Ordering number : ENA1102B

SANYO Semiconductors
DATA SHEET

LA7693X Series

Monolithic Linear 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 LA7693X series is a single-chip video and sound processor IC with a built-in microcontroller that supports all of the different worldwide broadcasting systems. The IC provides fully integrated solution to rationalize the design of color TV sets, increase productivity, and reduce total costs.

Functions

- I^2C bus control system with a built-in microcontroller
- VIF/SIF/Y/C/Deflection/CbCr IN
- Adjustment-free VIF/SIF
- 1X'tal multi-system that supports all broadcasting systems
- No VCO coil required
- Internal sound carrier BPF, 4-system sound carrier trap
- Digital AFT system
- Supports EW (LA76933J, LA76938Y)
- Supports SECAM (LA76936Y, LA76938Y)

Line-up

Type name	NTSC	PAL	SECAM	Deflection	CbCr input	E/W
LA76931J	O	O	×	O	O	×
LA76933J	O	O	×	O	O	O
LA76936Y	O	O	O	O	O	×
LA76938Y	O	O	O	O	O	O

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_8 max		7.0	V
	V_{43} max		7.0	V
	V_{55} max		7.0	V
Maximum supply current	I_{11} max		25	mA
	I_{19} max		35	mA
Allowable power dissipation	Pd max	Ta ≤ 65°C *	1.6	W
Operating temperature	Topr		-10 to +65	°C
Storage temperature	Tstg		-55 to +150	°C

* Mounted on a substrate : 213mm×140mm×1.6mm, glass epoxy board.

Absolute Maximum Ratings (Micro-computer Chip) at Ta = 25°C, V_{SS} = 0V

Parameter		Symbol	Pins	Conditions	Ratings			Unit
					min	typ	max	
Maximum supply voltege		V_{DD} max	V_{DD}	Mask	-0.3		+6.0	V
				Flash	-0.3		+6.5	V
Input voltege		V_I	$\overline{RES}$		-0.3		V_{DD}+0.3	V
Output voltege		V_O	FILT		-0.3		V_{DD}+0.3	V
Input/output voltege		V_{IO}	Ports0, 1		-0.3		V_{DD}+0.3	V
High level output current	Peak output current *2	I_OPH	Ports04 to 07, 1	•CMOS output •For each pin.	-4			mA
	Total output current	ΣI_OAH	Ports04 to 07, 1	The total of all pins.	-15			mA
Low lever output current	Peak output current *2	I_OPL	Ports0, 1	For cach pin			20	mA
	Toral output current	ΣI_OAL	Ports0, 1	The total of all pins.			30	mA

*1 J : unted on a MASKROM = 24KB, K : MASKROM = 28KB, L : MASKROM = 32KB, M : MASKROM = 40KB, N : MASKROM = 48KB
FB : FLASHROM = 48KB (This production is produced and sold by SANYO under license of the Silicon Storage Technology Inc.)

*2 The average current for each pin must not be over 1mA.

Operating Conditions (Bip Chip) at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltege	V_8		5.0	V
	V_{43}		5.0	V
	V_{55}		5.0	V
Recommended supply current	I_{11}		19	mA
	I_{19}		31	mA
Operating supply voltege range	V_8 op		4.7 to 5.3	V
	V_{43} op		4.7 to 5.3	V
	V_{55} op		4.7 to 5.3	V
Operating supply current range	I_{11} op		28 to 34	mA
	I_{19} op		17 to 21	mA

Recommended Operating Range (Micro-computer Chip) at Ta = -10°C to +65°C, V_{SS} = 0V

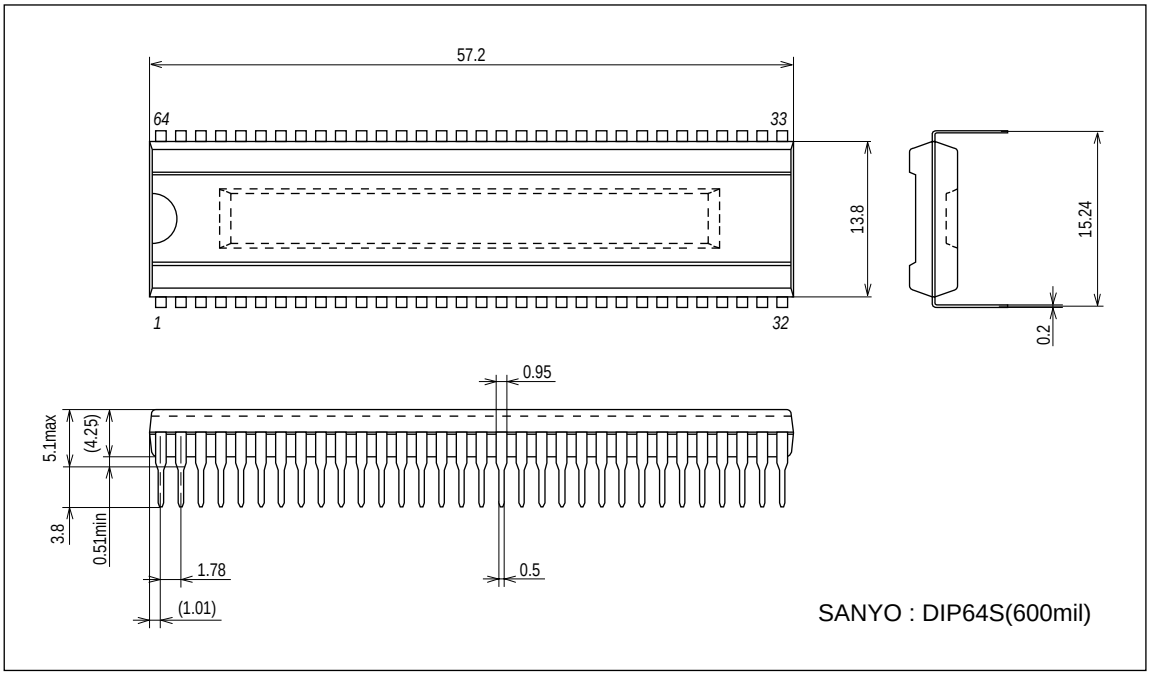
Parameter	Symbol	Pins	Conditions	V_{DD} [V]	Ratings			Unit
					min	typ	max	
Operating supply voltege	V_{DD}	V_{DD} max			4.5		5.5	V
Hold voltage	V_{HD}	V_{DD}	RAMs and the registers data are kept in HOLD mode.		2.0		5.5	V
High level input voltage	VIH (1)	Ports04 to 07	Output disable	4.5 to 5.5	0.75V_{DD}		V_{DD}	V
	VIH (2)	Ports00 to 03, 1 (Schumitt) $\overline{RES}$ (Schumitt)	Output disable	4.5 to 5.5	0.75V_{DD}		V_{DD}	V
Low level input voltage	VIL (1)	Ports0	Output disable	4.5 to 5.5	V_{SS}		0.25V_{DD}	V
	VIL (2)	Ports00 to 03, 1 (Schumitt) $\overline{RES}$ (Schumitt)	Output disable	4.5 to 5.5	V_{SS}		0.25V_{DD}	V
Operation cycle time	tCYC (1)		All functions operating	4.5 to 5.5	0.844	0.848	0.852	µs
	tCYC (2)		OSD and Data slicer are not operating	4.5 to 5.5	0.844		400	µs
Oscillation frequency range	FmRC		Internal RC oscillation	4.5 to 5.5	0.4	0.8	3.0	MHz

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

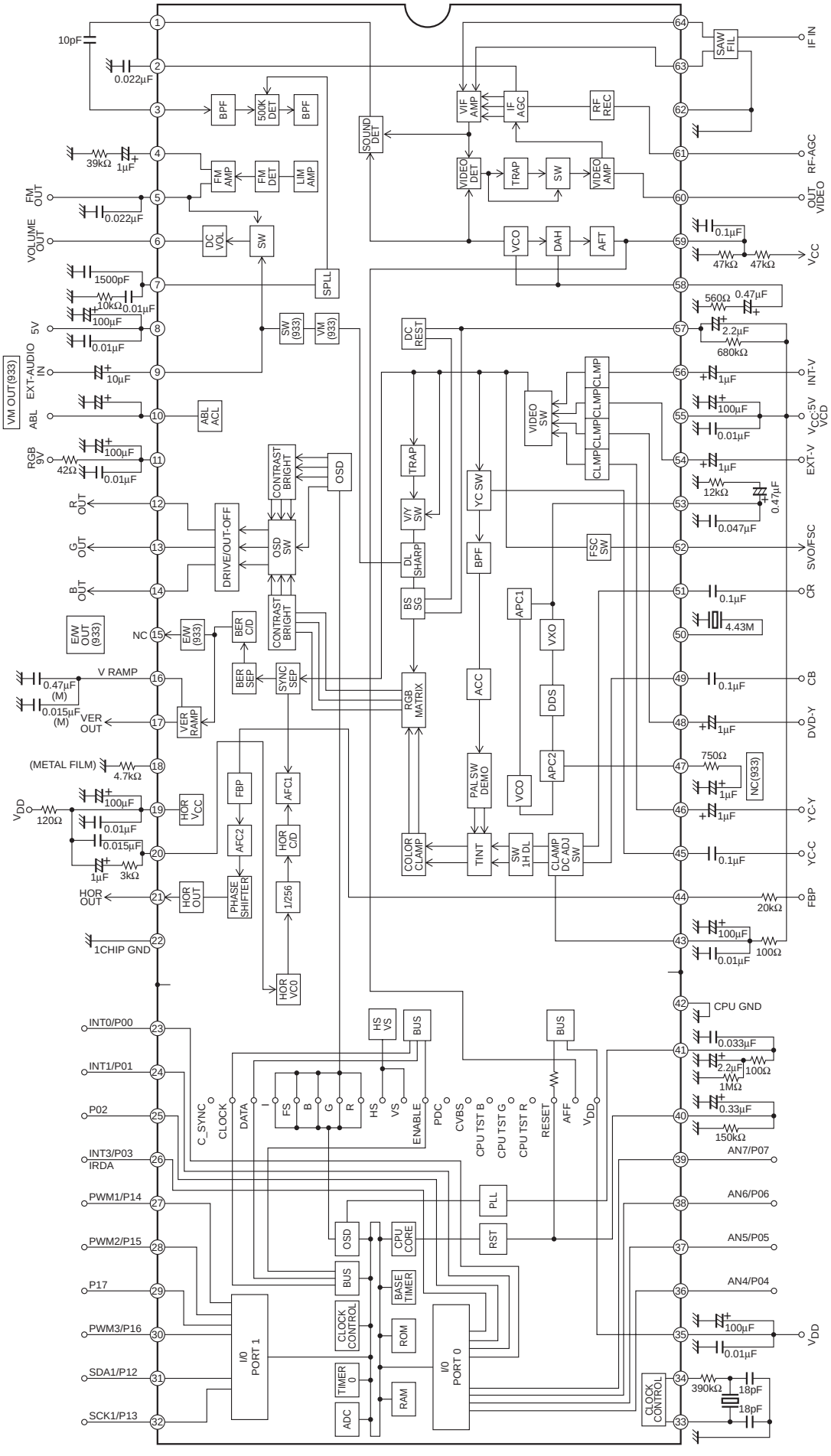
Package Dimensions

unit : mm (typ)

3300



Block Diagram 1 LA76931J/933J



Block Diagram 2 LA76936Y/938Y