

AN6918

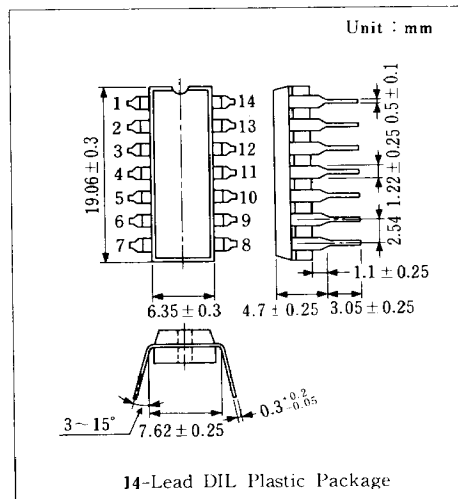
Large Sink Current Quadruple Comparator

Outline

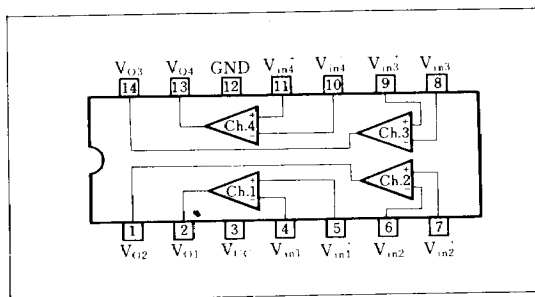
The AN6918 is quadruple voltage comparator with large output sink current and wide range of operating supply voltage.

Features

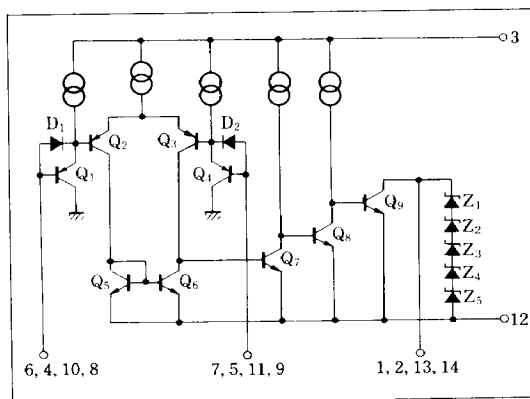
- Large sink current (70mA), direct drive relays or lamps.
- Wide range of supply voltage : $V_{CC(oper.)} = 2 \sim 36V$
- Wide range of common-mode input voltage :
 $0 \sim V_{CC} - 1.5V$
- Open collector output



Block Diagram



Schematic Diagram



Pin

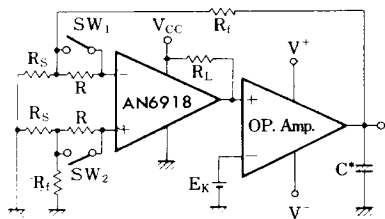
Pin No.	Pin Name	Pin No.	Pin Name
1	Ch.2 Output	8	Ch.3 Inverting Input
2	Ch.1 Output	9	Ch.3 Non Inverting Input
3	V _{CC}	10	Ch.4 Inverting Input
4	Ch.1 Inverting Input	11	Ch.4 Non Inverting Input
5	Ch.1 Non Inverting Input	12	GND
6	Ch.2 Inverting Input	13	Ch.4 Output
7	Ch.2 Non Inverting Input	14	Ch.3 Output

Absolute Maximum Ratings (Ta = 25°C)

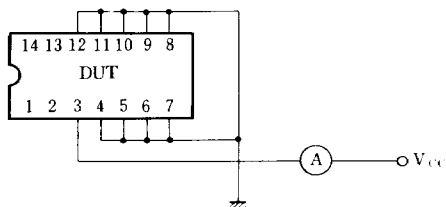
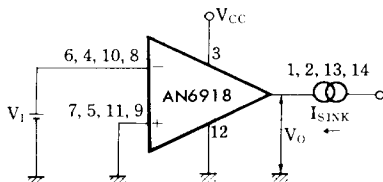
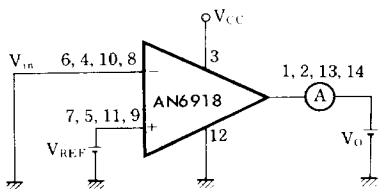
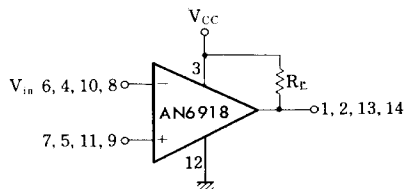
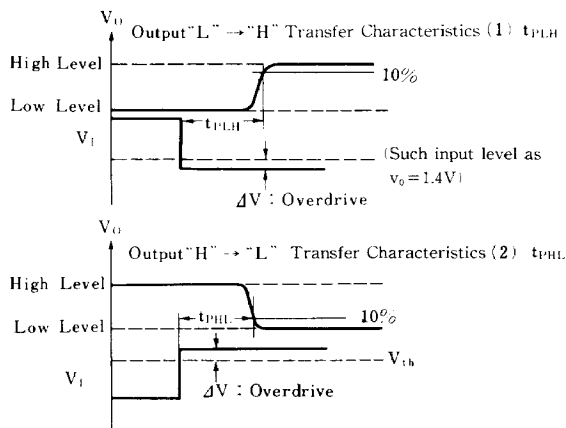
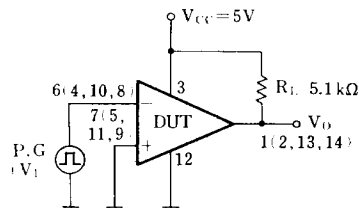
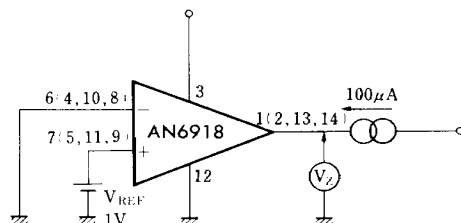
Item	Symbol	Rating	Unit
Supply Voltage	V _{CC}	36	V
Common-Mode Input Voltage	V _{ICM}	-0.3 ~ +36	V
Differential input Voltage	V _{ID}	36	V
Output Current	I _{OL}	150	mA
Power Dissipation	P _D	570	mW
Operating Ambient Temperature	T _{opr}	-30 ~ +85	°C
Storage Temperature	T _{stg}	-55 ~ +150	°C

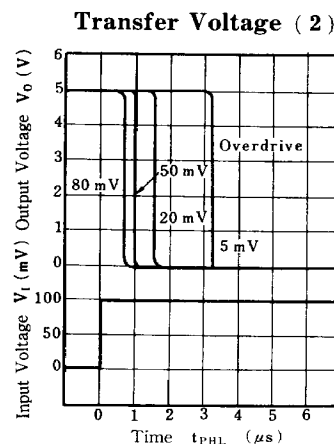
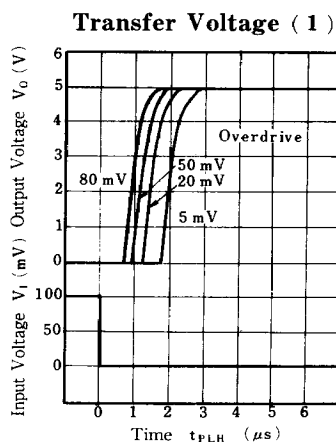
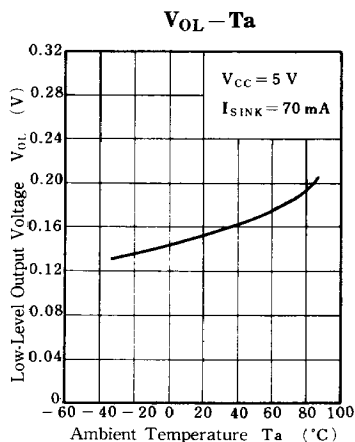
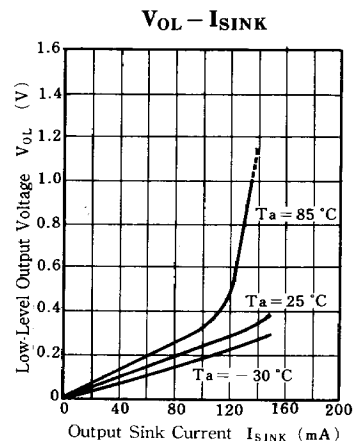
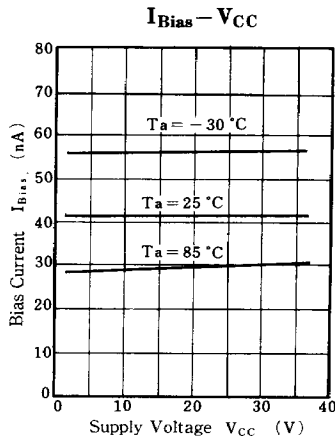
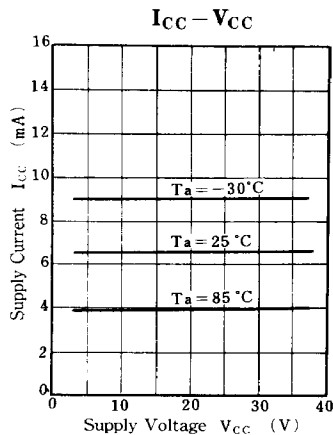
Electrical Characteristics (V_{CC} = 5V, Ta = 25°C)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Input Offset Voltage	V _{I(offset)}	1			1	5	mV
Input Offset Current	I _{IO}	1			1	50	nA
Input Bias Current	I _{Bias}	1			50	200	nA
Voltage Gain	G _V	1	R _L = 15kΩ		200		V/mV
Common-Mode Input Voltage Range	V _{CM}	2		0		V _{CC} - 1.5	V
Supply Current	I _{CC}	3	R _L = ∞		6.8	10	mA
Response Time(1)	t _{PLH}	4	R _L = 5.1kΩ		2		μs
Response Time(2)	t _{PHL}	4	R _L = 5.1kΩ		1		μs
Low Level Output Voltage	V _{OL}	5	V _{REF} = 0V, V _I = 1V, I _{SINK} = 70mA		0.15	0.4	V
Output Leakage Current	I _{O(Leak)}	6	V _{REF} = 1V, V _I = 0V, V _O = 5V			0.1	μA
Output Zener Voltage	V _Z	7		36		43	V

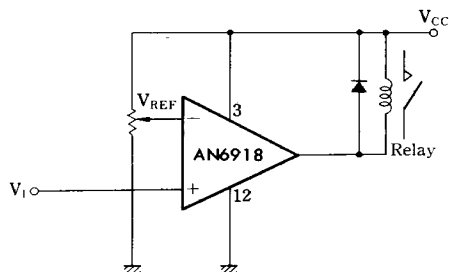
Test Circuit 1 ($V_{I(offset)}$, I_{IO} , I_{Bias} , G_V)

*Capacitors for the prevention of oscillation and bipolar should be used.

Test Circuit 3 (I_{CC})**Test Circuit 5** (V_{OL})**Test Circuit 6** ($I_{O(Leak)}$)**Test Circuit 2** (V_{CM})**Test Circuit 4** (t_{PLH} , t_{PHL})**Test Circuit 7** (V_Z)



■ Application Circuit



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