

Ordering number : EN

CMOS IC



LC82561

1-Chip Digital Video CODEC

Preliminary

Overview

The LC82561 is a 1-chip digital video CODEC that integrates a video decoder that converts NTSC or PAL analog composite video signals including special VCR playback and the S pin video signal to digital baseband YUV, and a video encoder that converts YUV digital signals to analog video signals.

Features

<Decoder block>

- Y:U:V = 4:2:2 output (Sampling rate: 4 fsc)
- NTSC and PAL systems supported
- Composite S pin supported
- Built-in sync separation, AFC, and APC
- Built-in comb filter to eliminate cross color
- Digital ACC function
- Built-in jitter correction circuit and skew compensation circuit for special VCR playback
- Hue adjustment and brightness adjustment enabled

<Encoder block>

- Y:U:V = 4:2:2 input (sampling rate: 4 fsc)
- Analog composite video signal is output (1 channel)
- NTSC and PAL systems supported
- Interlace/non-interlace supported
- External sync possible for input video source (H sync, V sync)

<System control block>

- Display through decoder and encoder is possible
- Blue screen display when there is no input video signal

- Monochrome OSD support is possible
- Full-color 23-bit OSD support (Y: 8 bits, U: 8 bits, V: 7 bits)
- I²C command interface

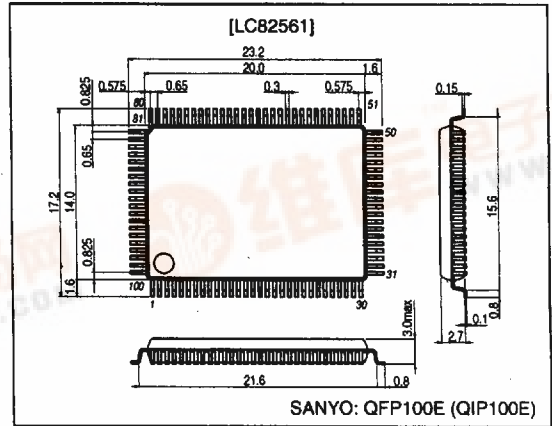
Applications

OA equipment, communications equipment, etc.

Package Dimensions

unit: mm

3151-QFP100E



Specifications

Absolute Maximum Ratings at V_{SS} = 0 V

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V _{DD} max		-0.3 to +7.0	V
Input/output voltage	V _i , V _o		-0.3 to V _{DD} + 0.3	V
Allowable power dissipation	P _d max	T _a = 60°C	1200	mW
Operating temperature	T _{opr}	When mounted on your company's board	-30 to +60	°C
Storage temperature	T _{stg}		-55 to +125	°C
Soldering temperature	Manual soldering	—	3 s	350
	Reflow	—	10 s	235
Input/output current	I _i , I _o		±20 *	mA

Note: * Per 1 input/output reference cell

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Allowable Operating Ranges at $T_a = -30$ to $+70^\circ\text{C}$, $V_{SS} = 0$ V

Parameter	Symbol	Conditions	Ratings			Unit	Applicable pins *
			min	typ	max		
Supply voltage (1)	V_{DD5}		4.75	5.0	5.25	V	—
Supply voltage (2)	V_{DD3}		3.13	3.3	3.47	V	—
Input voltage range (1)	V_{IN}		0	—	V_{DD5}	V	(1)

Note: * The applicable pin sets are as follows.

- (1) BVIDEO, VID1, CKJD, CKREF, PDI, VCOIN, VCXOIN, BSN, RIN, SC6DBIN, SCADIN, SCLPFIN, V6DBIN, VADIN, VIDEOIN, VREFHIN, VREFLIN, TEST, PALREF, PALCR, REGRES, SCL, SDA, DACIN0 to 7, DACCLK

DC Characteristics at $T_a = -30$ to $+70^\circ\text{C}$, $V_{SS} = 0$ V, $V_{DD5} = 4.75$ to 5.25 V, $V_{DD3} = 3.13$ to 3.47 V

Parameter	Symbol	Conditions	Ratings			Unit	Applicable pins *
			min	typ	max		
High-level input voltage	V_{IH}	CMOS levels	$0.7 V_{DD5}$	—	—	V	(1), (2)
Low-level input voltage	V_{IL}		—	—	$0.2 V_{DD5}$	V	
High-level input voltage	V_{IH}	CMOS levels	$0.7 V_{DD5}$	—	—	V	(3)
Low-level input voltage	V_{IL}		—	—	$0.3 V_{DD5}$	V	
High-level input voltage	V_{IH}	CMOS levels Schmitt	$0.75 V_{DD5}$	—	—	V	(4), (6)
Low-level input voltage	V_{IL}	with pull-up resistor	—	—	$0.15 V_{DD5}$	V	
High-level output voltage	V_{OH}	$I_{OH} = -4$ mA	$V_{DD} - 2.1$	—	—	V	(5)
Low-level output voltage	V_{OL}	$I_{OL} = 4$ mA	—	—	0.4	V	
High-level output voltage	V_{OH}	$I_{OH} = -6$ mA	$V_{DD} - 0.8$	—	—	V	(6)
Low-level output voltage	V_{OL}	$I_{OL} = 6$ mA	—	—	0.4	V	
Input leak current	I_{IL}	$V_i = V_{SS}, V_{DD}$	-10	—	+10	μA	(1), (2), (3), (4), (6)
Output leak current	I_{OZ}	During high-impedance output	-10	—	+10	μA	(5), (6)
Pull-up resistance	R_{UP}		70	140	280	$\text{k}\Omega$	(4), (6)

Note: * The applicable pin sets are as follows.

Note: Assuming that I_{OH} and I_{OL} do not flow through V_{OH} and V_{OL} , respectively, they are exactly equivalent to V_{DD} and V_{SS} .

INPUT

- (1) REGRES
- (2) DACIN0 to 7, DACCLK, SSEL
- (3) TEST
- (4) SCL

OUTPUT

- (5) STATE, FI, FSCOUT, HASY, HD, RBCOUT0 to 6, STSY, SYSCLK, VD, YOUT0 to 7

INOUT

- (6) SDA

Note: Pins VID1, BSN, BVIDEO, RIN, SC6DBIN, SCADIN, SCLPFIN, V6DBIN, VADIN, VIDEOIN, VREFHIN, VREFLIN, CKJD, PDI, PDO, VCOIN, VCOOUT, VCXOIN, VCXOOT, BSEP, CLPBS1 to 2, COMP, PALREF, PALCR, HSEP1, IO, IREFOUT, PO, SC6DBOT, SCLPFOT, SREFHOT, SREFLOT, SREFM, V6DBOUT, VLPFOUT, VREFHOT, VREFIN, VREFLOT, and VREFM are not included in CD characteristics.

Block Diagram

