



AiP331LV/AiP393LV

Single General Purpose, low voltage RRI, Open-Drain Output Comparator

Product Specification

Specification Revision History:

Version	Date	Description
2024-11-A0	2024-11	New system
2025-02-A1	2025-02	Modify parameters
2025-12-A2	2025-12	Modify product name, delete gain and power supply rejection ratio, modify common-mode input voltage range



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1、General Description

AiP331LV/AiP393LV are CMOS voltage comparators available in single-channel (AiP331LV) and dual-channel (AiP393LV) versions. The comparators feature open-drain outputs with 300ns propagation delay at 100mV overdrive, and each comparator consumes 60uA quiescent current. They are ideal for portable consumer electronics applications requiring low supply voltage operation, low power consumption and compact footprint.

Features:

- Operating voltage range: 2.5V to 5.5V
- Single quiescent current: 60uA
- Low output saturation voltage: 40mV
- Open-drain output
- Packaging form:
AiP331LV: SOT23-5
AiP393LV: SOP8

Ordering Information:

Reel packing specifications:

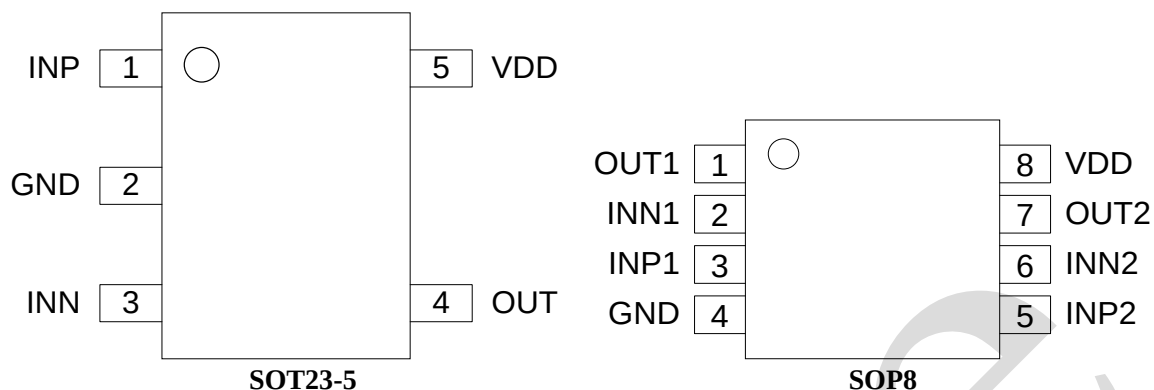
Part number	Packaging form	Marking code	Reel quantity	Boxed reel quantity	Notes
AiP331LVGB235.TR	SOT23-5	331LV	3000 PCS/ reel	30000 PCS/box	Size of plastic package: 2.9mm×1.6mm Pin spacing: 0.95mm
AiP393LVSA8.TR	SOP8	AiP393LV	4000 PCS/ reel	8000 PCS/box	Size of plastic package: 4.9mm×3.9mm Pin spacing: 1.27mm

Note: If the physical information is inconsistent with the ordering information, please refer to the actual product.



2、Pin Configurations And Pin Description

2.1、Pin Configurations



2.2、SOT23-5 Pin Description

Pin No.	Pin Name	Description
1	INP	positive input
2	GND	ground
3	INN	negative input
4	OUT	output
5	VDD	power supply

2.3、SOP8 Pin Description

Pin No.	Pin Name	Description
1	OUT1	channel 1 output
2	INN1	channel 1 negative input
3	INP1	channel 1 positive input
4	GND	ground
5	INP2	channel 2 positive input
6	INN2	channel 2 negative input
7	OUT2	channel 2 output
8	VDD	power supply



3、Electrical Parameter

3.1、Absolute Maximum Ratings

($T_{amb}=25^{\circ}\text{C}$, unless otherwise specified)

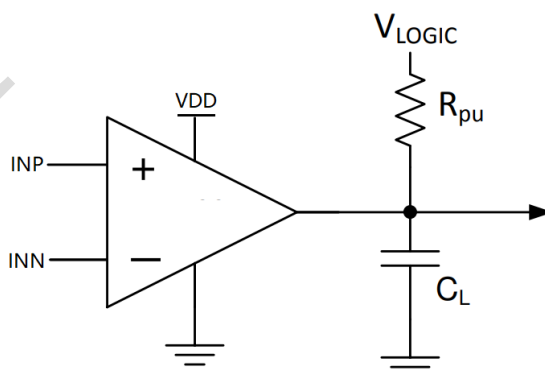
Parameter	Symbol	Conditions	Value	Unit
supply voltage	VDD	-	-0.3 to 6	V
ambient temperature	T_{amb}	-	-40 to 125	$^{\circ}\text{C}$
storage temperature	T_{stg}	-	-65 to 150	$^{\circ}\text{C}$
soldering temperature	T_L	10s	260	$^{\circ}\text{C}$

3.2、Electrical Characteristics

($T_{amb}=25^{\circ}\text{C}$, VDD=2.5V to 5.5V, GND=0V, $C_L=15\text{pF}$, $R_{pu}=5.1\text{K}\Omega$, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
supply voltage	VDD	-	2.5	-	5.5	V
supply current	IDD	VDD=2.7V, single channel	-	50	-	μA
		VDD=5.0V, single channel	-	60	-	μA
input offset voltage	VOS	-	-	1	5	mV
input bias current	IIB	-	-	0.005	-	nA
input offset voltage	IIO	-	-	0.005	-	nA
output source current	IO	VDD=2.7V, VO=1.5V	5	25	-	mA
		VDD=5.0V, VO=1.5V	10	80	-	mA
output saturation voltage drop	VOL	VDD=2.7V, IO=1.5mA	-	25	-	mV
		VDD=5.0V, ISINK=4mA	-	40	-	mV
output leakage current	ILEAK	-	-	0.001	-	nA
common-mode input voltage	VICR	VDD=5.0V	-0.1	-	4.2	V
propagation delay	TPHL	VDD=5.0V, overdrive=100mV	-	300	-	ns
	TPLH	VDD=5.0V, overdrive=100mV	-	750	-	ns

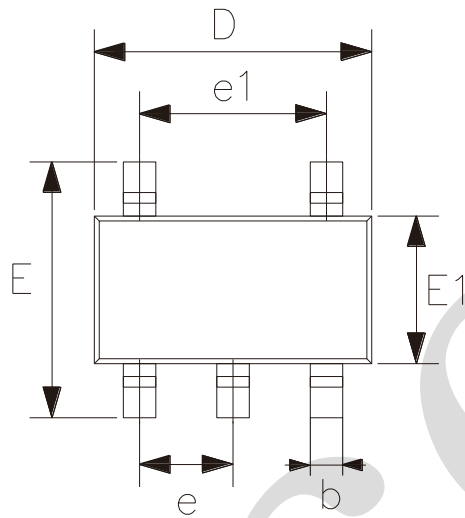
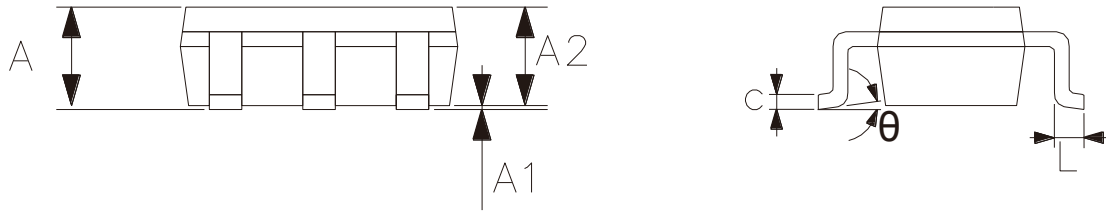
4、Typical Application Circuit





5、Package Information

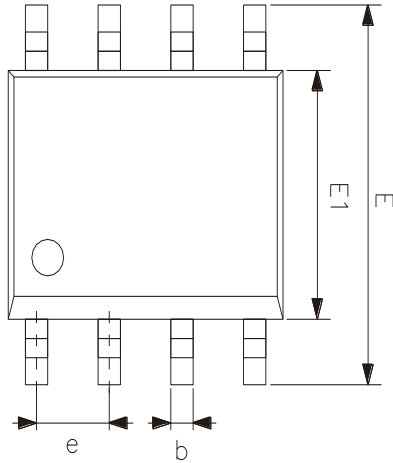
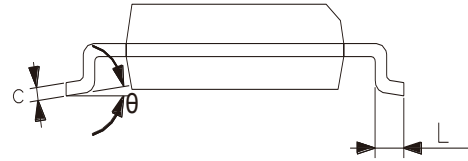
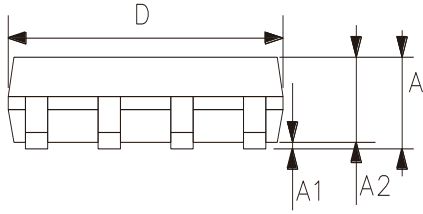
5.1、SOT23-5



2023/12/A	Dimensions In Millimeters	
Symbol	Min.	Max.
A	—	1.26
A1	0.00	0.12
A2	1.00	1.20
b	0.30	0.50
c	0.10	0.20
D	2.82	3.02
E	2.60	3.00
E1	1.50	1.70
e	0.95	
e1	1.80	2.00
L	0.30	0.60
θ	0°	8°



5.2、SOP8



2023/12/A	Dimensions In Millimeters	
Symbol	Min.	Max.
A	1.35	1.80
A1	0.05	0.25
A2	1.25	1.55
D	4.70	5.10
E	5.80	6.30
E1	3.70	4.10
b	0.306	0.51
c	0.19	0.25
e	1.27	
L	0.40	0.89
θ	0°	8°



6、Statements And Notes

6.1、The name and content of Hazardous substances or Elements in the product

Part name	Hazardous substances or Elements									
	Lead and lead compounds	Mercury and mercury compounds	Cadmium and cadmium compounds	Hexavalent chromium compounds	Polybrominated biphenyls	Polybrominated biphenyl ethers	Dibutyl phthalate	Butylbenzyl phthalate	Di-2-ethylhexyl phthalate	Diisobutyl phthalate
Lead frame	○	○	○	○	○	○	○	○	○	○
Plastic resin	○	○	○	○	○	○	○	○	○	○
Chip	○	○	○	○	○	○	○	○	○	○
The lead	○	○	○	○	○	○	○	○	○	○
Plastic sheet installed	○	○	○	○	○	○	○	○	○	○
explanation	○: Indicates that the content of hazardous substances or elements in the detection limit of the following the SJ/T11363-2006 standard. ×: Indicates that the content of hazardous substances or elements exceeding the SJ/T11363-2006 Standard limit requirements.									

6.2、Notes

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