

# AN6918

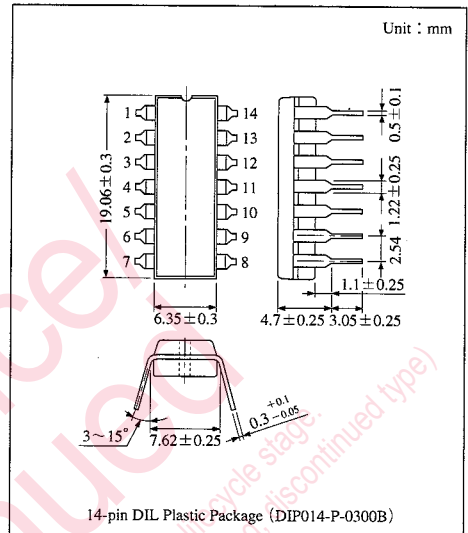
## Large Sink Current Quadruple Comparator

### Overview

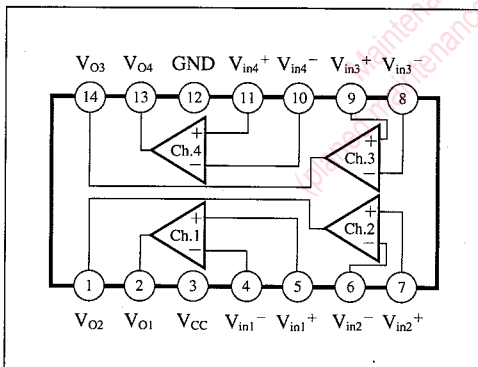
The AN6918 is quadruple voltage comparator with large output sink current and wide range of operating supply voltage.

### Features

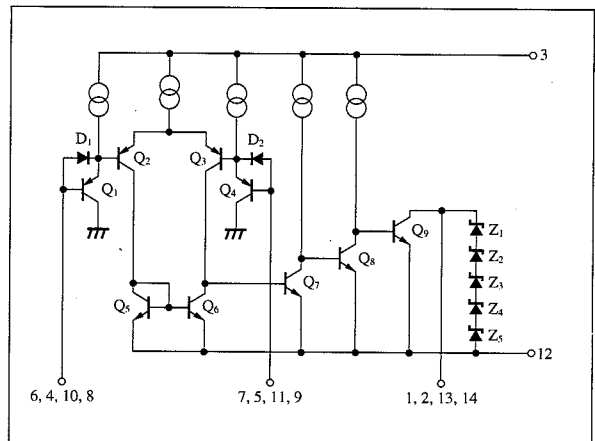
- Large sink current (70mA), direct drive relays or lamps.
- Wide range of supply voltage :  $V_{CC(opr.)} = 2$  to  $36V$
- Wide range of common-mode input voltage :  $0$  to  $V_{CC} - 1.5V$
- Open collector output



### Block Diagram



### Schematic 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	GND
6	Ch.2 inverting input	13	Ch.4 output
7	Ch.2 non inverting input	14	Ch.3 output

## Absolute Maximum Ratings (T<sub>a</sub> = 25°C)

Parameter	Symbol	Rating	Unit
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 current	I <sub>OL</sub> *3	150	mA
Power dissipation	P <sub>D</sub>	570	mW
Operating ambient temperature	T <sub>opr</sub>	-30 to +85	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

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

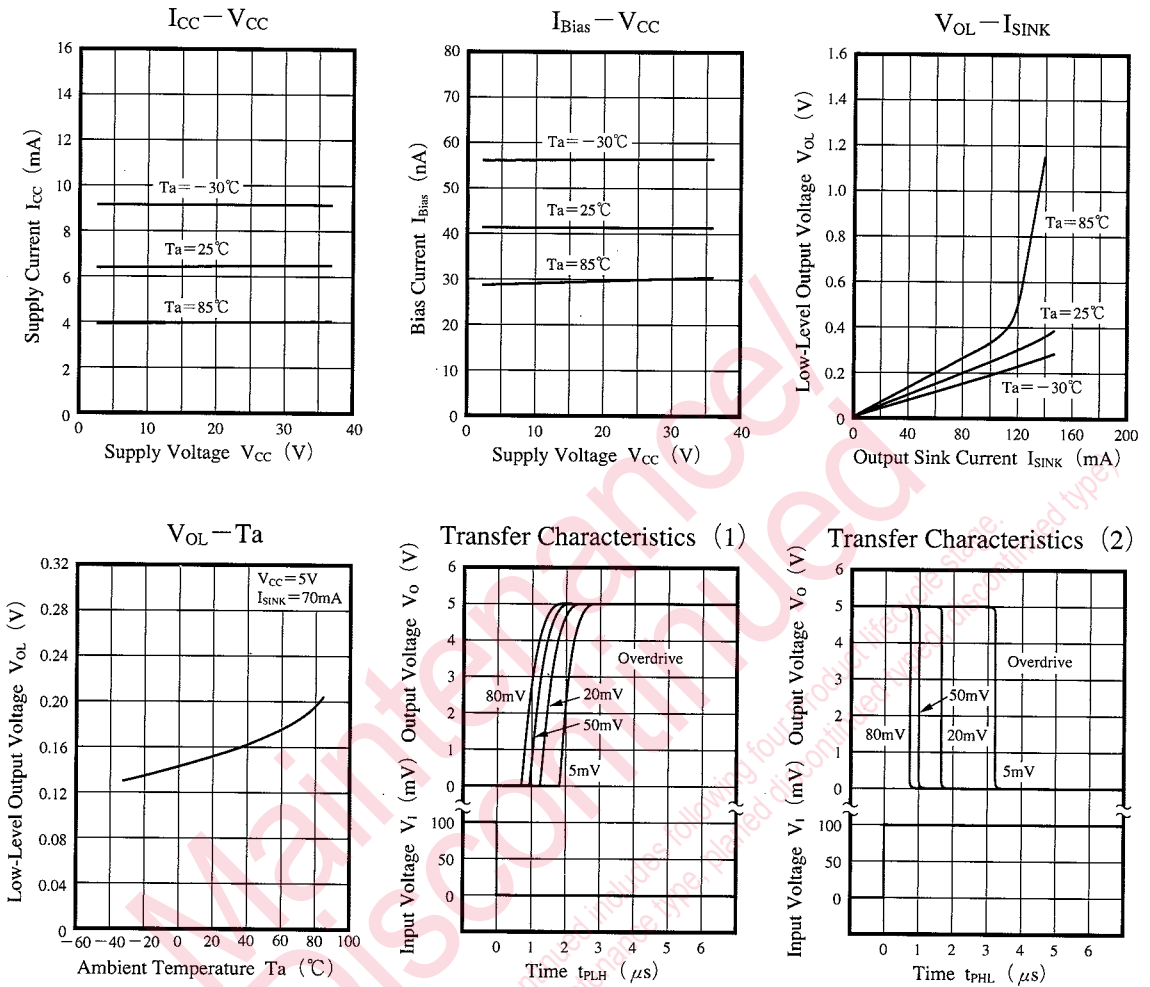
\*2 Differential input is equivalent to the potential difference between the non-inverting input pin and inverting input pin.

\*3 In case output level is "L".

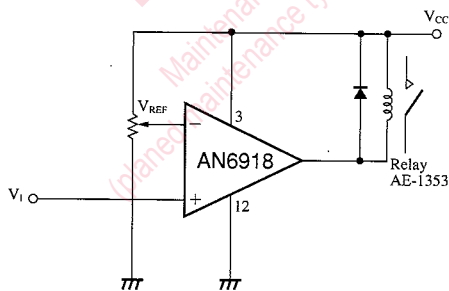
## Electrical Characteristics (V<sub>CC</sub> = 5V, T<sub>a</sub> = 25°C)

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>		—	1	50	nA
Input bias current	I <sub>Bias</sub>		—	50	200	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> = ∞	—	6.8	10	mA
Response time (1)	t <sub>PLH</sub>	R <sub>L</sub> = 5.1kΩ	—	2	—	μs
Response time (2)	t <sub>PHL</sub>	R <sub>L</sub> = 5.1kΩ	—	1	—	μs
Low level output voltage	V <sub>OL</sub>	V <sub>REF</sub> = 0V, V <sub>I</sub> = 1V, I <sub>SINK</sub> = 70mA	—	0.15	0.4	V
Output leakage current	I <sub>O(Leak)</sub>	V <sub>REF</sub> = 1V, V <sub>I</sub> = 0V, V <sub>O</sub> = 5V	—	—	0.1	μA
Output zener voltage	V <sub>Z</sub>		36	—	43	V

■ Characteristics Curve



■ Application Circuit



The relay is OFF when  $V_I > V_{REF}$ .  
The relay is ON when  $V_I < V_{REF}$ .

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