



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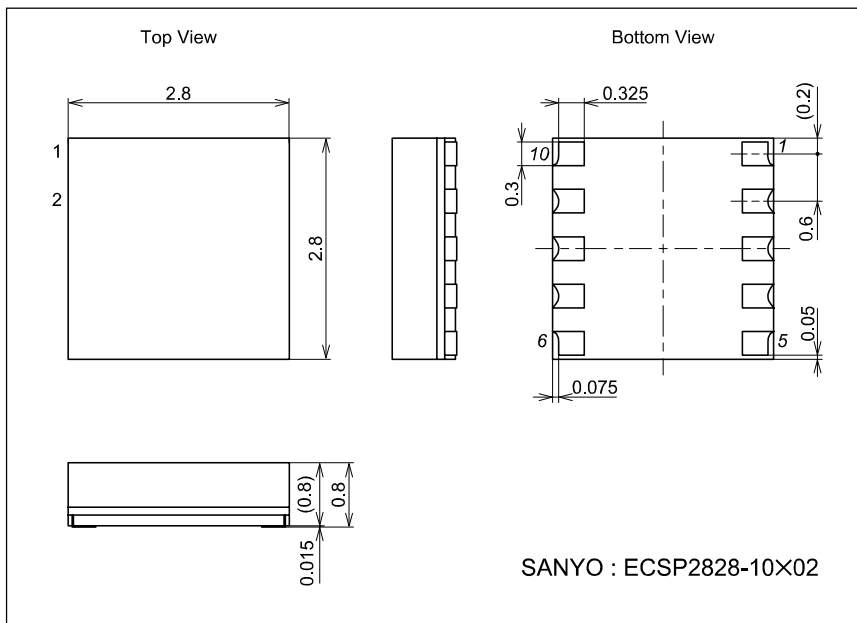
Electrical Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC} = 3.1\text{V}$

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	μA
[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

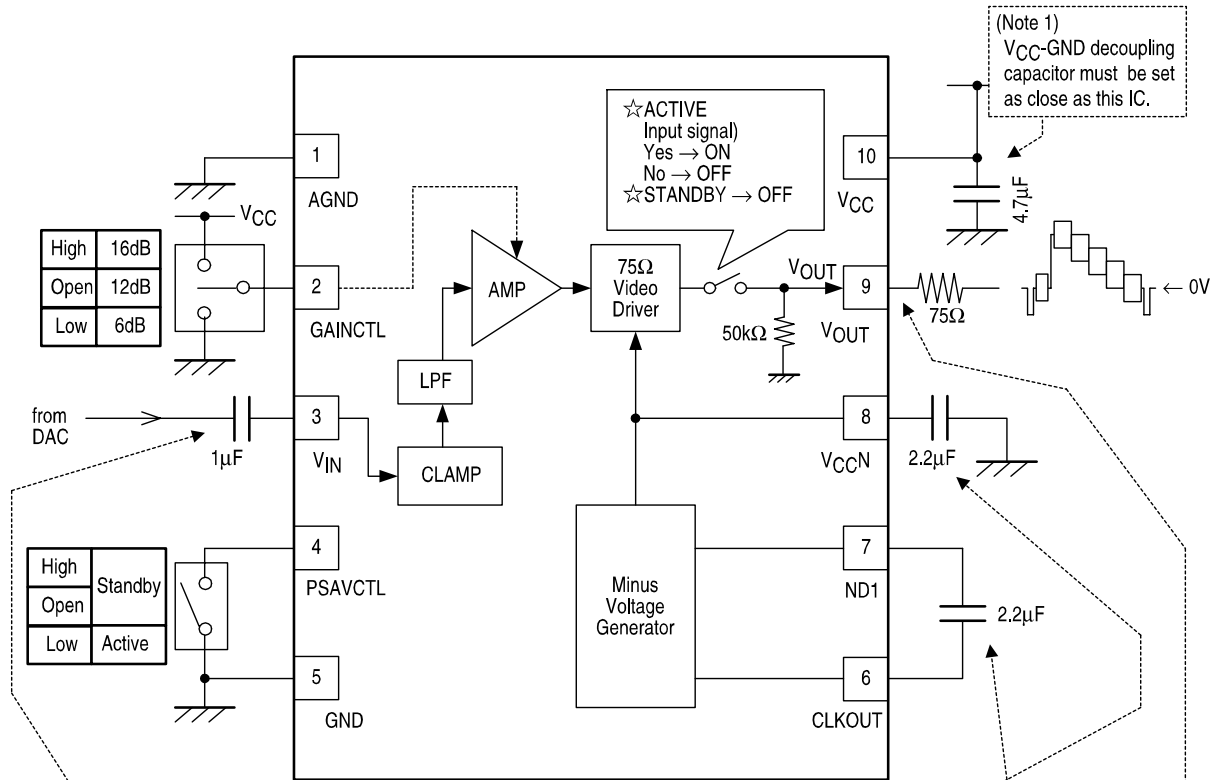
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LA73073CL Pin Configuration, Pin Function Diagram and Block Diagram

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(Note 2)
For input capacity value, use between 0.1 μ F to 1 μ 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 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.

(Note 1)
VCC-GND decoupling capacitor must be set as close as this IC.

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Input Output Form [查询 LA73073CL"供应商"](#)

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;"> <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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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: 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 _{CC} or 0V	Power save mode select pin <table border="1" style="margin-top: 10px;"> <thead> <tr> <th colspan="2">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>⇒</td> <td>STANDBY</td> </tr> <tr> <td>L(GND)</td> <td>0V to 0.3V</td> <td>⇒</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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H(V _{CC})	OPEN or V _{CC} ±0.5V	⇒	STANDBY													
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5	GND		0V													

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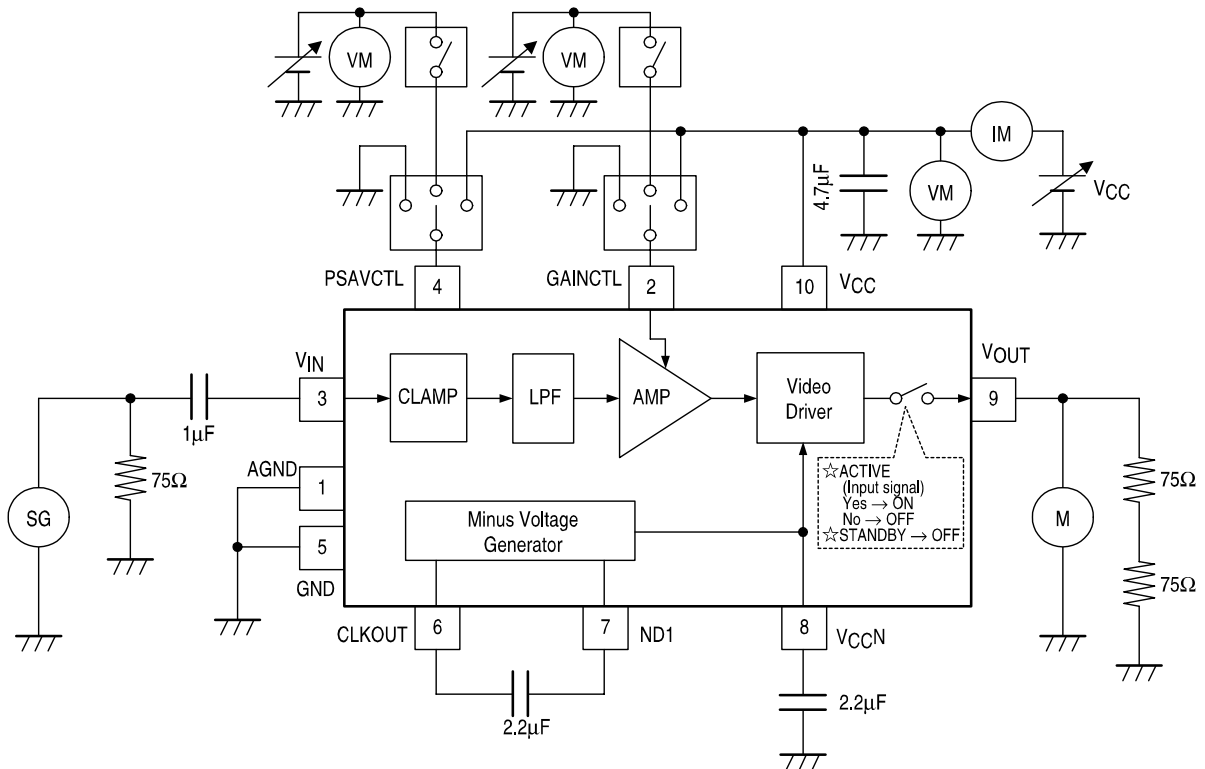
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Pin No	Symbol	Equivalent Circuit	Voltage	Description
6	CLKOUT		+3.0V ↑ ↓ 0V	Pin : Clock output terminal
7	ND1		+0.5V ↑ ↓ -2.6V (-VCC)	Pin7 : The terminal which transmits an electric charge
8	VCCN		0V ↑ ↓ -2.5V (-VCC)	Pin8 : Negative VCC
9	VOUT		0V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

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Measurement Circuit Diagram



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