

AN6912, AN6912S

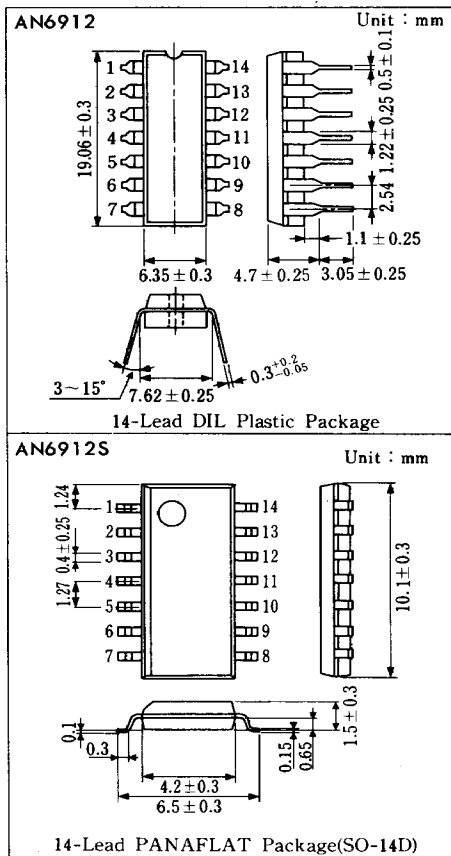
Quadruple Comparators

■ Outline

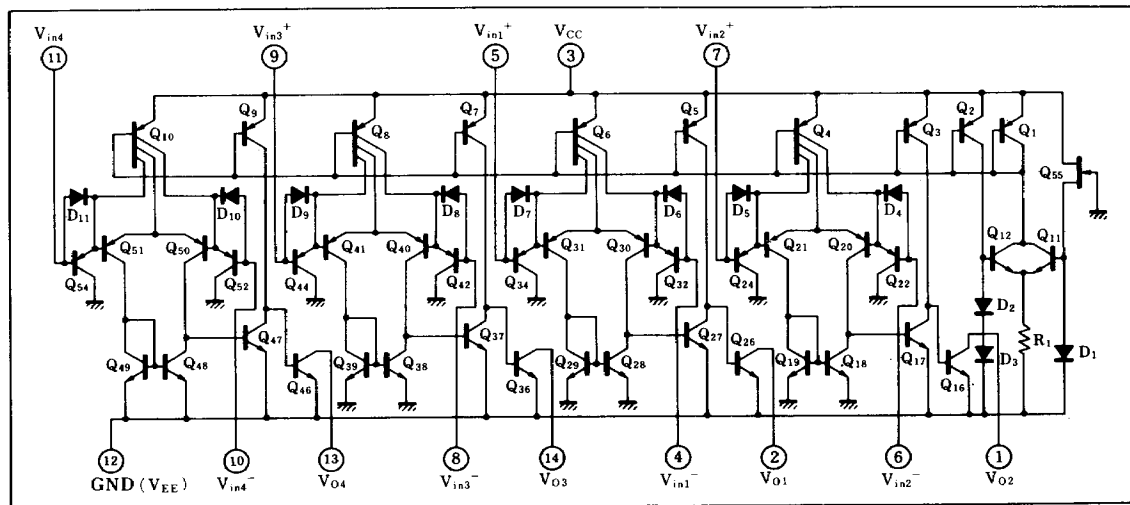
The AN6912 and the AN6912S are quadruple (voltage) comparators with wide range of operating supply voltages.

■ Features

- Wide range of supply voltage
Single supply : 2~36V
Dual supply : $\pm 1 \sim \pm 18V$
- Low circuit current : 0.8mA typ.
- Wide range of common-mode input voltage
0V ~ $V_{CC} - 1.5V$ (single supply)
- Open collector output



■ Schematic Diagram



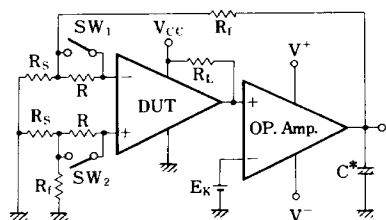
■ Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Item		Symbol	Rating	Unit
Voltage	Supply Voltage	V_{CC}	36	V
	Common-Mode Input Voltage	V_{ICM}	$-0.3 \sim +36$	V
	Differential Input Voltage	V_{ID}	36	V
Power Dissipation	AN6912	P_D	570	mW
	AN6912S		380	
Operating Ambient Temperature		T_{opr}	$-20 \sim +75$	$^\circ\text{C}$
Storage Temperature	AN6912	T_{stg}	$-55 \sim +150$	$^\circ\text{C}$
	AN6912S		$-55 \sim +125$	

■ Electrical Characteristics ($V_{CC} = 5\text{V}$, $T_a = 25 \pm 2^\circ\text{C}$)

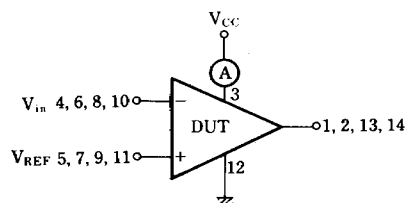
Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Input Offset Voltage	$V_{I(offset)}$	1			2	5	mV
Input Offset Current	I_{IO}	1				50	nA
Input Bias Current	I_{Bias}	1				250	nA
Voltage Gain	G_V	1	$R_L = 15\text{k}\Omega$		200		V/mV
Common-Mode Input Voltage Range	V_{CM}	2		0		$V_{CC} - 1.5$	V
Supply Current	I_{CC}	3	$R_L = \infty$		0.8	2	mA
Response Time	t_r	4	$R_L = 5.1\text{k}\Omega$, $V_{RL} = 5\text{V}$		1.3		μs
Output Sink Current	I_{SINK}	5	$R_{REF} = 0\text{V}$, $V_I = 1\text{V}$, $V_O \leq 1.5\text{V}$	6			mA
Low-Level Output Voltage	V_{OL}	6	$V_{REF} = 0\text{V}$, $V_I = 1\text{V}$, $I_{(SINK)} = 3\text{mA}$		0.2	0.4	V
Output Terminal Leakage Current	$I_{O(Leak)}$	7	$V_I = 0\text{V}$, $V_{REF} = 1\text{V}$, $V_O = 5\text{V}$		0.1		nA

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

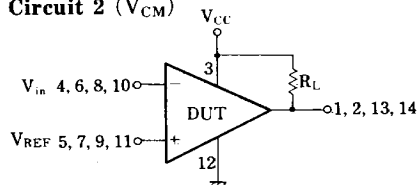


*Capacitors for the prevention of oscillation and bipolar should be used (NP).

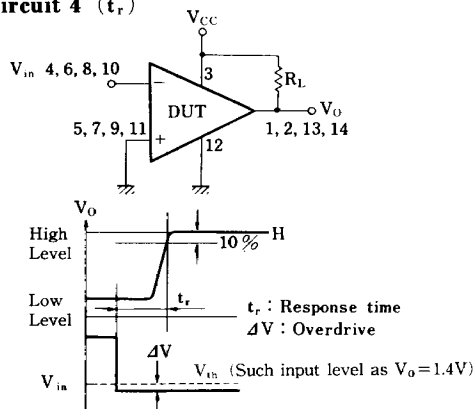
Test Circuit 3 (I_{CC})



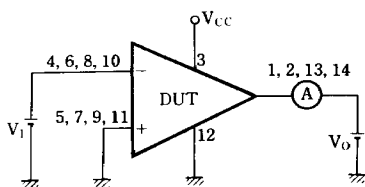
Test Circuit 2 (V_{CM})



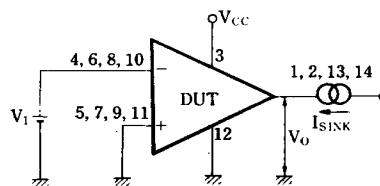
Test Circuit 4 (t_r)



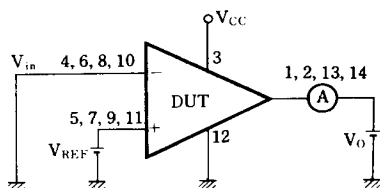
Test Circuit 5 (I_{SINK})



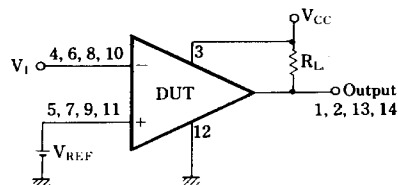
Test Circuit 6 (V_{OL})



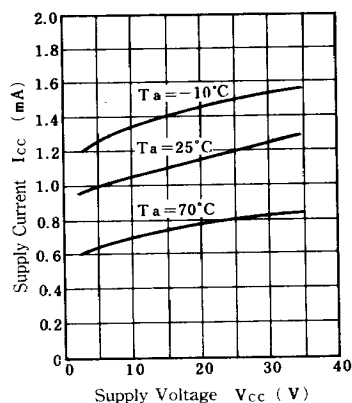
Test Circuit 7 ($I_{O(Leak)}$)



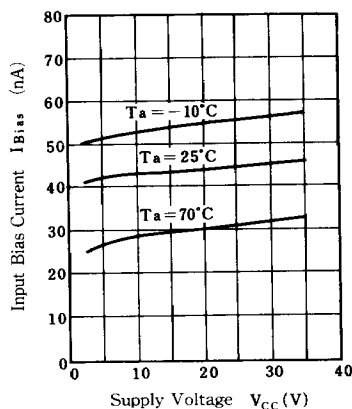
Application Circuit



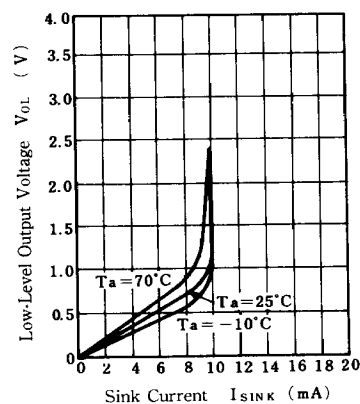
$I_{CC} - V_{CC}$



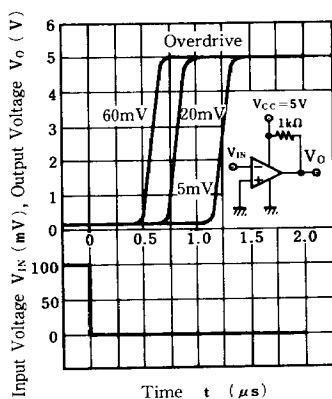
$I_{Bias} - V_{CC}$



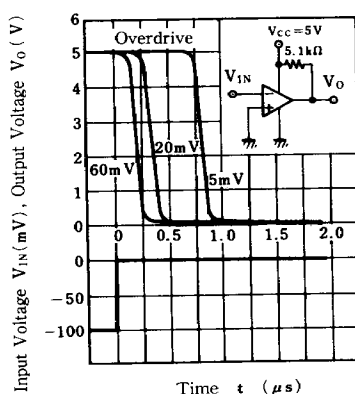
$V_{OL} - I_{SINK}$



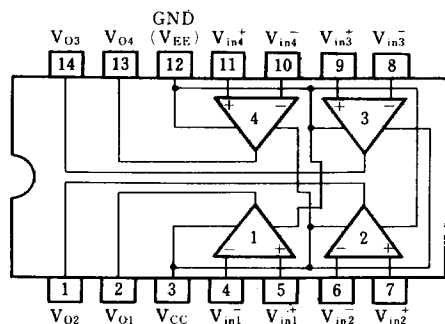
Transfer Characteristics (1)



Transfer Characteristics (2)



■ Block Diagram



■ Pin

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