

# AN1339 (AN6912N), AN1339S

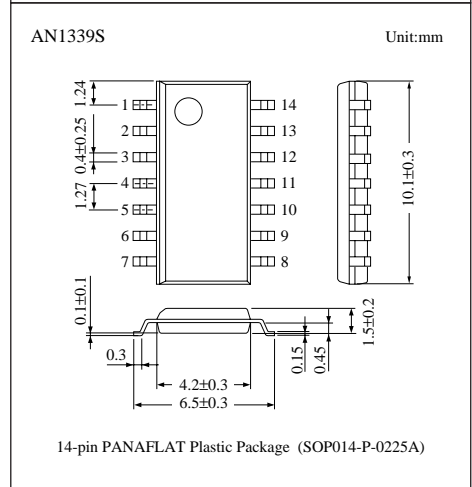
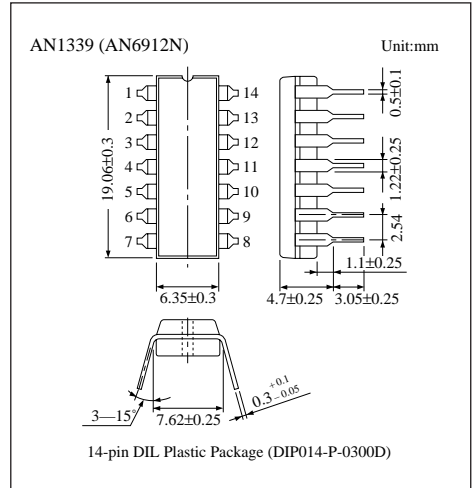
## Quadruple Comparators

### Overview

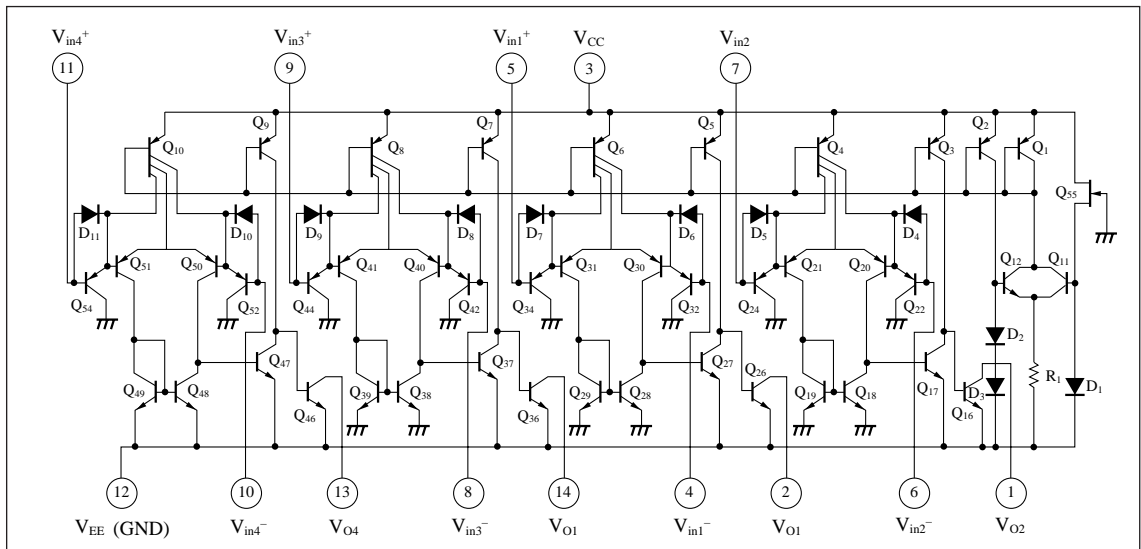
The AN1339 (AN6912N) and the AN1339S are quadruple (voltage) comparators with wide range of operating supply voltages.

### Features

- Wide range of supply voltage  
Single supply: 2 to 36V  
Dual supply:  $\pm 1$  to  $\pm 18$ V
- Low circuit current: 0.8mA 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	Pin No.	Pin name
1	Ch.2 output	8	Ch.3 inverting input
2	Ch.1 output	9	Ch.3 non inverting input
3	V <sub>CC</sub>	10	Ch.4 inverting input
4	Ch.1 inverting input	11	Ch.4 non inverting input
5	Ch.1 non inverting input	12	V <sub>EE</sub> (GND)
6	Ch.2 inverting input	13	Ch.4 output
7	Ch.2 non inverting input	14	Ch.3 output

## ■ 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
Power dissipation	AN1339 (AN6912N)	P <sub>D</sub>	570	mW
	AN1339S		380	
Operating ambient temperature		T <sub>opr</sub>	-30 to +85	°C
Storage temperature	AN1339 (AN6912N)	T <sub>stg</sub>	-55 to +150	°C
	AN1339S		-55 to +125	

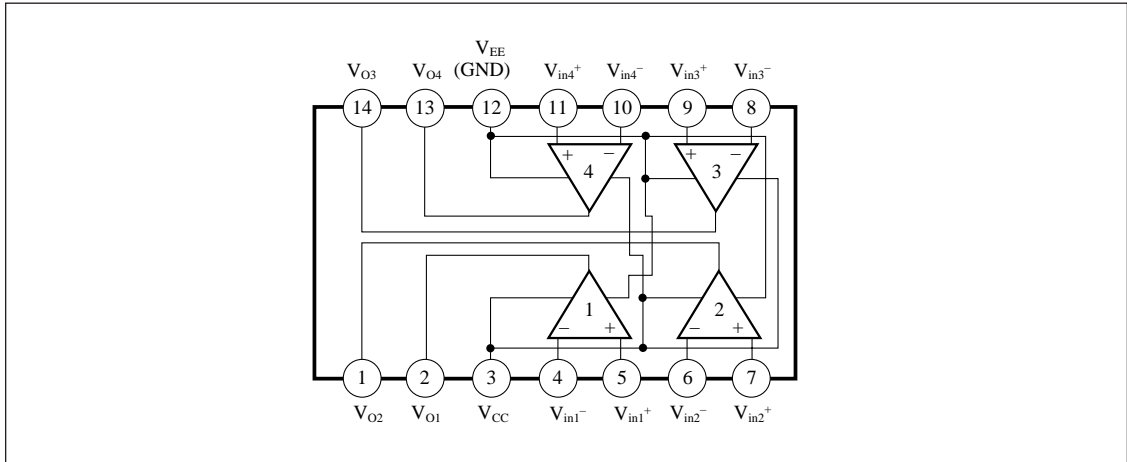
\*1 The common mode input voltage is a voltage applied to the non-inverting input pin and inverting input pin simultaneously.

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

## ■ Electrical Characteristics (V<sub>CC</sub>=5V, Ta=25±2°C)

Parameter	Symbol	Condition	min	typ	max	Unit
Input offset voltage	V <sub>I (offset)</sub>		—	2	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> =∞	—	1.1	2	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

## ■ Block Diagram



## ■ Characteristics Curve

