

# AN1393 (AN6914), AN1393S (AN6914S)

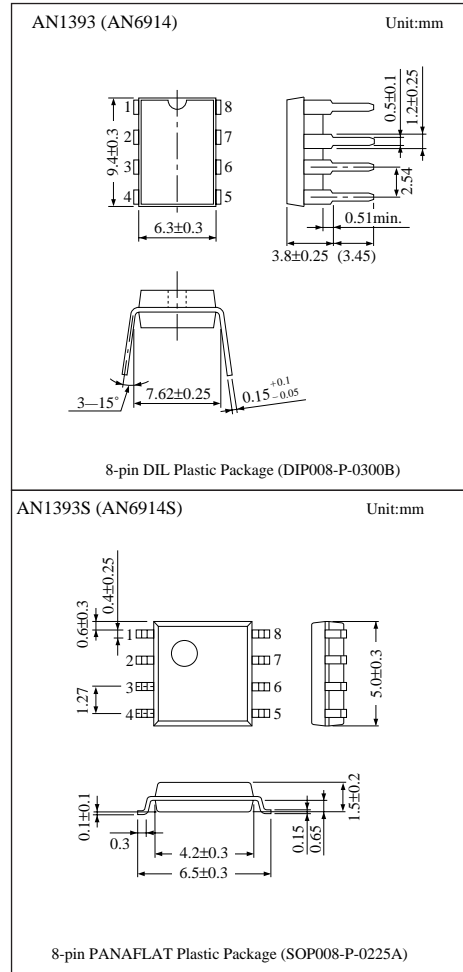
## Dual Comparators

### ■ Overview

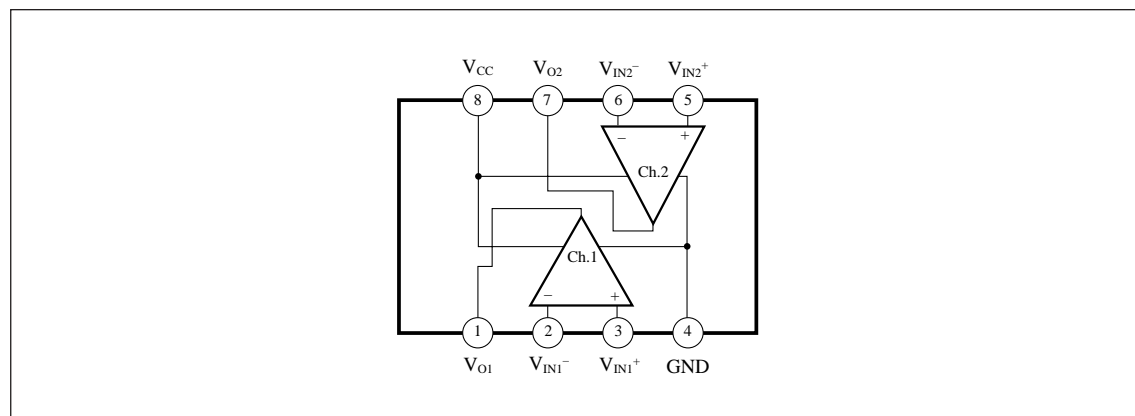
The AN1393 (AN6914) and the AN1393S (AN6914S) are dual (voltage) comparators with wide range of operating supply voltage.

### ■ Features

- Wide range of operating voltages  
Single supply: 2 to 36V  
Dual supply:  $\pm 1$  to  $\pm 18$ V
- Low circuit current: 0.6mA typ.
- Wide range of common-mode input voltages  
: 0V to  $V_{CC}-1.5$ V (single supply)
- Open collector output



### ■ Block Diagram



## ■ Pin Descriptions

Pin No.	Pin name
1	Ch.1 output
2	Ch.1 inverting input
3	Ch.1 non inverting input
4	GND
5	Ch.2 non inverting input
6	Ch.2 inverting input
7	Ch.2 output
8	V <sub>CC</sub>

## ■ Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating	Unit
Voltage	Supply voltage	V <sub>CC</sub>	36	V
	Common-mode input voltage	V <sub>ICM</sub> *1	− 0.3 to 36	V
	Differential input voltage	V <sub>ID</sub> *2	36	V
	Output applied voltage	V <sub>I</sub> , V <sub>7</sub>	24	V
Power dissipation	AN1393 (AN6914)	P <sub>D</sub>	500	mW
	AN1393S(AN6914S)		360	
Operating ambient temperature		T <sub>opr</sub>	− 30 to +85	°C
Storage temperature	AN1393(AN6914)	T <sub>stg</sub>	− 55 to +150	°C
	AN1393S(AN6914S)		− 55 to +125	

\*1 The common mode input voltage is a voltage applied to the non-inverting input pin and inverting input pin simultaneously.

\*2 Differential input is equivalent to the potential difference between the non-inverting input pin and inverting input pin.

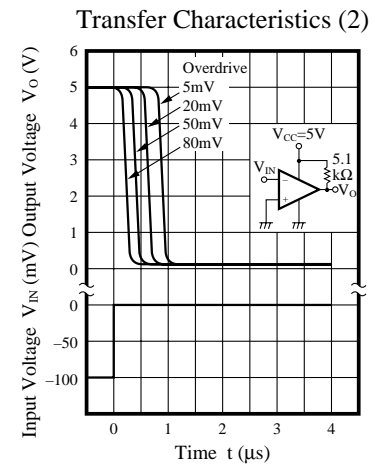
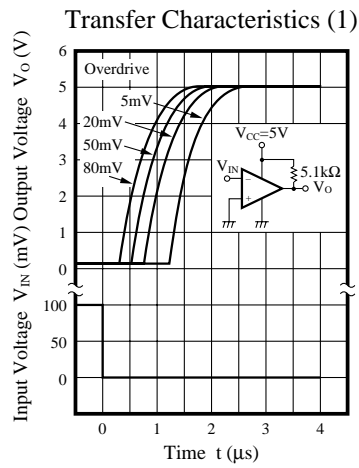
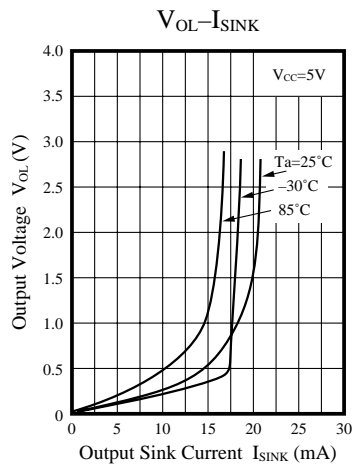
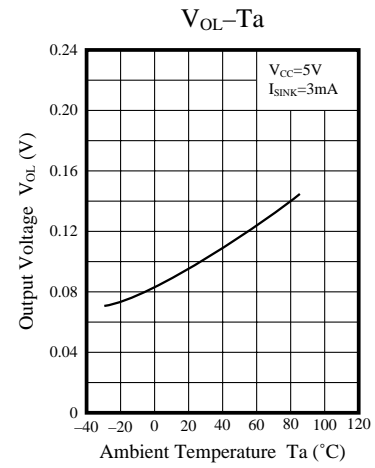
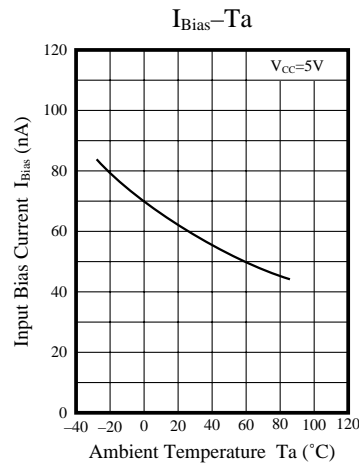
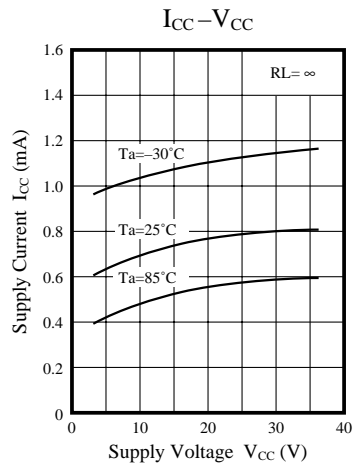
## ■ Recommended Operating Range (Ta=25°C)

Parameter	Symbol	Range
Operating supply voltage range	V <sub>CC</sub>	Single power supply 2V to 36V
		Double power supply ±1V to ±18V

## ■ Electrical Characteristics (V<sub>CC</sub>=5V, Ta=25°C)

Parameter	Symbol	Condition	min	typ	max	Unit
Input offset voltage	V <sub>I(offset)</sub>		—	1	5	mV
Input offset current	I <sub>IO</sub>		—	—	50	nA
Input bias current	I <sub>Bias</sub>		—	—	250	nA
Voltage gain	G <sub>V</sub>	R <sub>L</sub> =15kΩ	—	200	—	V/mV
Common-mode input voltage range	V <sub>CM</sub>		0	—	V <sub>CC</sub> −1.5	V
Supply current	I <sub>CC</sub>	R <sub>L</sub> = ∞	—	0.6	1.5	mA
Response time	t <sub>r</sub>	R <sub>L</sub> =5.1kΩ, V <sub>RL</sub> =5V	—	1.3	—	μs
Output sink current	I <sub>SINK</sub>	V <sub>REF</sub> =0V, V <sub>IN</sub> =1V, V <sub>O</sub> ≤1.5V	10	—	—	mA
Low level output voltage	V <sub>OL</sub>	V <sub>REF</sub> =0V, V <sub>IN</sub> =1V, I <sub>SINK</sub> =3mA	—	0.2	0.4	V
Output terminal leakage current	I <sub>O (Leak)</sub>	V <sub>IN</sub> =0V, V <sub>REF</sub> =1V, V <sub>O</sub> =5V	—	0.1	—	nA

## ■ Characteristics Curve



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