

AN6918

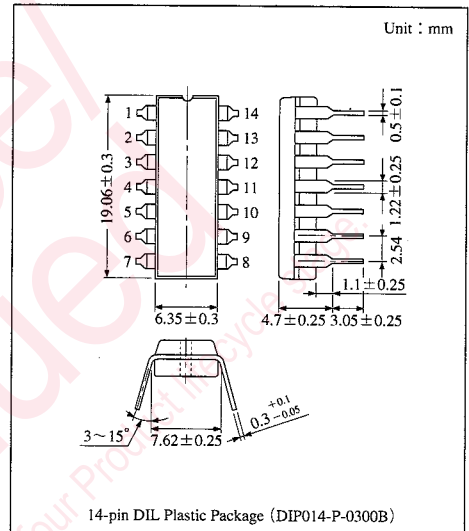
Large Sink Current Quadruple Comparator

Overview

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

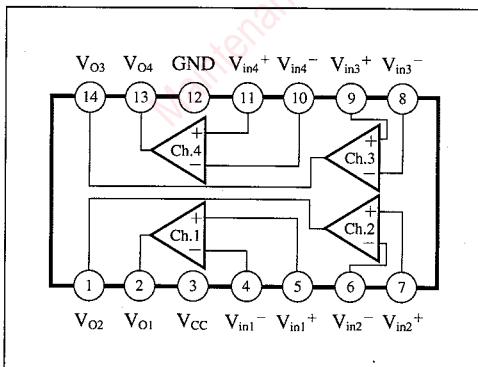
Features

- 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

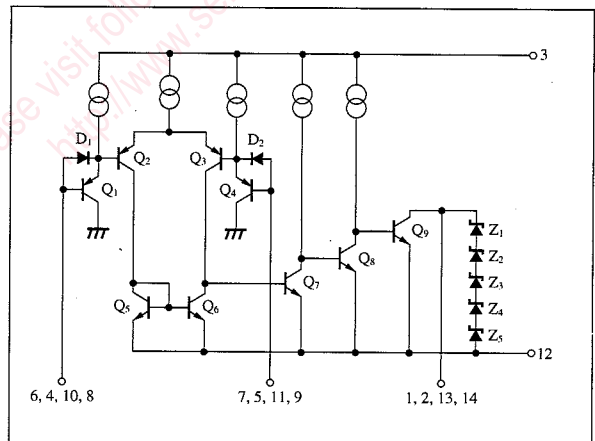


Comparators

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 _{CC}	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_a = 25°C)

Parameter	Symbol	Rating	Unit
Supply voltage	V _{CC}	36	V
Common-mode input voltage	V _{ICM} *1	-0.3 to +36	V
Differential input voltage	V _{ID} *2	36	V
Output current	I _{OL} *3	150	mA
Power dissipation	P _D	570	mW
Operating ambient temperature	T _{opr}	-30 to +85	°C
Storage temperature	T _{stg}	-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.

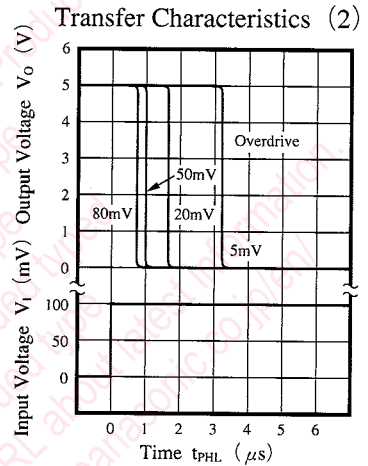
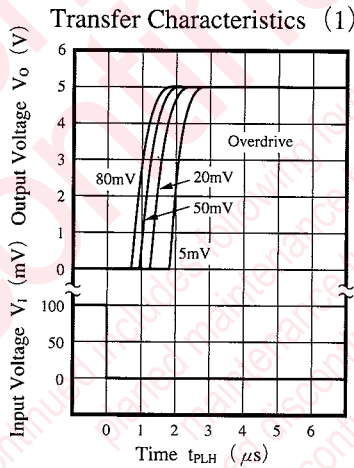
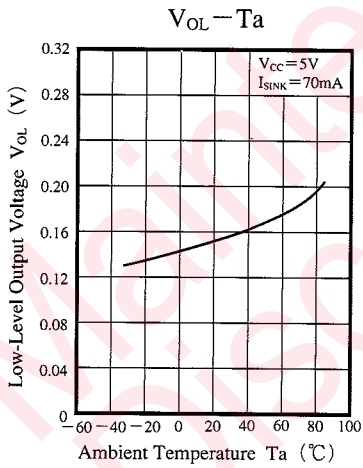
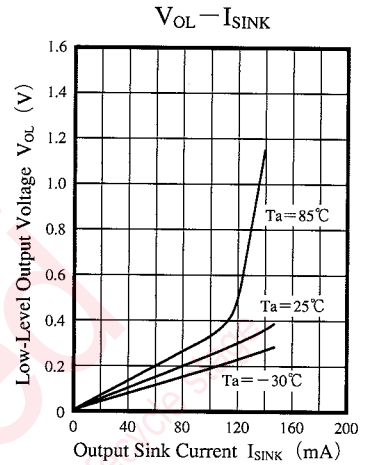
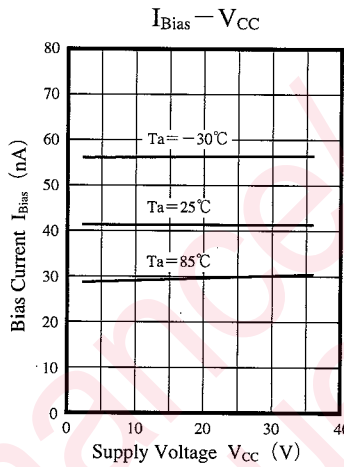
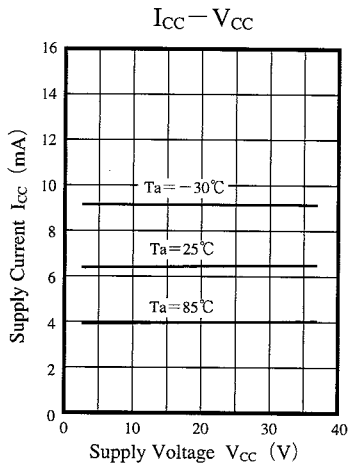
*2 Differential input is equivalent to the potential difference between the non-inverting input pin and inverting input pin.

*3 In case output level is "L".

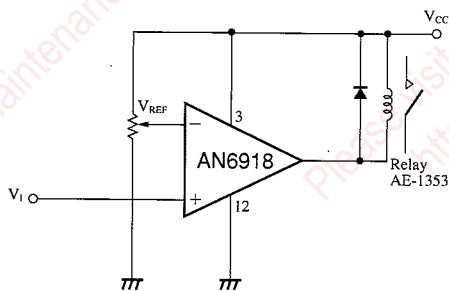
Electrical Characteristics (V_{CC} = 5V, T_a = 25°C)

Parameter	Symbol	Condition	min	typ	max	Unit
Input offset voltage	V _{I(offset)}		—	1	5	mV
Input offset current	I _{IO}		—	1	50	nA
Input bias current	I _{Bias}		—	50	200	nA
Voltage gain	G _V	R _L = 15kΩ	—	200	—	V/mV
Common-mode input voltage range	V _{CM}		0	—	V _{CC} -1.5	V
Supply current	I _{CC}	R _L = ∞	—	6.8	10	mA
Response time (1)	t _{PLH}	R _L = 5.1kΩ	—	2	—	μs
Response time (2)	t _{PHL}	R _L = 5.1kΩ	—	1	—	μs
Low level output voltage	V _{OL}	V _{REF} = 0V, V _I = 1V, I _{SINK} = 70mA	—	0.15	0.4	V
Output leakage current	I _{O(Leak)}	V _{REF} = 1V, V _I = 0V, V _O = 5V	—	—	0.1	μA
Output zener voltage	V _Z		36	—	43	V

■ Characteristics Curve



■ Application Circuit



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

Comparators

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