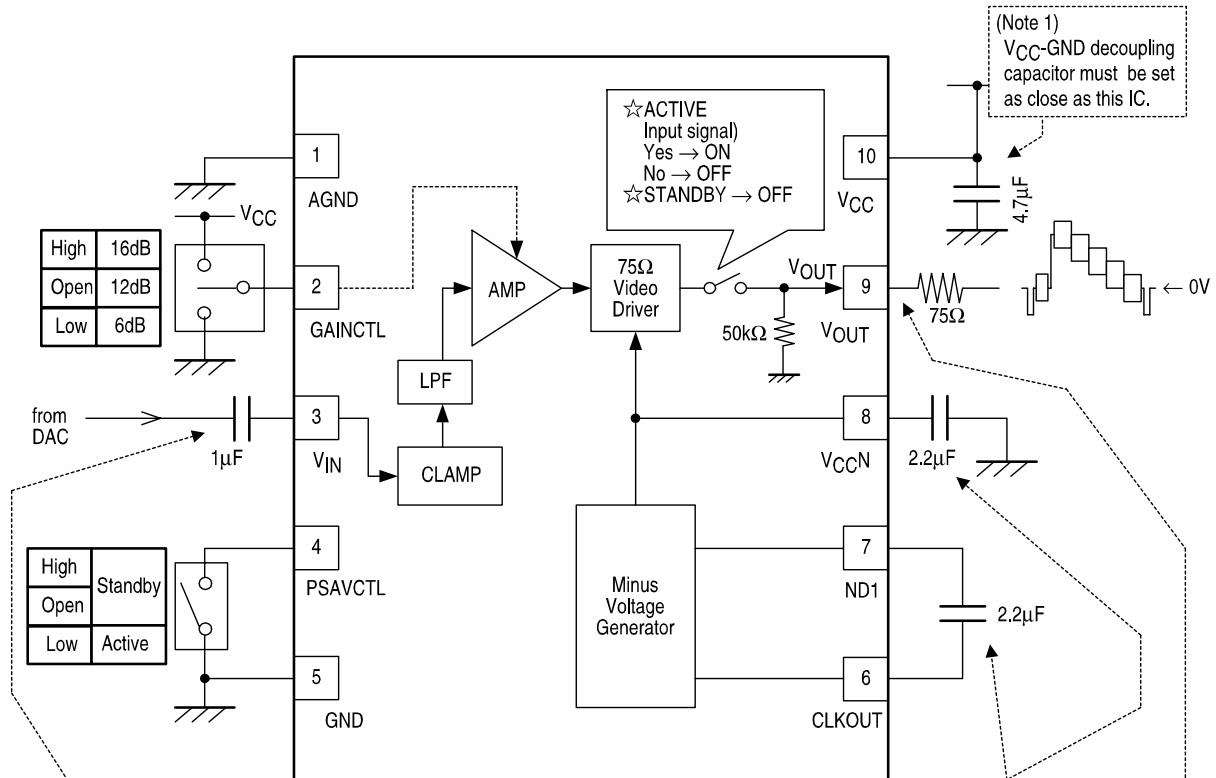
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LA73073CL Pin Configuration, Pin Function Diagram and Block Diagram

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(Note 2)
For input capacity value, use between 0.1µF to 1µF by observing the sag condition of output waveform.

(Note 3)
For these two capacity, it is recommended that the temperature characteristic be B rank (-10 % to +10 %), the electrostatic allowable difference be K rank (-10 % to +10 %), and the resistance be 6.3 V or more.

(Note 4) The wiring from VOUT (Pin 9) to 75 Ω must be shortened as much as possible.

(Note 5)
Since the minus voltage generator (negative power supply) of this IC extracts a sink portion from the input video signal (synchronous separation) and generates the clock of a charge pump power supply by detecting the falling edge, if the dummy V signal without cut pulses is inserted like when the special play (search) is performed on some analog VTR, the IC output around the V synchronization may be compressed. On the other hand, there is especially no problem if a cut pulse is contained. Please make sure the above mentioned symptom when using.

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Input Output Form

Pin No	Symbol	Equivalent Circuit	Voltage	Description												
1	AGND		0V	Analog GND												
2	GAINCTL		1.2V	Gain select pin <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Control of Pin2</th> <th></th> <th>GAIN</th> </tr> </thead> <tbody> <tr> <td>H(V_{CC})</td> <td>⇒</td> <td>16dB</td> </tr> <tr> <td>M(OPEN)</td> <td>⇒</td> <td>12dB</td> </tr> <tr> <td>L(GND)</td> <td>⇒</td> <td>6dB</td> </tr> </tbody> </table>	Control of Pin2		GAIN	H(V _{CC})	⇒	16dB	M(OPEN)	⇒	12dB	L(GND)	⇒	6dB
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H(V _{CC})	⇒	16dB														
M(OPEN)	⇒	12dB														
L(GND)	⇒	6dB														
3	V _{IN}		1.1V	Video input terminal (Sync-tip clamp (input High-impedance)) <div style="border: 1px dashed black; padding: 2px; margin: 5px 0;"> GAIN SET : 6dB ⇒ 1.0 Vp-p GAIN SET : 16dB ⇒ 317mVp-p GAIN SET : 12dB ⇒ 500mVp-p </div>												
4	PSAVCTL		V _{CC} or 0V	Power save mode select pin <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Control of Pin4</th> <th></th> <th>MODE</th> </tr> </thead> <tbody> <tr> <td>H(V_{CC})</td> <td>OPEN or V_{CC}±0.5V</td> <td>⇒ STANDBY</td> </tr> <tr> <td>L(GND)</td> <td>0V to 0.3V</td> <td>⇒ ACTIVE</td> </tr> </tbody> </table>	Control of Pin4		MODE	H(V _{CC})	OPEN or V _{CC} ±0.5V	⇒ STANDBY	L(GND)	0V to 0.3V	⇒ ACTIVE			
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5	GND		0V													

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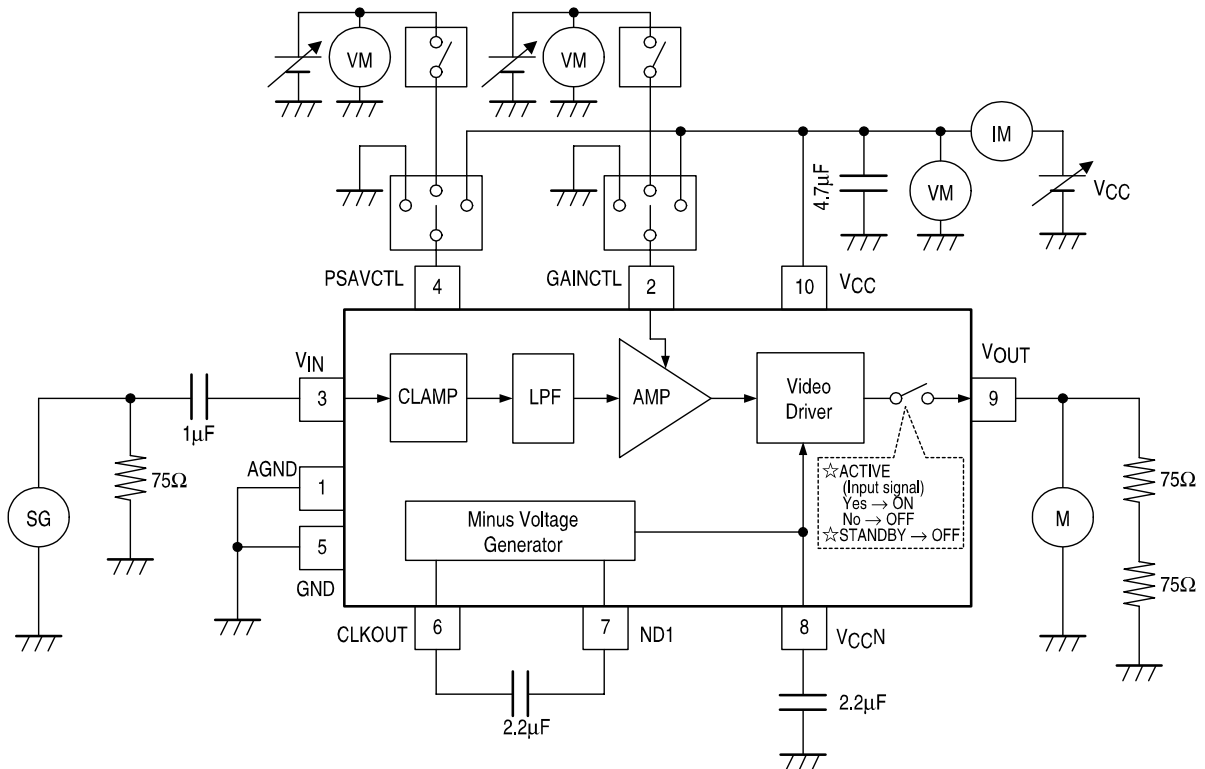
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Pin No	Symbol	Equivalent Circuit	Voltage	Description
6	CLKOUT		+3.0V ↑ ↓ 0V	Pin : Clock output terminal
7	ND1		+0.5V ↑ ↓ -2.6V (-VCC)	Pin7 : The terminal which transmits an electric charge
8	VCCN		0V ↑ ↓ -2.5V (-VCC)	Pin8 : Negative VCC
9	VOUT		0V	Video output terminal (Push-pull output Low-impedance)
10	VCC		2.9V to 3.6V	

Measurement Circuit Diagram



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