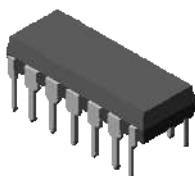
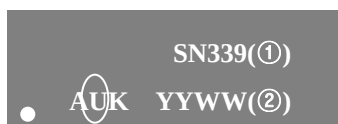



SOP-14

DIP-14

ORDERING INFORMATION

Product Name.	Marking	Package Name
SN339	SN339	SOP-14
SN339P	SN339P	DIP-14

▲ Marking Information



① Device Code

② Year & Week Code

Description

The SN339 consists of four independent voltage comparators designed to operate from a single power supply over a wide voltage range.

Operation from split power supplies is also possible and the low power supply current drain is independent of the magnitude of the power supply voltage.

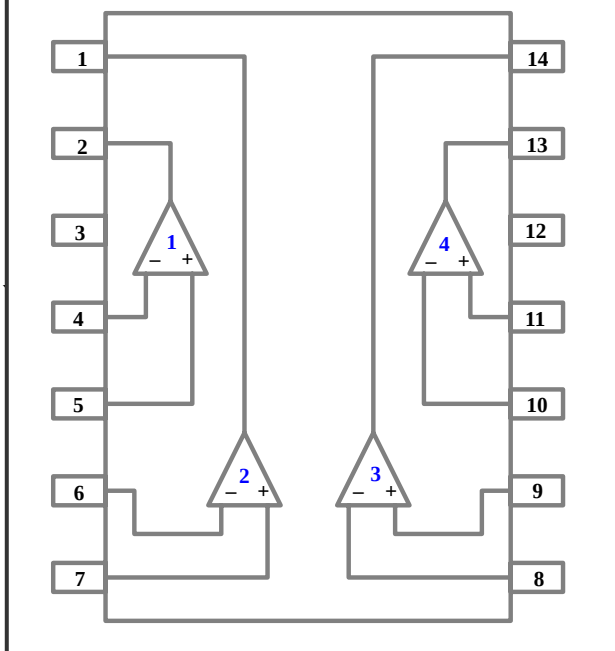
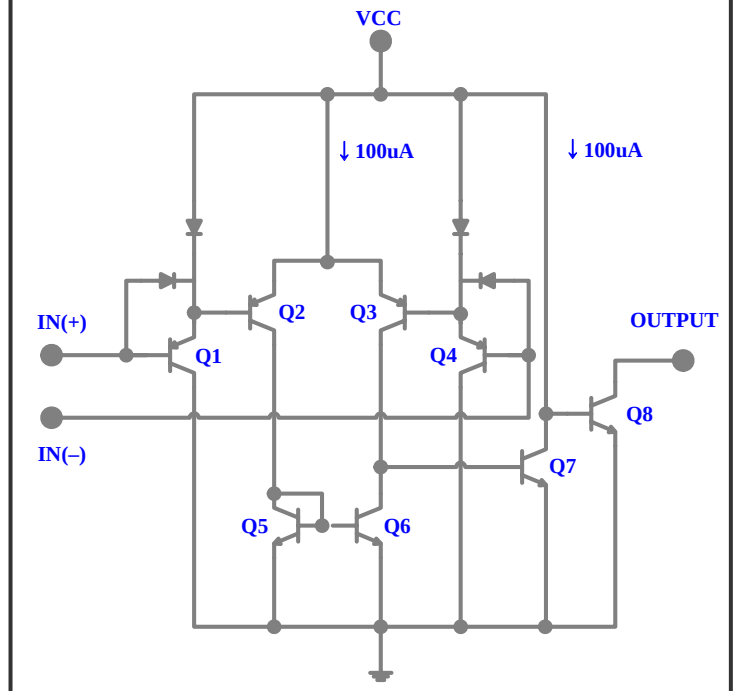
These comparators also have a unique characteristic in that the input common-mode voltage range includes ground, even though they are operated from a single power supply voltage.

Application

- ◆ A/D Converters
- ◆ Wide Range VCO
- ◆ MOS Clock Generator
- ◆ High Voltage Logic Gate
- ◆ Multi-Vibrators

Features and Benefits

- ◆ Wide single supply voltage range [2.0V to 36V]
or dual supplies [$\pm 1.0V$ to $\pm 18V$]
- ◆ Very low supply current drain [Typ. 0.8mA]
- ◆ Low input biasing current [Typ. 25nA]
- ◆ Low input offset current and offset voltage
- ◆ Differential input voltage range equal to the V_{CC}
- ◆ Low output 250mV at 4mA saturation voltage
- ◆ Output voltage compatible with TTL, DTL, ECL even CMOS Logic systems

Internal Block Diagram**Equivalent Circuit**

◆ Pin Description

No	Symbol	I/O	Description
1	Output2	O	Comparator 2's Output
2	Output1	O	Comparator 1's Output
3	V _{CC}	PWR	V _{CC} for Quad Comparators
4	IN1(-)	I	Comparator 1's Inverting Input
5	IN1(+)	I	Comparator 1's Non- Inverting Input
6	IN2(-)	I	Comparator 2's Inverting Input
7	IN2(+)	I	Comparator 2's Non- Inverting Input
8	IN3(-)	I	Comparator 3's Inverting Input
9	IN3(+)	I	Comparator 3's Non- Inverting Input
10	IN3(-)	I	Comparator 4's Inverting Input
11	IN3(+)	I	Comparator 4's Non- Inverting Input
12	GND	GND	Ground
13	Output4	O	Comparator 4's Output
14	Output3	O	Comparator 3's Output

Absolute maximum ratings

Characteristic	Symbol	Ratings	Unit
Supply voltage	V_{CC}	36 or ± 18	V
Differential input voltage	V_{IND}	36	V
Input voltage	V_{IN}	-0.3 ~ +36	V
Power Dissipation	P_D	SOP-14	800
		DIP-14	1300
Junction Temperature	T_j	150	$^{\circ}\text{C}$
Operating temperature	T_{opr}	-40 ~ +85	$^{\circ}\text{C}$
Storage temperature	T_{stg}	-55 ~ 150	$^{\circ}\text{C}$

Electrical Characteristics

(Unless otherwise specified. $V_{CC} = 5\text{V}$, $V_{EE} = \text{GND}$ and $0^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Offset Voltage	V_{IOS}	$V_O = 1.4\text{V}$, $R_S = 0\Omega$	-	± 2	± 5	mV
Input Offset Current	I_{IOS}	-	-	± 5	± 50	nA
Input Bias Current	I_{IB}	-	-	25	250	nA
Input Common Mode Voltage Range	V_{ICR}	-	0	-	$V_{CC} - 1.5$	V
Supply Current	I_{CC}	$V_{CC} = 5\text{V}$, $R_L = \infty$, All Channel	-	0.8	2	mA
Large Signal Voltage Gain	A_V	$V_{CC} = 15\text{V}$, $R_L = 15\text{K}\Omega$	-	200	-	V/mV
Output Voltage ('L' Level)	V_{SAT}	$V_{IN+} = 0\text{V}$, $V_{IN-} = 1\text{V}$ $I_{SINK} \leq 4\text{mA}$	-	130	400	mV
Response Time	t_{RES}	$V_{RC} = 5\text{V}$, $R_L = 5.1\text{K}\Omega$	-	1.3	-	μs
Output Sink Current	I_{SINK}	$V_O \leq 1.5\text{V}$, $V_{IN+} = 0\text{V}$, $V_{IN-} = 1\text{V}$	6	16	-	mA
Output Leakage Current	I_{Leak}	$V_O = 5\text{V}$ $V_{IN+} = 1\text{V}$, $V_{IN-} = 0\text{V}$	-	0.1	-	nA

Electrical Characteristic Curves

Fig. 1 V_{CC} - I_{CC}

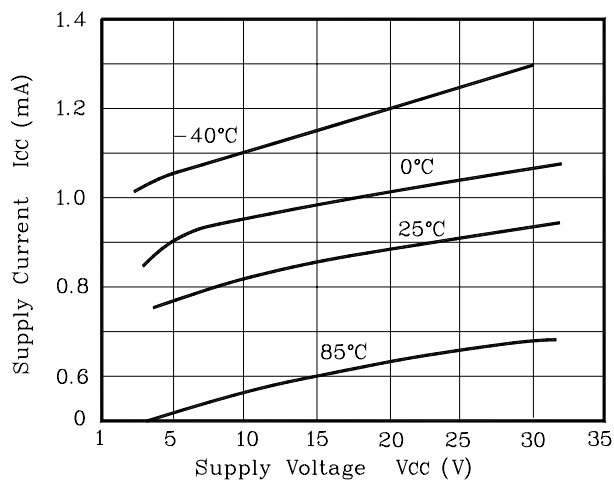


Fig. 2 V_{CC} - I_{IB}

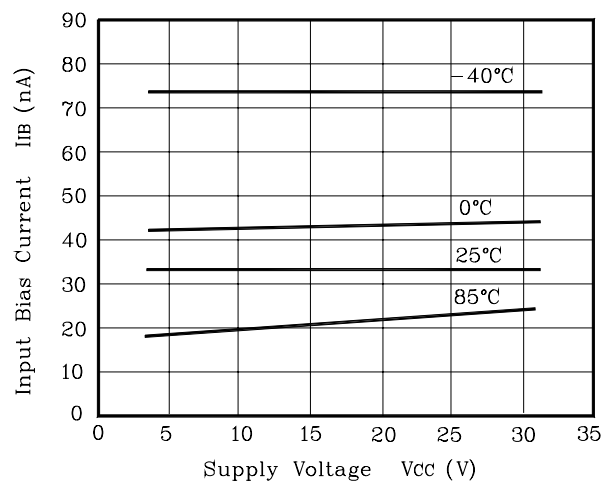


Fig. 3 V_{OL} - I_{SINK}

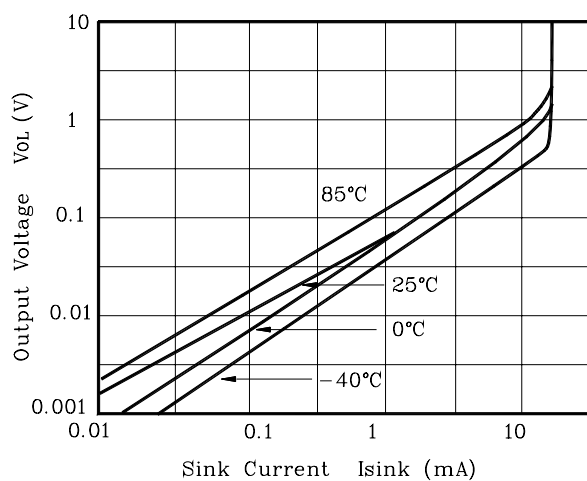


Fig. 4 P_D - T_a

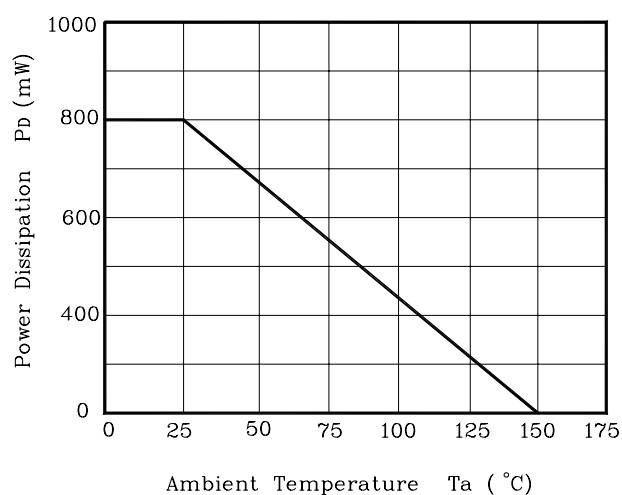


Fig. 5 V_{IN} , V_{OUT} - t_{rsp}

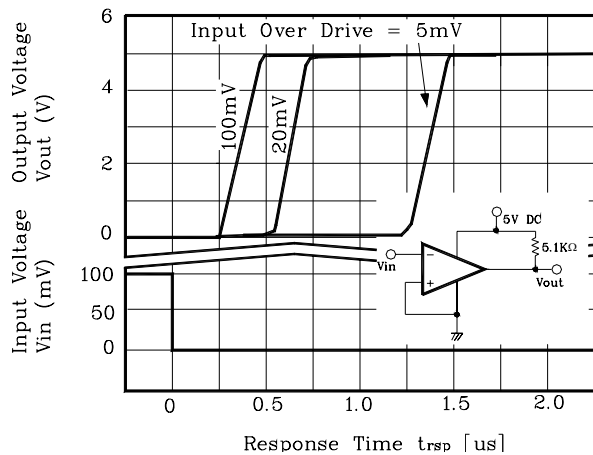
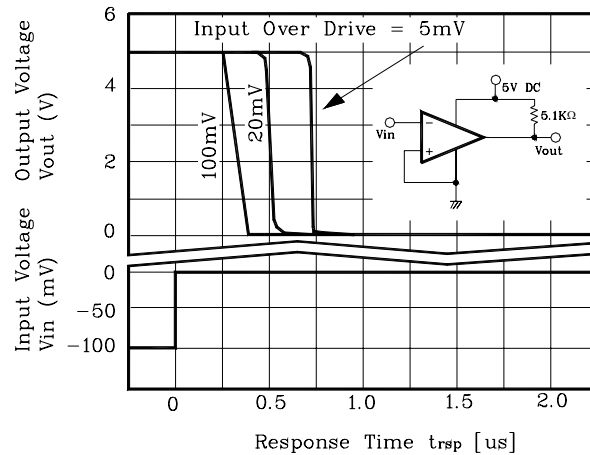
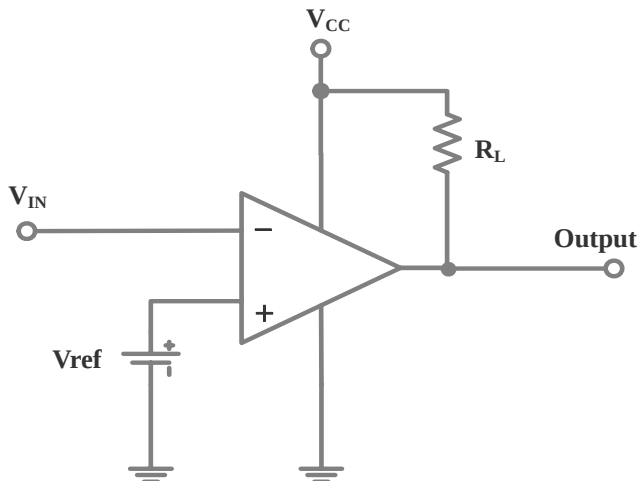


Fig. 6 V_{IN} , V_{OUT} - t_{rsp}

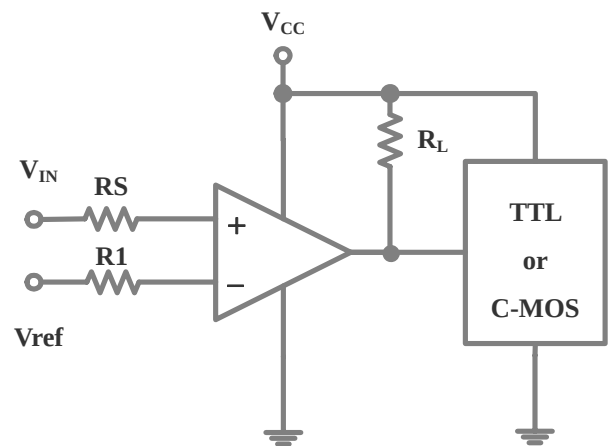


Typical Applications

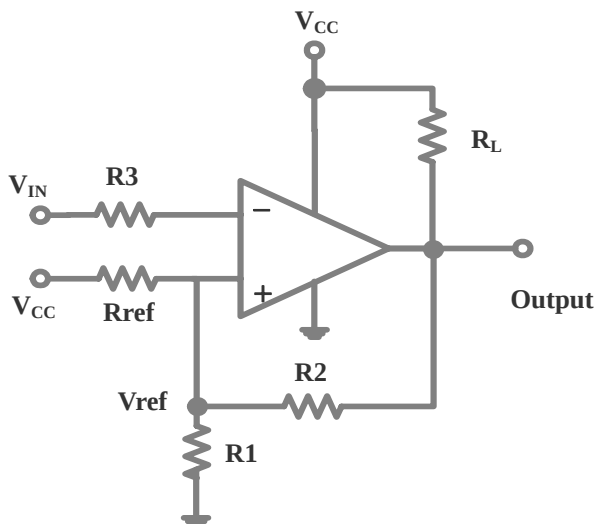
Basic Comparator



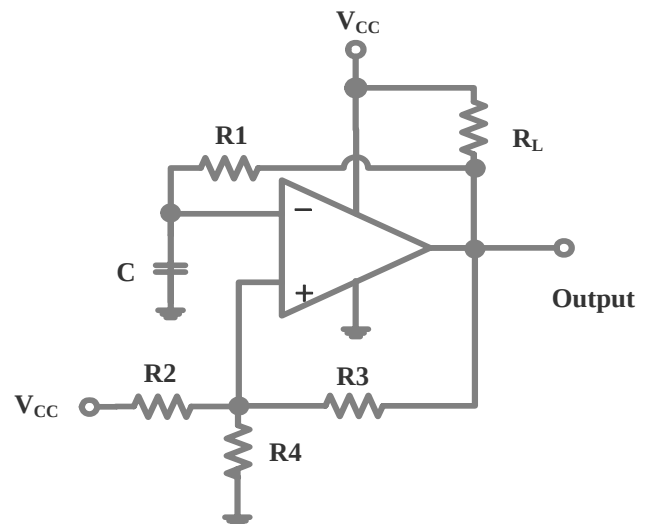
Driving Logic or C-MOS



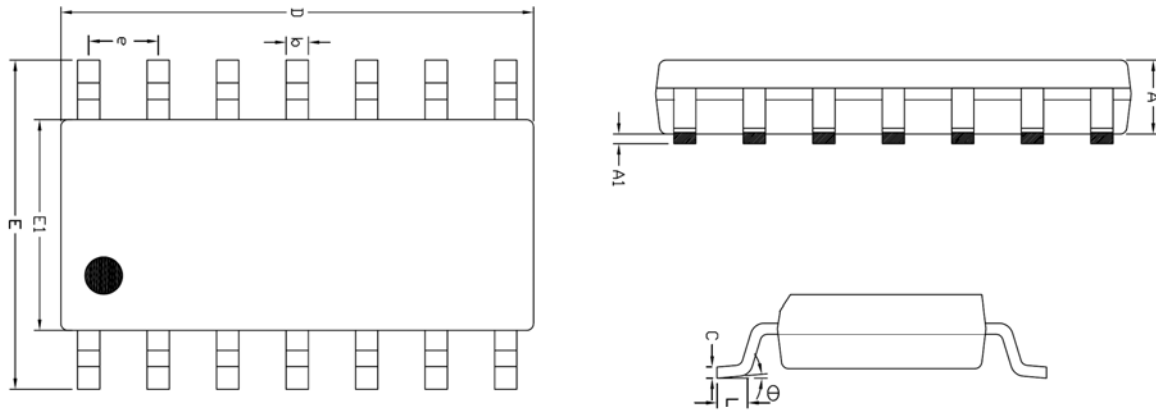
Comparator with Hysteresis Circuit



Square-wave Oscillator

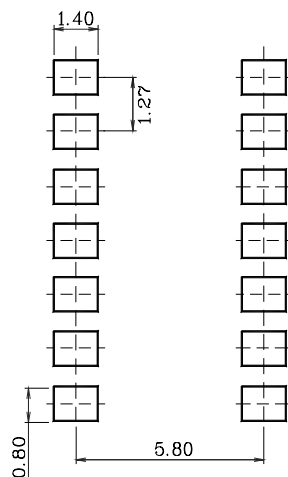


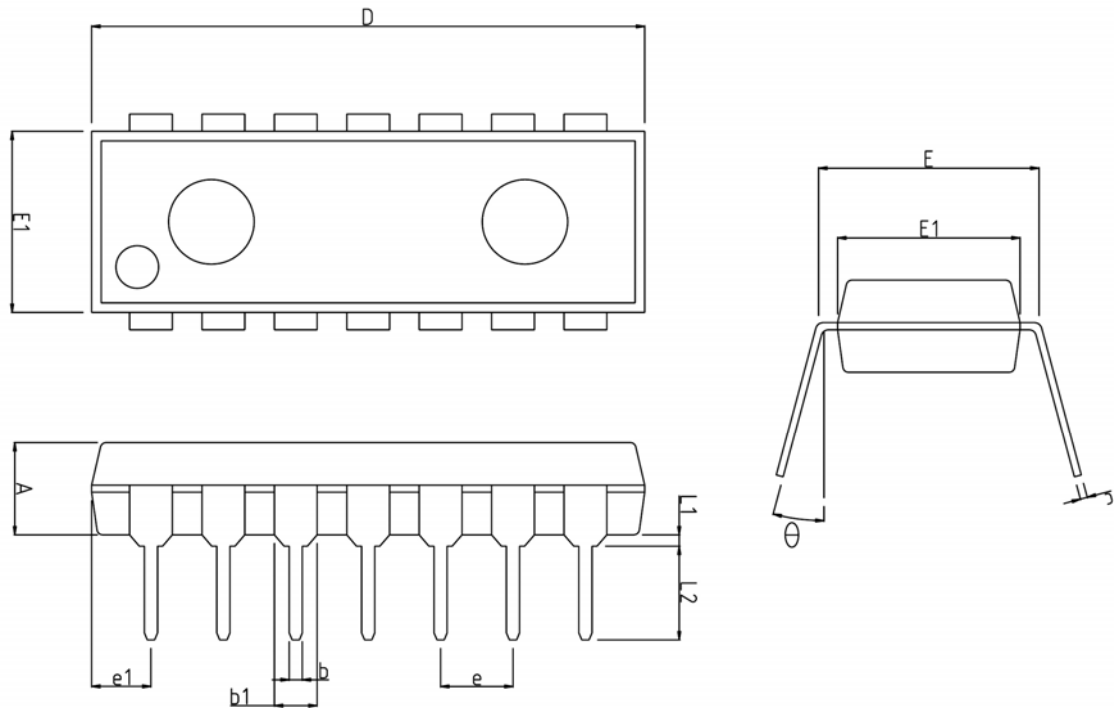
Outline Dimension (Unit : mm)



SYMBOL	MILLIMETER(mm)			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	1.245	—	1.445	
A1	0.125	0.175	0.275	
b	0.320	0.420	0.520	
c	0.170	0.220	0.270	
D	8.536	8.636	8.736	
E	5.870	6.020	6.170	
E1	3.761	3.861	3.961	
e	1.270 BSC			
L	0.462	0.562	0.662	
theta	0 °	—	8 °	

※ Recommend PCB solder land (Unit : mm)



Outline Dimension (Unit : mm)


SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	3.05	3.25	3.45	
b	0.36	0.46	0.56	
b1	1.40	1.50	1.60	
c	0.20	0.25	0.35	
D	19.20	19.40	19.60	
E	7.37	7.62	7.87	
E1	6.20	6.40	6.60	
e	2.54 TYP			
e1	2.08 TYP			
L1	0.20	—	—	
L2	3.00	3.30	3.60	
θ	0°	—	15°	

The AUK Corp. products are intended for the use as components in general electronic equipment (Office and communication equipment, measuring equipment, home appliance, etc.).

Please make sure that you consult with us before you use these AUK Corp. products in equipments which require high quality and / or reliability, and in equipments which could have major impact to the welfare of human life(atomic energy control, airplane, spaceship, transportation, combustion control, all types of safety device, etc.). AUK Corp. cannot accept liability to any damage which may occur in case these AUK Corp. products were used in the mentioned equipments without prior consultation with AUK Corp..

Specifications mentioned in this publication are subject to change without notice.