

## QUAD DIFFERENTIAL COMPARATOR—YD393

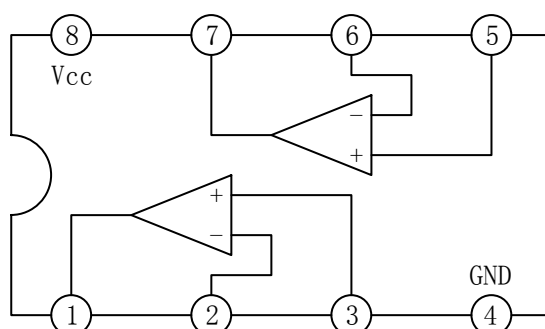
### DESCRIPTION

The YD393 consists of two independent voltage comparators designed specifically to operate from a single power supply over a wide voltage range

### FEATURES

- \*Single or dual supply operation;
- \*Wide operating supply range;  
( $V_{CC}=2V\sim 36V$  or  $\pm 1\sim \pm 18V$ )
- \*Input common-mode voltage includes ground;
- \*Low supply current drain:  $I_{CC}=0.8mA$ (Typical);
- \*Low input bias current  $I_{bias}=25nA$ (Typical);
- \*Output compatible with TTL, DTL, and CMOS logic system;
- \*Package Outline : DIP8, SOP8.

### BLOCK DIAGRAM



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# YOU DA INTEGRATED CIRCUIT

# YD393

## ABSOLUTE MAXIMUM RATINGS (Tamb=25°C)

characteristic	symbol	value	Unit
Supply Voltage	V <sub>CC</sub>	±18 or 36	V
Differential input voltage	V <sub>ID</sub>	36	V
Input Voltage	V <sub>I</sub>	-0.3~36V	V
Power Dissipation	P <sub>d</sub>	570	mW
Operating Temperature	T <sub>opr</sub>	0 to +70	°C
Storage Temperature	T <sub>stg</sub>	-55 to 150	°C

## ELECTRICAL CHARACTERISTICS

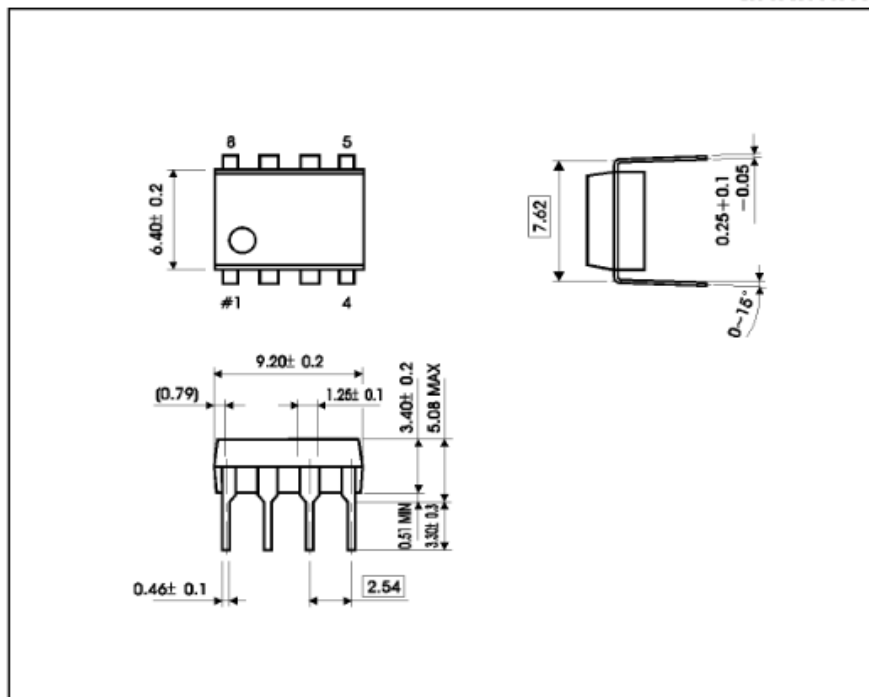
(V<sub>CC</sub>=5.0V, Tamb=25°C, All voltage referenced to GND unless otherwise specified)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Input offset voltage	V <sub>IO</sub>	V <sub>CM</sub> =0 to V <sub>CC</sub> -1.5 V <sub>O(p)</sub> =1.4V, R <sub>S</sub> =0		±1.0	±5.0	mV
Input offset current	I <sub>IO</sub>			±5	±50	nA
Input Bias current	I <sub>b</sub>			65	250	nA
Input Common-mode voltage	V <sub>I(R)</sub>		0		V <sub>CC</sub> -1.5	V
Supply Current	I <sub>CC</sub>	R <sub>L</sub> =∞		0.6	1.0	mA
		R <sub>L</sub> =∞, V <sub>CC</sub> =30V		0.8	2.5	mA
Large signal Voltage gain	G <sub>v</sub>	V <sub>CC</sub> =15V, R <sub>L</sub> >15kΩ	50	200		V/mV
Large signal response time	t <sub>res</sub>	V <sub>i</sub> =TTL logic wing V <sub>ref</sub> =1.4V, V <sub>RL</sub> =5V, R <sub>L</sub> =5.1kΩ		350		ns
Response time	t <sub>res</sub>	V <sub>RL</sub> =5V, R <sub>L</sub> =5.1kΩ		1400		ns
Output sink current	I <sub>sink</sub>	V <sub>i(-)</sub> >1V, V <sub>i(+)</sub> =0V, V <sub>o(p)</sub> <1.5V	6	18		mA
Output saturation voltage	V <sub>sat</sub>	V <sub>i(-)</sub> >1V, V <sub>i(+)</sub> =0V, I <sub>sink</sub> =4mA	160			mV
Output leakage current	I <sub>leakage</sub>	V <sub>i(+)</sub> =1V, V <sub>i(-)</sub> =0, V <sub>o(p)</sub> =5V	0.10			nA

OUTLINE DRAWING

DIP-8

unit:mm



SOP-8

unit:mm

