



# 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  $75\Omega$  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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**SANYO Semiconductor Co., Ltd.**

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# LA73073CL

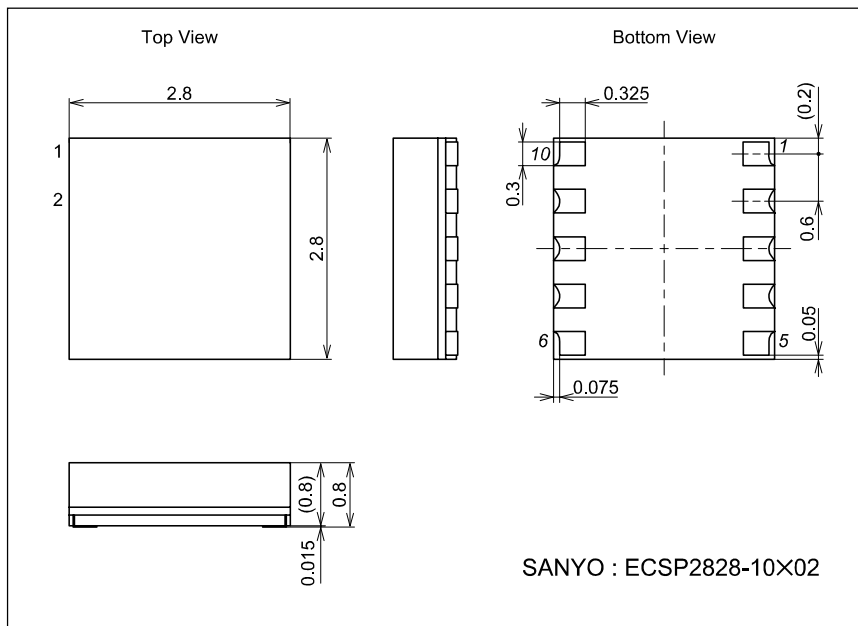
**Electrical Characteristics** at  $T_a = 25^\circ\text{C}$ ,  $V_{CC} = 3.1\text{V}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[Current dissipation part]						
Current dissipation 1 ( $V_{IN} = \text{White}50\%$ )	$I_{CC}$	4pin = Low Input = White50%	14	22	30	mA
Current dissipation 2 ( Non-signal mode )	$I_{CC2}$	4pin = Low Input = No signal	7	11.5	15	mA
Current dissipation 3 ( Standby mode )	$I_{CC-STBY}$	4pin = Open (High)		0	5	$\mu\text{A}$
[Video part]						
Voltage gain V6	$V_{G-L}$	$V_{IN} = 1\text{Vp-p}$ 100% white 2pin = Low (GND)	5.7	6.2	6.7	dB
Voltage gain V12	$V_{G-M}$	$V_{IN} = 0.5\text{Vp-p}$ 100% white 2pin = MID (Open)	11.7	12.2	12.7	dB
Voltage gain V16	$V_{G-H}$	$V_{IN} = 317\text{mVp-p}$ 100% white 2pin = High ( $V_{CC}$ )	15.7	16.2	16.7	dB
Freq. Characteristic	$V_f$	$f = 100\text{kHz}/5\text{MHz}$	-1.5	-0.5	+0.5	dB
Differential Gain	$D_G$		-2.0	0	-2.0	%
Differential Phase	$D_p$		-2.0	0	-2.0	deg
[Control terminal part]						
Stand-by control terminal H voltage (SET = STANDBY MODE)	$V_{TH-STBY-H}$	$I_{CC} \leq 5\mu\text{A}$ 4-pin terminal voltage range	$V_{CC}-0.5$		3.6	V
Stand-by control terminal L voltage (SET = ACTIVE MODE)	$V_{TH-STBY-L}$	Active mode 4-pin terminal voltage range	GND		0.3	V
Gain selection control terminal H voltage (SET = 16dB)	$V_{TH-G-H}$	Amp Gain = 16dB 2-pin terminal voltage range	$V_{CC}-0.3$		$V_{CC}$	V
Gain selection control terminal M voltage (SET = 12dB)	$V_{TH-G-M}$	Amp Gain = 12dB 2-pin terminal voltage range	1.0	1.2 (OPEN)	1.4	V
Gain selection control terminal L voltage (SET = 6dB)	$V_{TH-G-L}$	Amp Gain = 6dB 2-pin terminal voltage range	GND		0.3	V

## Package Dimensions

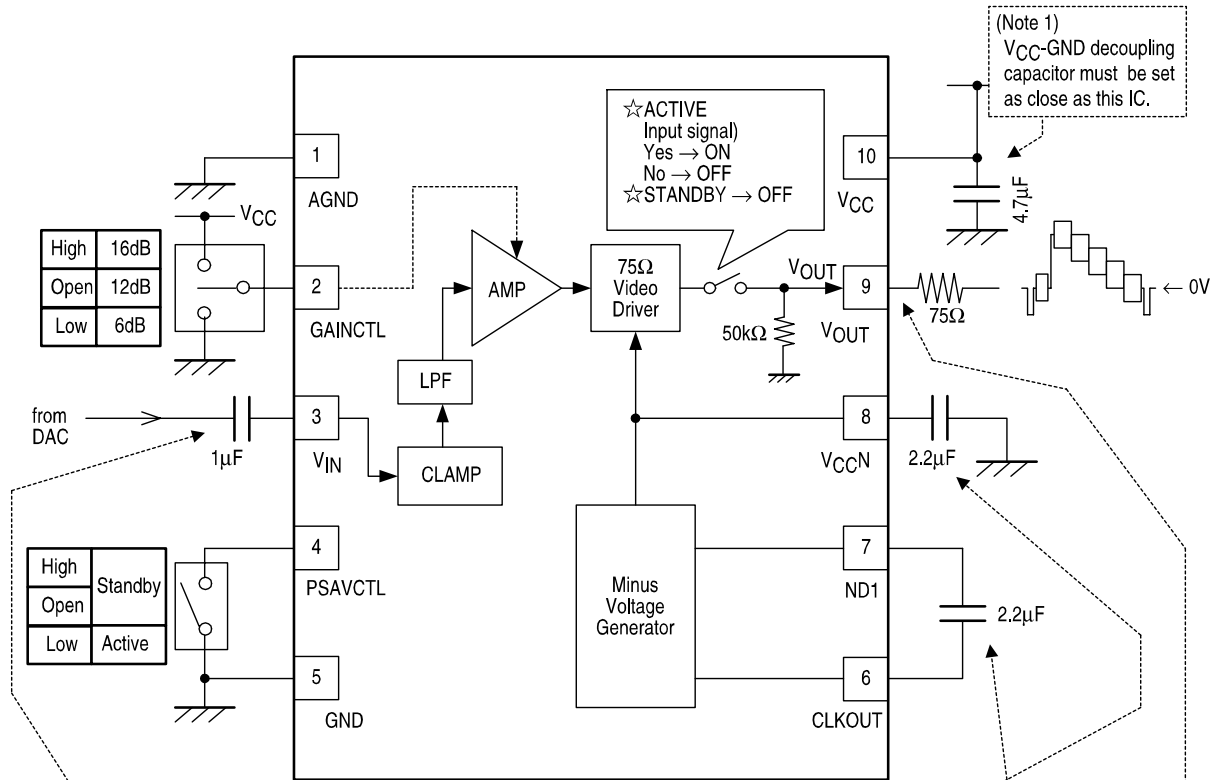
unit : mm

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## LA73073CL Pin Configuration, Pin Function Diagram and Block Diagram



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

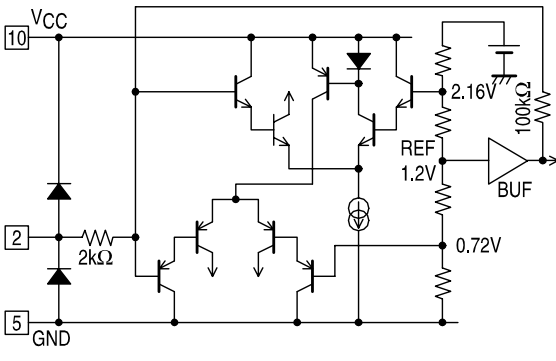
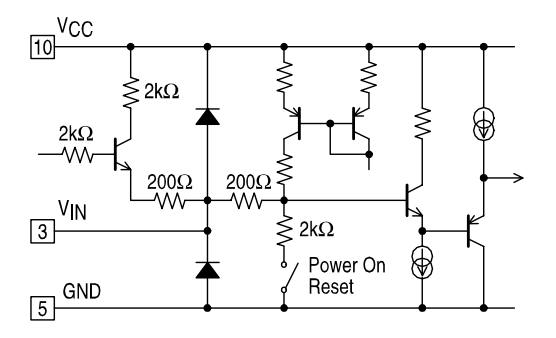
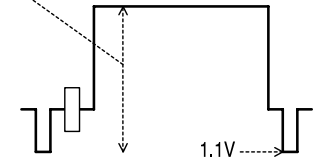
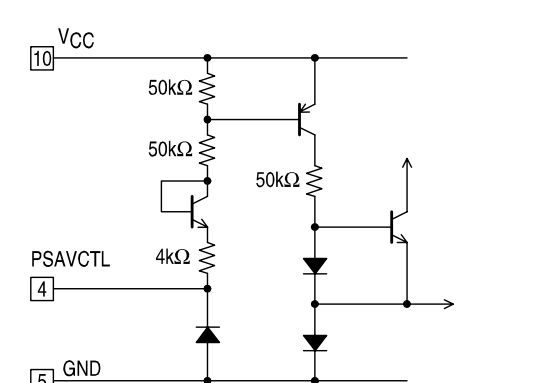
(Note 3)  
For these two capacity, it is recommended that the temperature characteristic be B rank (-10 % to +10 %), the electrostatic allowable difference be K rank (-10 % to +10 %), and the resistance be 6.3 V or more.

(Note 4) The wiring from VOUT (Pin 9) to 75  $\Omega$  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-top: 10px; width: 100%;"> <thead> <tr> <th>Control of Pin2</th> <th></th> <th>GAIN</th> </tr> </thead> <tbody> <tr> <td>H(V<sub>CC</sub>)</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 <sub>CC</sub> )	⇒	16dB	M(OPEN)	⇒	12dB	L(GND)	⇒	6dB
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H(V <sub>CC</sub> )	⇒	16dB														
M(OPEN)	⇒	12dB														
L(GND)	⇒	6dB														
3	V <sub>IN</sub>		1.1V	Video input terminal (Sync-tip clamp (input High-impedance)) <div style="border: 1px dashed black; padding: 5px; margin-top: 10px;">             GAIN SET : 6dB ⇒ 1.0 Vp-p              GAIN SET : 16dB ⇒ 317mVp-p              GAIN SET : 12dB ⇒ 500mVp-p           </div> 												
4	PSAVCTL		V <sub>CC</sub> or 0V	Power save mode select pin <table border="1" style="margin-top: 10px; width: 100%;"> <thead> <tr> <th>Control of Pin4</th> <th></th> <th>MODE</th> </tr> </thead> <tbody> <tr> <td>H(V<sub>CC</sub>)</td> <td>OPEN or V<sub>CC</sub>±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 <sub>CC</sub> )	OPEN or V <sub>CC</sub> ±0.5V	⇒ STANDBY	L(GND)	0V to 0.3V	⇒ ACTIVE			
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L(GND)	0V to 0.3V	⇒ ACTIVE														
5	GND		0V													

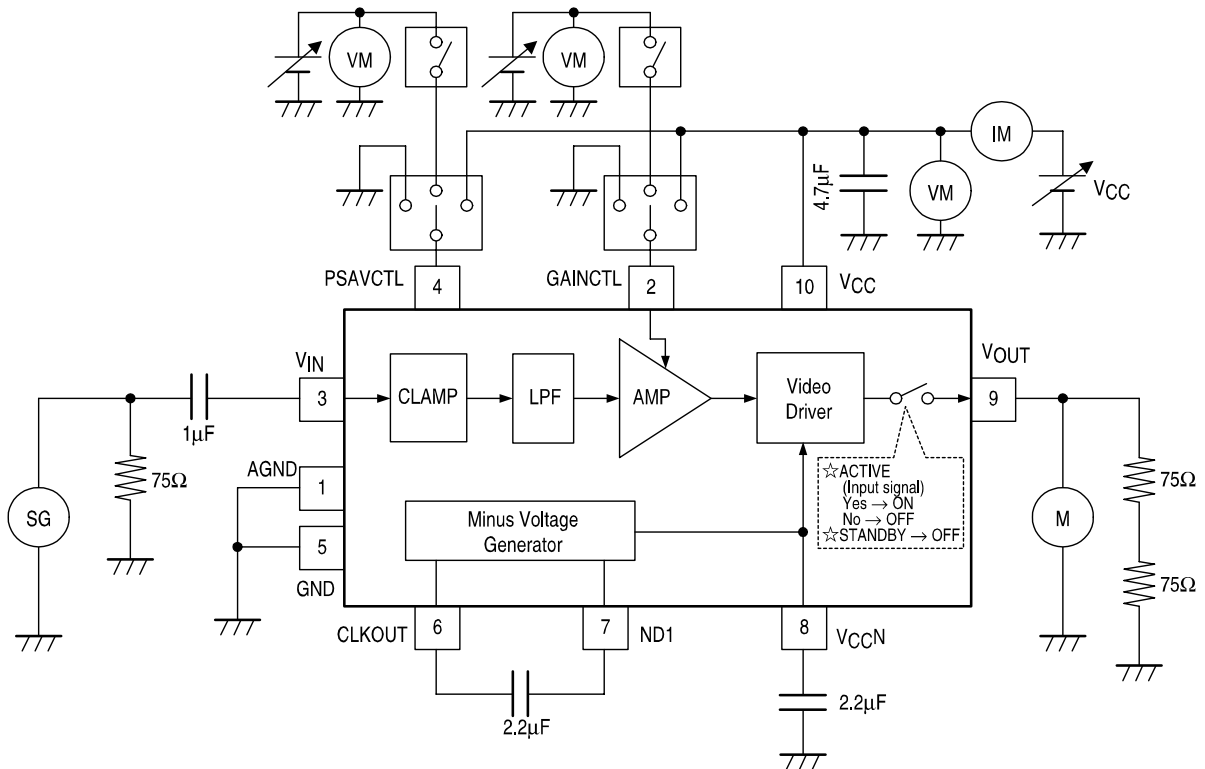
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Pin No	Symbol	Equivalent Circuit	Voltage	Description
6	CLKOUT		+3.0V ↑ ↓ 0V	<p>Pin : Clock output terminal</p>
7	ND1		+0.5V ↑ ↓ -2.6V (-VCC)	Pin7 : The terminal which transmits an electric charge
8	VCCN		0V ↑ ↓ -2.5V (-VCC)	Pin8 : Negative VCC
9	VOUT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

Measurement Circuit Diagram



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