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

SANYO Semiconductor Co., Ltd.
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

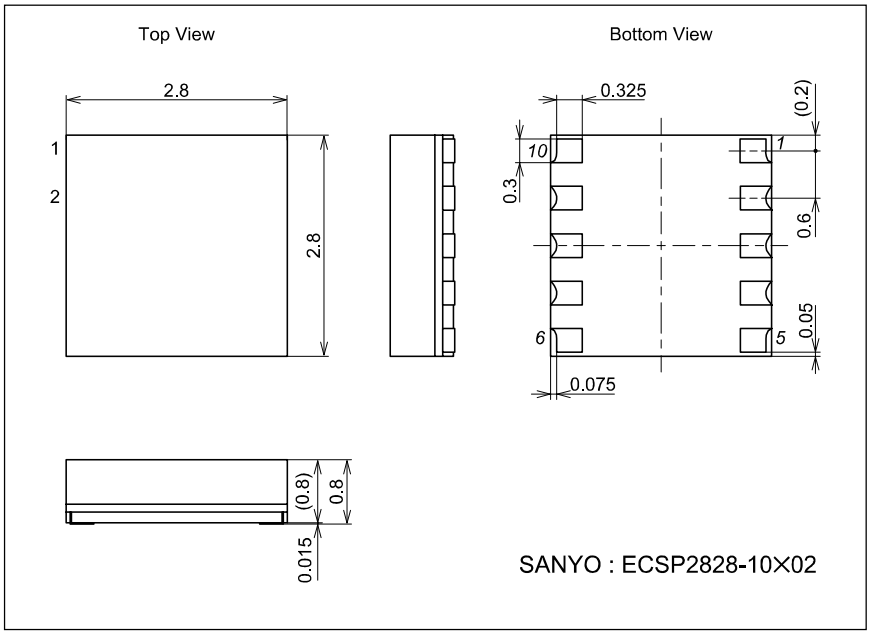
Electrical Characteristics at Ta = 25°C, V_{CC} = 3.1V

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

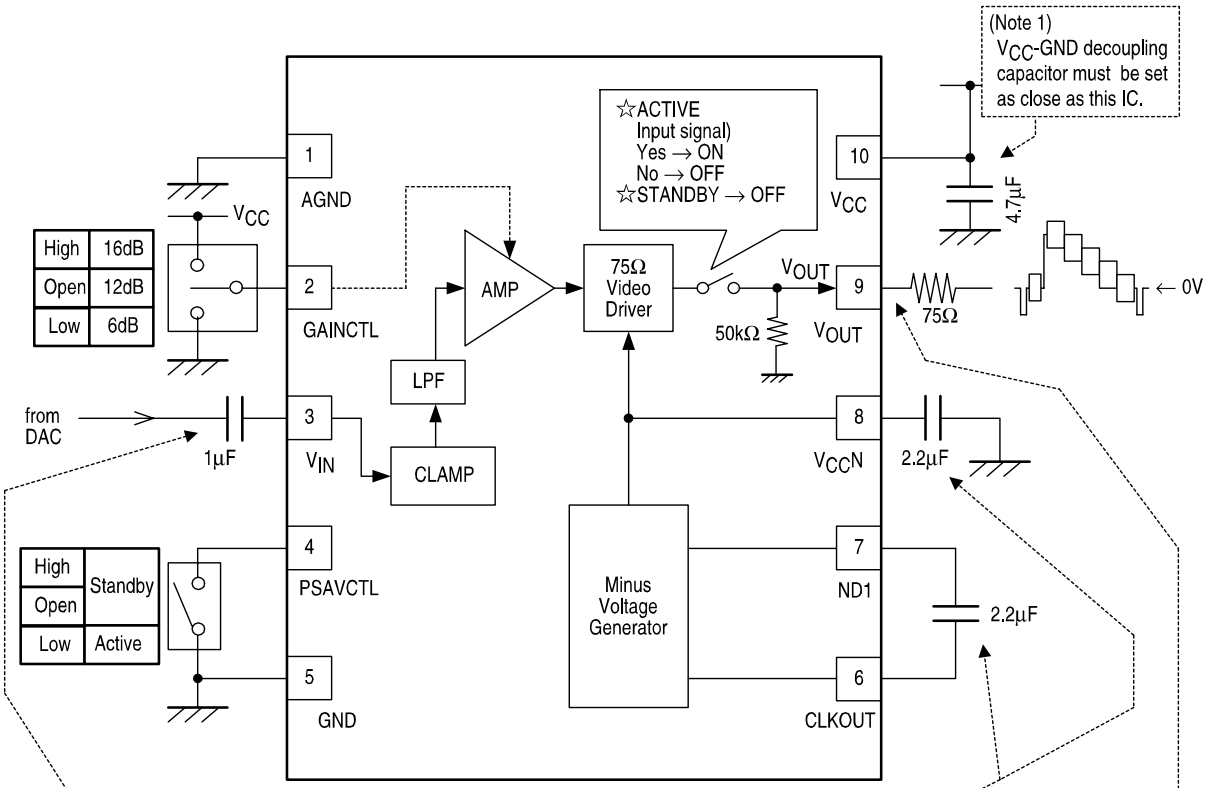
Package Dimensions

unit : mm

3301

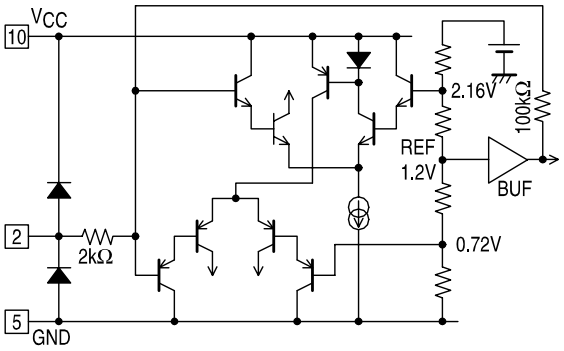
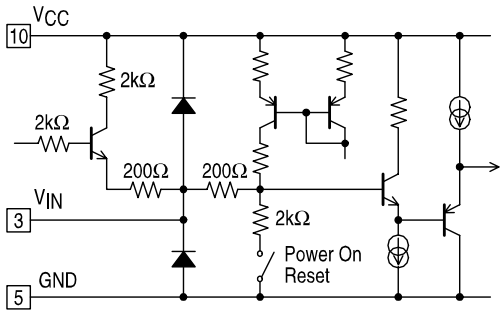
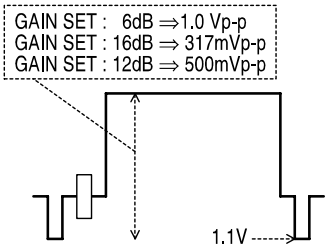
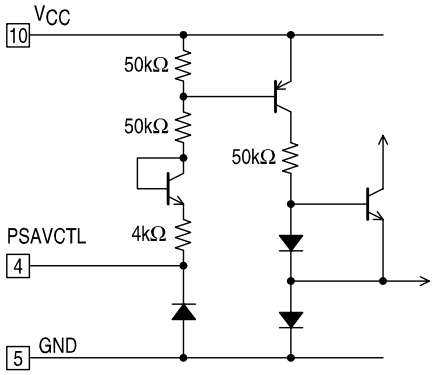


LA73073CL Pin Configuration, Pin Function Diagram and Block Diagram



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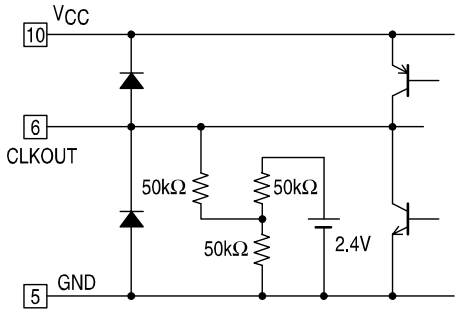
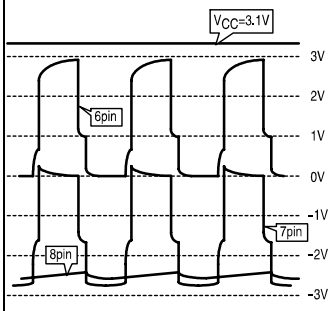
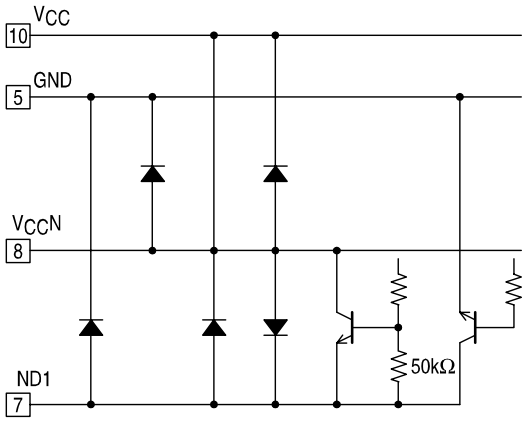
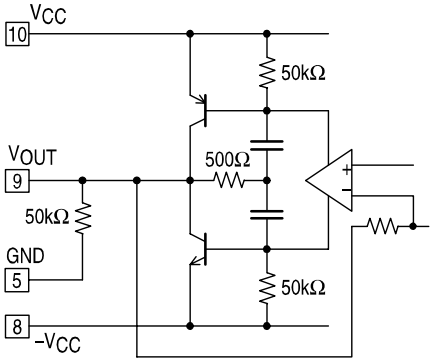
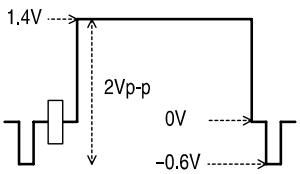
Pin No	Symbol	Equivalent Circuit	Voltage	Description
6	CLKOUT		+3.0V ↑↓ 0V	Pin : Clock output terminal 
7	ND1		+0.5V ↑↓ -2.6V (-VCC)	Pin7 : The terminal which transmits an electric charge
8	VCCN		0V ↑↓ -2.5V (-VCC)	Pin8 : Negative VCC
9	VOUT		0V	Video output terminal (Push-pull output Low-impedance)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

Measurement Circuit Diagram