AN6918

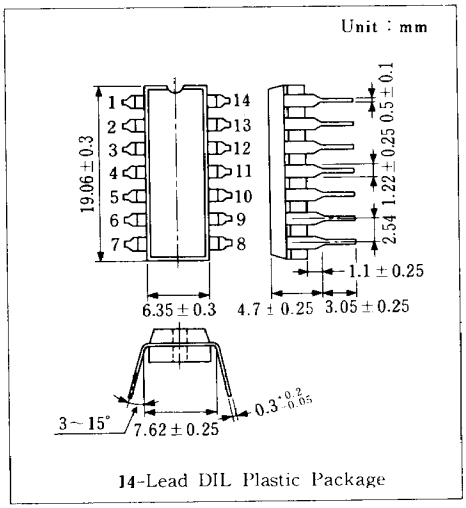
Large Sink Current Quadruple Comparator

■ Outline

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

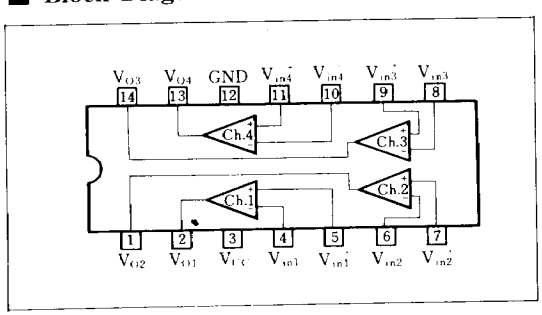
■ Features

- Large sink current (70mA), direct drive relays or lamps.
- Wide range of supply voltage : $V_{CC(opr.)}=2\sim36V$
- Wide range of common-mode input voltage : $0\sim V_{CC}-1.5V$
- Open collector output

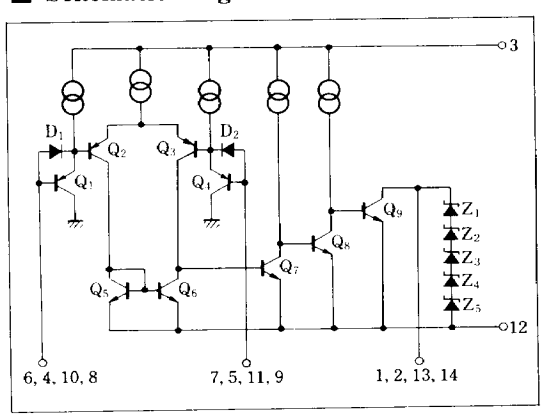


14-Lead DIL Plastic Package

■ 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

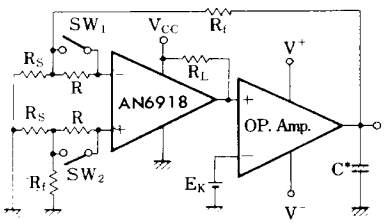
■ Absolute Maximum Ratings (Ta=25℃)

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	℃
Storage Temperature	T_{stg}	−55～+150	℃

■ Electrical Characteristics (V_{CC}=5V, Ta=25℃)

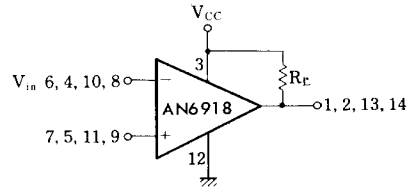
Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Input Offset Voltage	$V_{I(offset)}$	1			1	5	mV
Input Offset Current	I_{IO}	1			1	50	nA
Input Bias Current	I_{Bias}	1			50	200	nA
Voltage Gain	G_V	1	R_L=15kΩ		200		V/mV
Common-Mode Input Voltage Range	V_{CM}	2		0		V_{cc}−1.5	V
Supply Current	I_{CC}	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 ($V_{IO(offset)}$, I_{IO}, I_{Bias}, G_V)

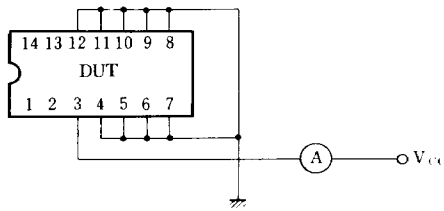


*Capacitors for the prevention of oscillation and bipolar should be used.

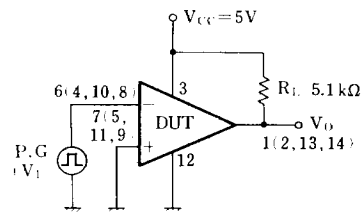
Test Circuit 2 (V_{CM})

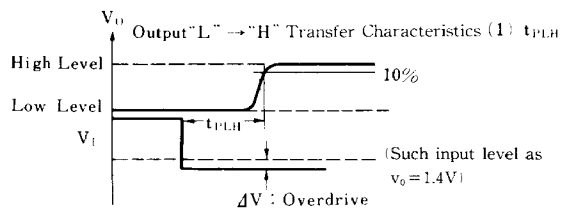


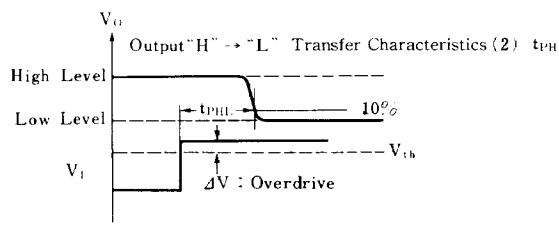
Test Circuit 3 (I_{CC})



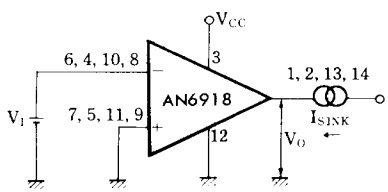
Test Circuit 4 (t_{PLH}, t_{PHL})



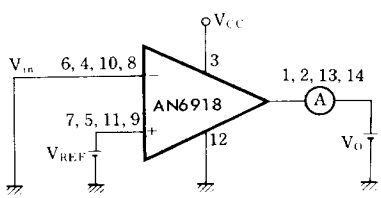




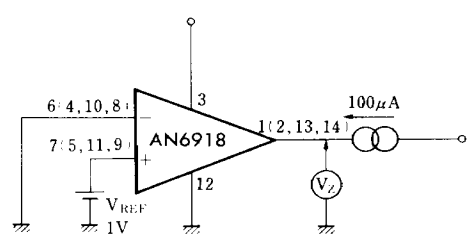
Test Circuit 5 (V_{OL})



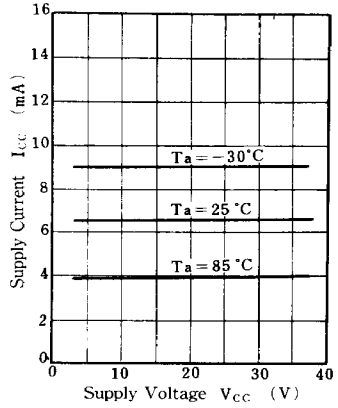
Test Circuit 6 ($I_{O(Leak)}$)



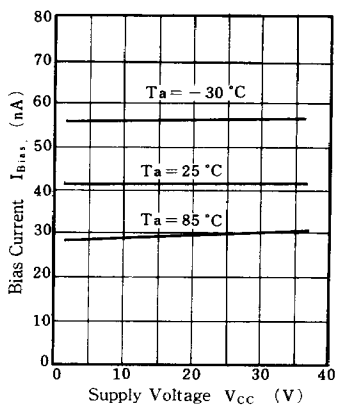
Test Circuit 7 (V_Z)



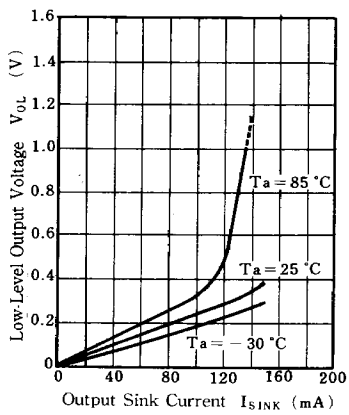
$I_{CC} - V_{CC}$



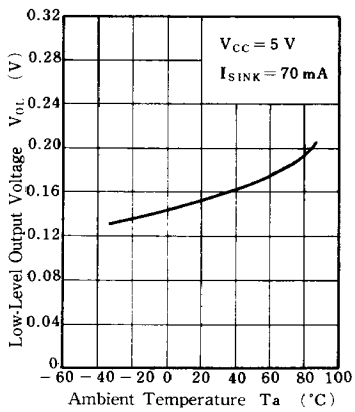
$I_{Bias} - V_{CC}$



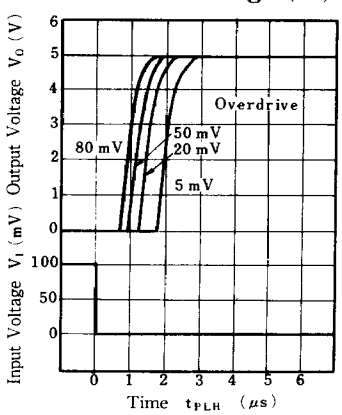
$V_{OL} - I_{SINK}$



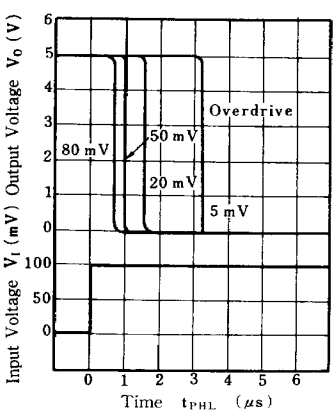
$V_{OL} - Ta$



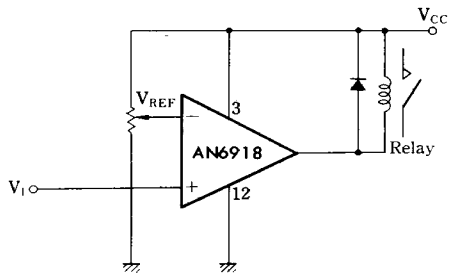
Transfer Voltage (1)



Transfer Voltage (2)



■ Application Circuit



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