Ordering number : ENA0071

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 (fc = 7.5MHz)
- Current dissipation in stand-by mode : 0μA
- 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.

Specitications

Maximum Ratings at Ta = 25 °C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max		4.0	V
Allowable power dissipation	Pd max	Ta ≤ 80°C, ∗Mounted on a board	160	mW
Operating temperature	Topr		-25 to +80	°C
Storage temperature	Tstg		-55 to +150	°C

∗(10×20×0.8mm) Material : Paper phenol

Recommended Operating Conditions at Ta = 25 °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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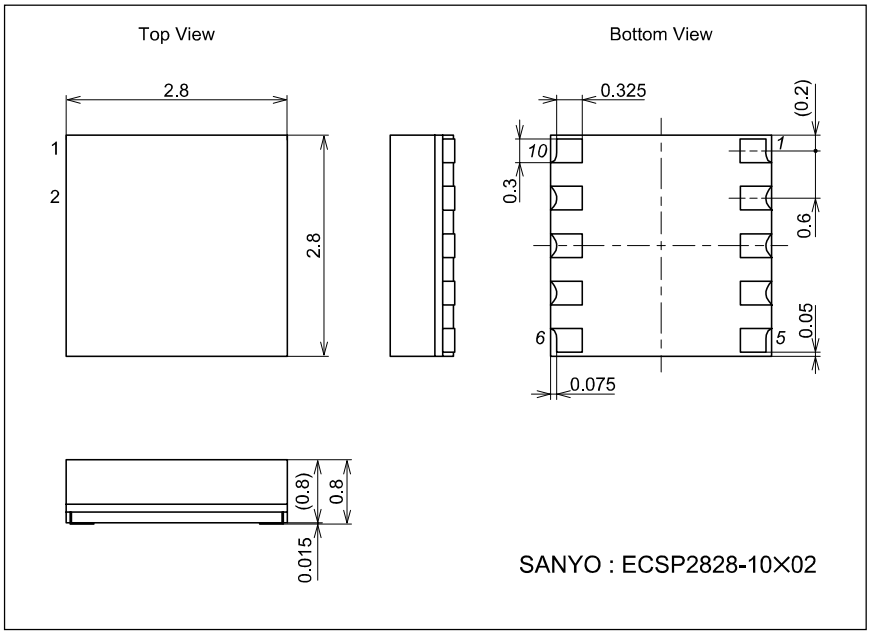
Electrical Characteristics at Ta = 25°C, V_{CC} = 3.1V

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[Current dissipation part]						
Current dissipation 1 (V_{IN} = White50%)	I_{CC}	4pin = Low Input = White50%	14	22	30	mA
Current dissipation 2 (Non-signal mode)	$I_{CC}2$	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} = 1Vp-p 100% white 2pin = Low (GND)	5.7	6.2	6.7	dB
Voltage gain V12	V_{G-M}	V_{IN} = 0.5Vp-p 100% white 2pin = MID (Open)	11.7	12.2	12.7	dB
Voltage gain V16	V_{G-H}	V_{IN} = 317mVp-p 100% white 2pin = High (V_{CC})	15.7	16.2	16.7	dB
Freq. Characteristic	V_f	f = 100kHz/5MHz	-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)	$V_{TH-STBY-H}$	$I_{CC} \leq 5\mu A$ 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

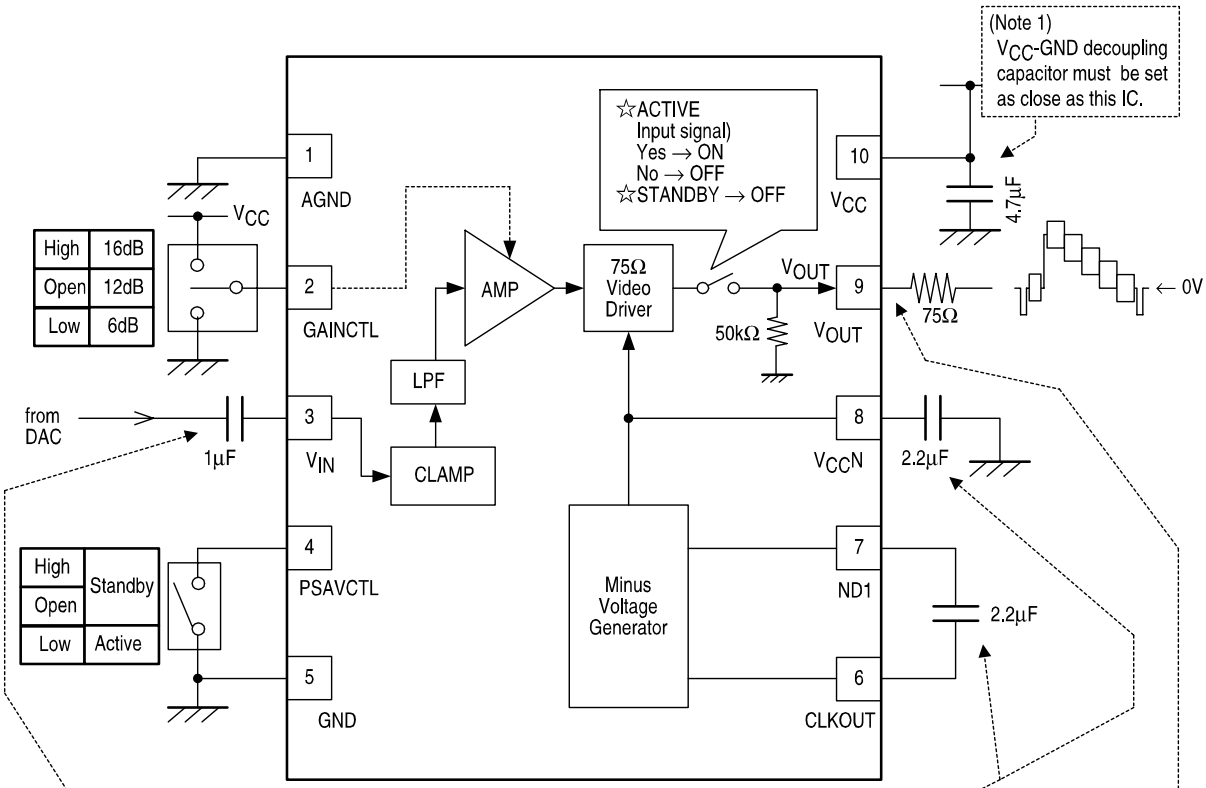
Package Dimensions

unit : mm

3301



LA73073CL Pin Configuration, Pin Function Diagram and Block Diagram



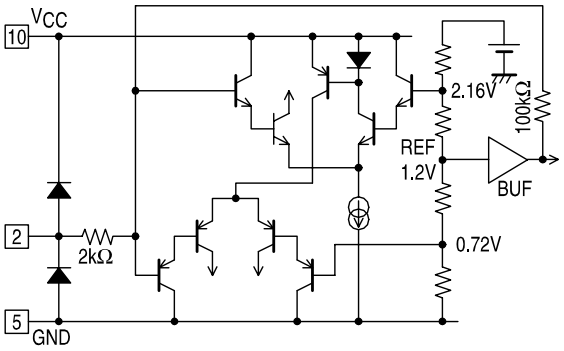
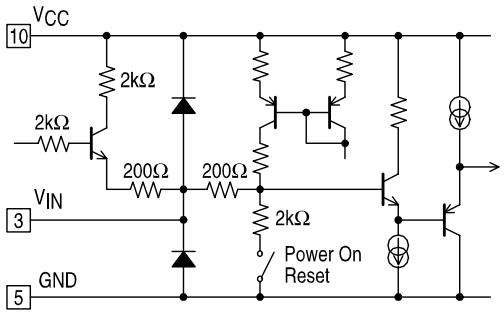
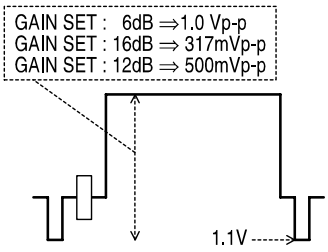
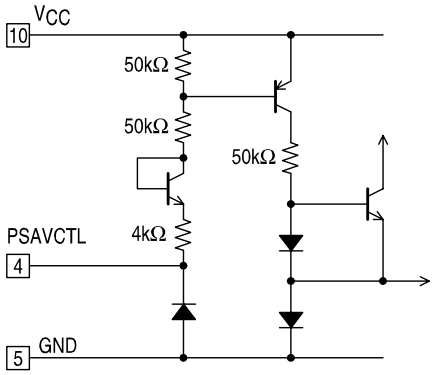
(Note 2)
For input capacity value, use between 0.1μF to 1μF by observing the sag condition of output waveform.

(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 V_{OUT} (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.

Input Output Form

<table>
<tr><th>Pin No</th><th>Symbol</th><th>Equivalent Circuit</th><th>Voltage</th><th>Description</th></tr>
<tr><td>1</td><td>AGND</td><td></td><td>0V</td><td>Analog GND</td></tr>
<tr><td>2</td><td>GAINCTL</td><td> 
</td><td>1.2V</td><td>Gain select pin
<table>
<tr><th>Control of Pin2</th><th></th><th>GAIN</th></tr>
<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>
</table></td></tr>
<tr><td>3</td><td>V_{IN}</td><td> 
</td><td>1.1V</td><td>Video input terminal
(Sync-tip clamp
(input High-impedance))

</td></tr>
<tr><td>4</td><td>PSAVCTL</td><td> 
</td><td>V_{CC}
or
0V</td><td>Power save mode select pin
<table>
<tr><th colspan="2">Control of Pin4</th><th></th><th>MODE</th></tr>
<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>
</table></td></tr>
<tr><td>5</td><td>GND</td><td></td><td>0V</td><td></td></tr>
</table>

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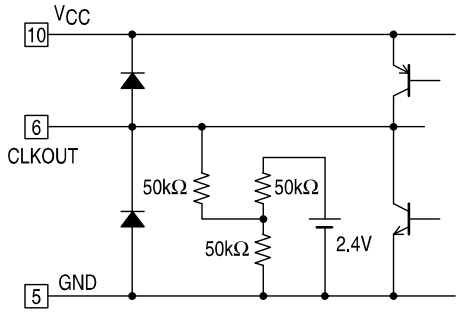
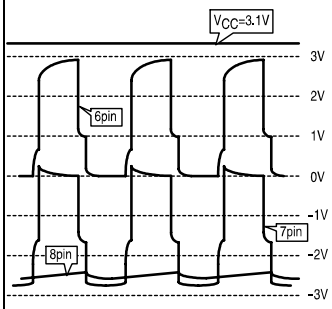
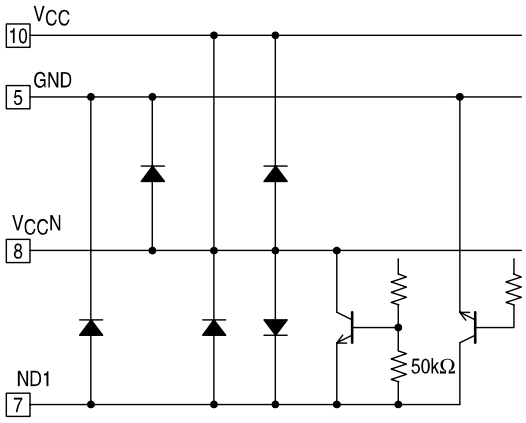
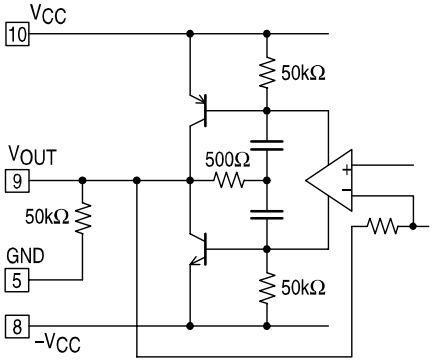
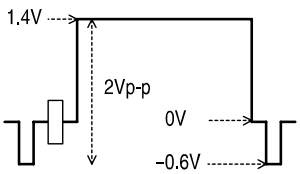
Pin No	Symbol	Equivalent Circuit	Voltage	Description
6	CLKOUT		+3.0V ↑↓ 0V	Pin : Clock output terminal 
7	ND1		+0.5V ↑↓ -2.6V (-VCC)	Pin7 : The terminal which transmits an electric charge
8	VCCN		0V ↑↓ -2.5V (-VCC)	Pin8 : Negative VCC
9	VOUT		0V	Video output terminal (Push-pull output Low-impedance)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

Measurement Circuit Diagram