


**SANYO Semiconductors**

# DATA SHEET

## LV761XXX Series

**Bi-CMOS IC**
**For NTSC/PAL/SECAM Color TVs**
**Built-in CTV Microcontroller**
**Video and Sound Processing ICs  
(VIF/SIF/Y/C/Deflection/CbCr IN)**

### Overview

The LV761XXX series is a single-chip video and sound processor IC with a built-in microcontroller that supports all of the NTSC, PAL and SECAM broadcasting systems. The IC provides fully integrated solution to rationalize the design of color TV sets, increase productivity, and reduce total costs.

### Functions

- I<sup>2</sup>C bus control system with a built-in microcontroller
- ROM 64K byte (Program: 48K, CG-ROM: 16K)
- VIF/SIF/Y/C/Deflection/CbCr IN
- Adjustment-free VIF/SIF
- 1X'tal multi-system that supports NTSC, PAL and SECAM broadcasting systems
- No VCO coil required
- Internal sound carrier BPF, 4-system sound carrier trap
- Digital AFT system

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## LV761XXX Series

### Lineup

Type No.	SECAM	Tone/Surround	E/W	ROM
LV761102F				Flash
LV761102C				Mask
LV761112F			○	Flash
LV761112C			○	Mask
LV761122F		○		Flash
LV761122C		○		Mask
LV761132F		○	○	Flash
LV761132C		○	○	Mask
LV761202F	○			Flash
LV761202C	○			Mask
LV761222F	○	○		Flash
LV761222C	○	○		Mask
LV761232F	○	○	○	Flash
LV761232C	○	○	○	Mask

### Specifications

#### Maximum Ratings (BIP Chip) at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V <sub>48</sub> max		9.0	V
	V <sub>69</sub> max		6.0	V
	V <sub>78</sub> max		6.0	V
Maximum supply current	I <sub>11</sub> max		15	mA
	I <sub>17</sub> max		20	mA
	I <sub>51</sub> max		19	mA
Allowable power dissipation	P <sub>d</sub> max	Ta ≤ 65°C *	1.3	W
Operating temperature	T <sub>opr</sub>		-10 to +65	°C
Storage temperature	T <sub>stg</sub>		-55 to +150	°C

\* Mounted on a substrate : 230mm×150mm×1.6mm, glass epoxy board.

#### Absolute Maximum Ratings (Micro-computer Chip) at Ta = 25°C, V<sub>SS</sub> = 0V

Parameter		Symbol	Pins	Conditions	Ratings			Unit
					min	typ	max	
Maximum supply voltage		V <sub>DD</sub> max	CpuV <sub>DD</sub>		-0.3		+6.0	V
Input voltage		V <sub>I</sub>	XT1, RES		-0.3		V <sub>DD</sub> +0.3	V
Output voltage		V <sub>O</sub> (1)	XT2, FILT		-0.3		V <sub>DD</sub> +0.3	V
		V <sub>O</sub> (2)	CpuV <sub>DD</sub> 2		-0.3		3.3V+0.3	V
Input/output voltage		V <sub>IO</sub>	Ports0, 1		-0.3		V <sub>DD</sub> +0.3	V
High level output current	Peak output current	I <sub>OPH</sub>	Ports04 to 07, 1	•CMOS output •For each pin.	-10			mA
	Mean output current	I <sub>OMH</sub>	Ports04 to 07, 1	•CMOS output •For each pin.	-1			mA
	Total output current	ΣI <sub>OA</sub> H	Ports04 to 07, 1	The total of all pins.	-25			mA
Low lever output current	Peak output current	I <sub>OPL</sub>	Ports0, 1	For each pin			20	mA
	Mean output current	I <sub>OML</sub> (1)	P02, P03, P06, P07 Ports1	For each pin			1	mA
		I <sub>OML</sub> (2)	P00, P01, P04, P05	For each pin			8	mA
	Toral output current	ΣI <sub>OL</sub> (1)	P02, P03, P06, P07 Ports1	The total of all pins.			45	mA
		ΣI <sub>OL</sub> (2)	P00, P01, P04, P05	The total of all pins.			16	mA

## LV761XXX Series

### Operating Conditions (BIP Chip) at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V <sub>48</sub>		8.0	V
	V <sub>69</sub>		5.0	V
	V <sub>78</sub>		5.0	V
Recommended supply current	I <sub>11</sub>		11	mA
	I <sub>17</sub>		13	mA
	I <sub>51</sub>		13	mA
Operating supply voltage range	V <sub>48</sub>		7.7 to 8.3	V
	V <sub>69</sub>		4.7 to 5.3	V
	V <sub>78</sub>		4.7 to 5.3	V
Operating supply current range	I <sub>11</sub>		9 to 13	mA
	I <sub>17</sub>		11 to 15	mA
	I <sub>51</sub>		11 to 15	mA

### Recommended Operating Range (Micro-computer Chip) at Ta = -10°C to +65°C, V<sub>SS</sub> = 0V

Parameter	Symbol	Pins	Conditions	V <sub>DD</sub> [V]	Ratings			Unit
					min	typ	max	
Operating supply voltage	V <sub>DD</sub>	CpuV <sub>DD</sub>	0.229μs ≤ t <sub>CYC</sub> ≤ 200μs		4.5		5.5	V
Hold voltage	V <sub>HD</sub>	CpuV <sub>DD</sub>	RAMs and the registers data are kept in HOLD mode.		2.0		5.5	V
High level input voltage	VIH (1)	Ports0, 1, P00 port input /interrupt		4.5 to 5.5	0.3V <sub>DD</sub> +0.7		V <sub>DD</sub>	V
	VIH (2)	Port00 Watch-dog timer		4.5 to 5.5	0.9V <sub>DD</sub>		V <sub>DD</sub>	V
	VIH (3)	RES		4.5 to 5.5	0.75V <sub>DD</sub>		V <sub>DD</sub>	V
Low level input voltage	VIL (1)	Ports0, 1, P00 port input /interrupt		4.5 to 5.5	V <sub>SS</sub>		0.1V <sub>DD</sub> +0.4	V
	VIL (2)	Port00 Watch-dog timer		4.5 to 5.5	V <sub>SS</sub>		0.15V <sub>DD</sub> +0.4	V
	VIL (3)	RES		4.5 to 5.5	V <sub>SS</sub>		0.25V <sub>DD</sub>	V
Operation cycle time (*1)	t <sub>CYC</sub> (1)		All functions operating	4.5 to 5.5		0.231		μs
	t <sub>CYC</sub> (2)		OSD and Data slicer are not operating	4.5 to 5.5	0.231		200	μs
Oscillation frequency range	FmVCO1		Built-in VCO1 Oscillation System clock	4.5 to 5.5		13.0		MHz
	FmVCO1 (*2)		Built-in VCO2 oscillation OSD clock	4.5 to 5.5		12.5		MHz
						16.6		MHz
	FmRC		Built-in RC oscillation	4.5 to 5.5	0.3	1.0	2.0	MHz
Oscillation stabilizing time	tmsVCO		•after the HOLD mode •Power-On	4.5 to 5.5		300		mS

(Note) FLASH-ROM erase/write temperature range : Ta = 25±2°C (V<sub>DD</sub> = 4.5 to 5.5V)

(\*1) Relational expression between t<sub>CYC</sub> and oscillation frequency: 1/1 frequency dividing : 3/FmVCO1, 1/2 frequency dividing : 6/FVCO1.

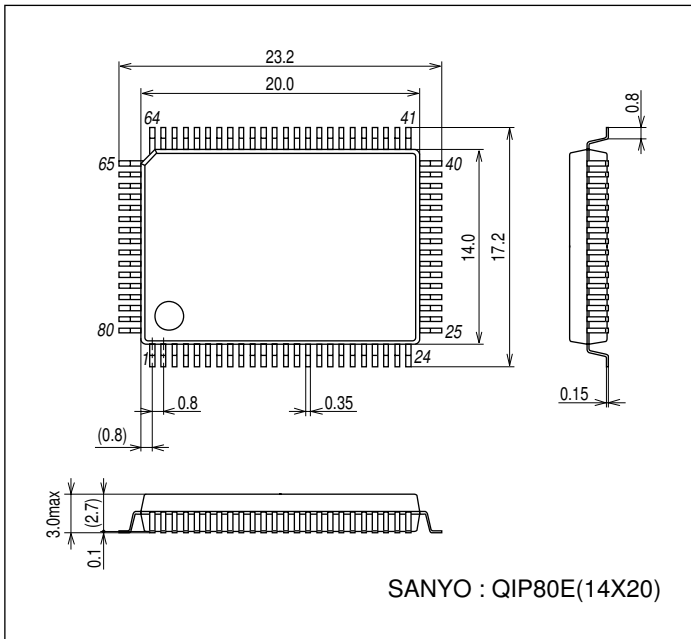
(\*2) OCKSEL is the selectable register for OSD clock frequency. (See the LC873200 users manual for details.)

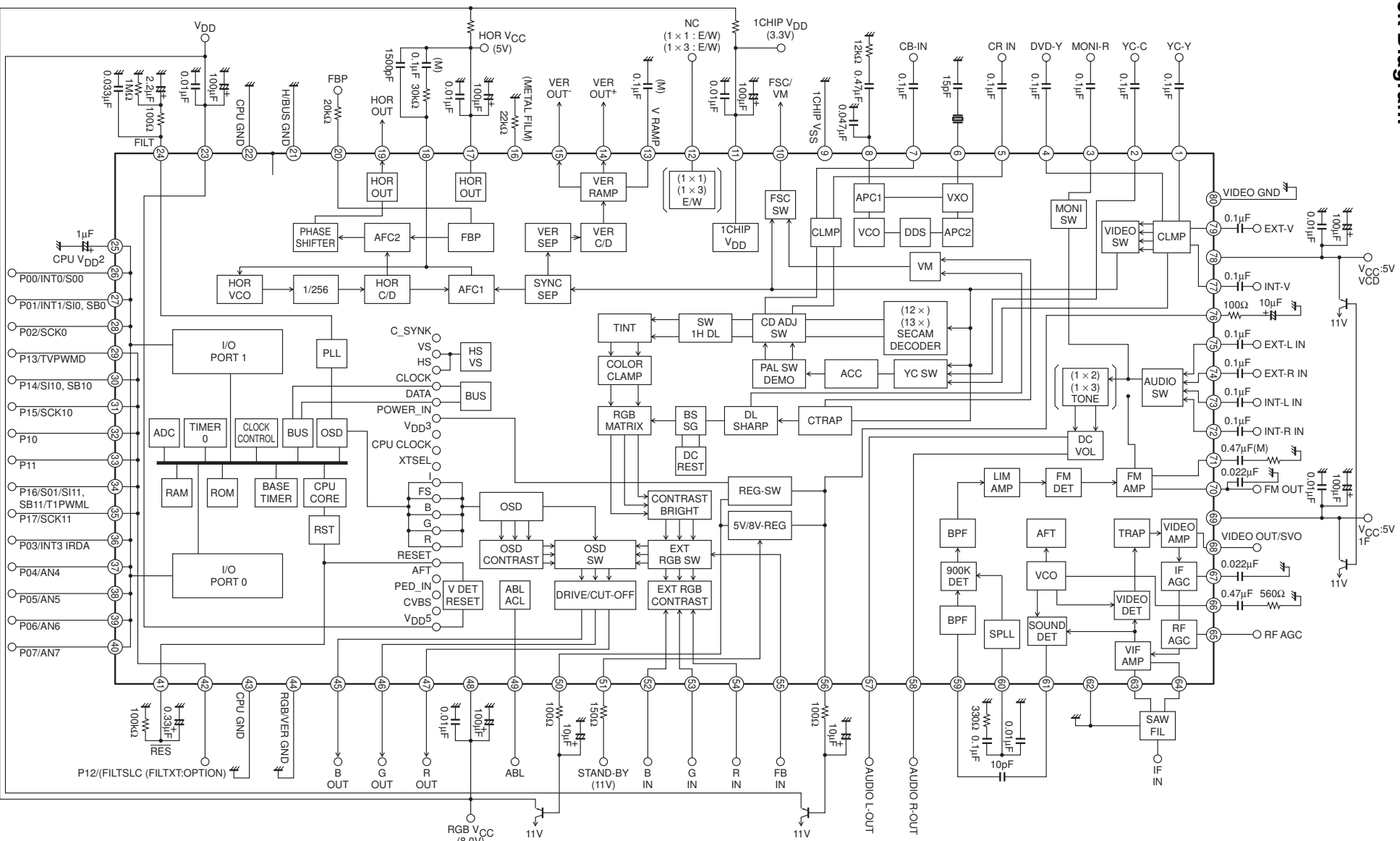
## LV761XXX Series

### Package Dimensions

unit : mm (typ)

3174A





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