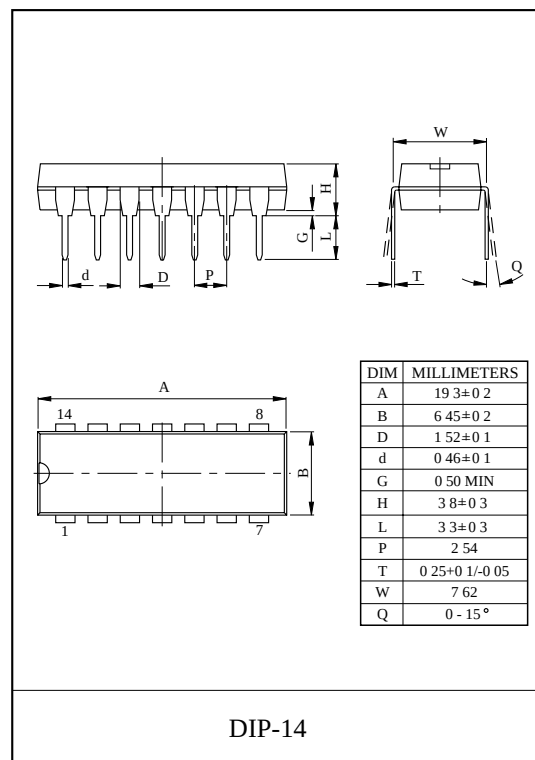


#### QUAD VOLTAGE COMPARATORS

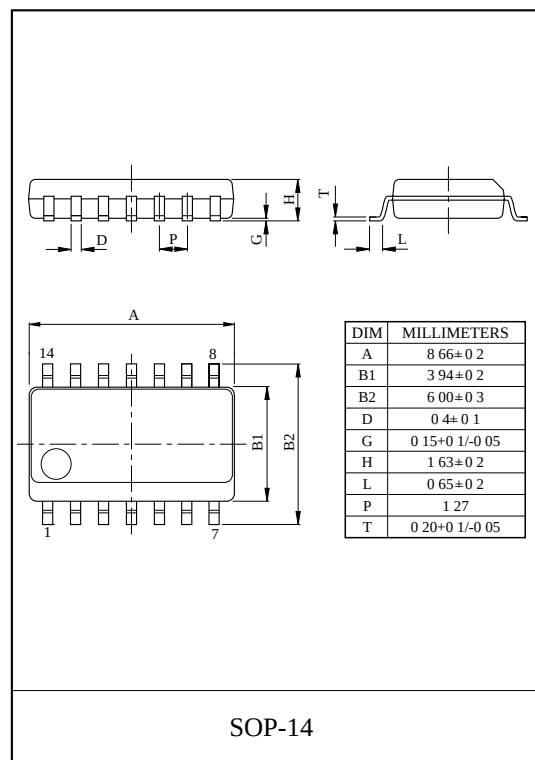
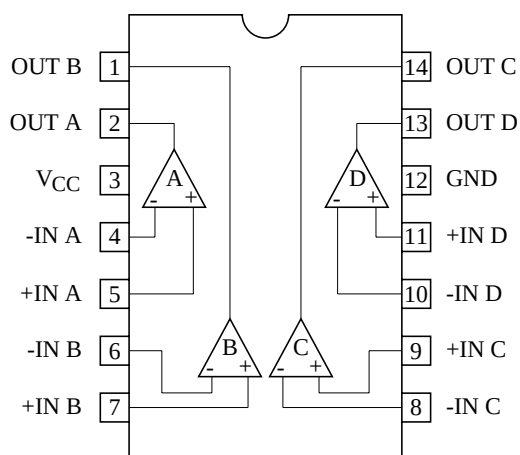
This device consist of four independent voltage comparators that designed to operated from a single power supply over a wide range of voltage. Normal operation from dual supplies are also to be guaranteed on voltage range from 2V to 36V.

$V_{CC}$  is necessary at least more 1.5 volts than the input common mode voltage. The output can be connected to other open collector outputs to achieve Wired-OR relationship.

- Single Supply Voltage Range or Dual Supplies.  
:  $2V_{DC}$  to  $36V_{DC}$  or  $\pm 18V_{DC}$
- Low Supply Current : 0.8mA (Typ.)
- Low Input Offset Voltage :  $\pm 2mV$  (Typ.)
- Wide Input Common Mode Voltage Range .  
:  $0V_{DC}$  to  $V_{CC}-1.5V_{DC}$
- Output Compatible With TTL, DTL, MOS and CMOS Logic System.
- Low Output Saturation Voltage



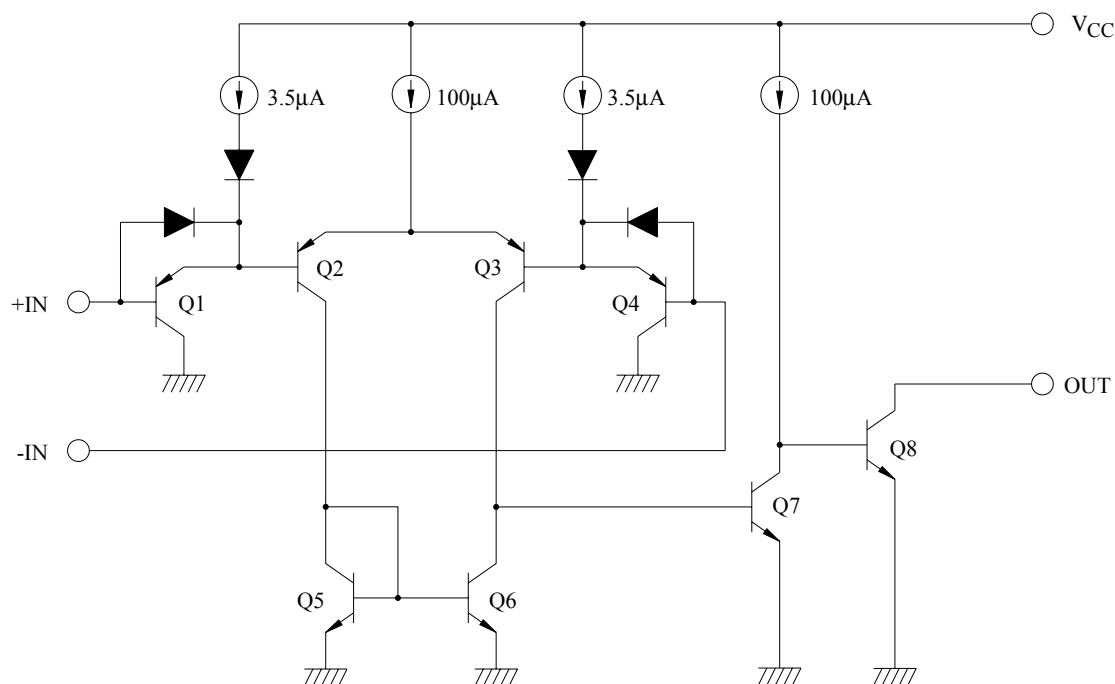
#### PIN CONNECTION (TOP VIEW)



## MAXIMUM RATINGS (Ta=25℃)

| CHARACTERISTIC             |        | SYMBOL     | RATING          | UNIT |
|----------------------------|--------|------------|-----------------|------|
| Supply Voltage             |        | $V_{CC}$   | -18, 36         | V    |
| Differential Input Voltage |        | $DV_{IN}$  | -18, 36         | V    |
| Common Mode Input Voltage  |        | $CMV_{IN}$ | -0.3 ~ $V_{CC}$ | V    |
| Power Dissipation          | FA339P | $P_D$      | 625             | mW   |
|                            | FA339F |            | 280             |      |
| Operating Temperature      |        | $T_{opr}$  | -40 ~ 85        | ℃    |
| Storage Temperature        |        | $T_{stg}$  | -55 ~ 125       | ℃    |

## EQUIVALENT CIRCUIT

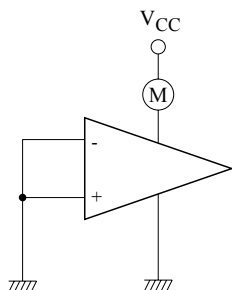


## ELECTRICAL CHARACTERISTICS ( $V_{CC}=5V$ , $V_{EE}=GND$ , $T_a=25^\circ C$ )

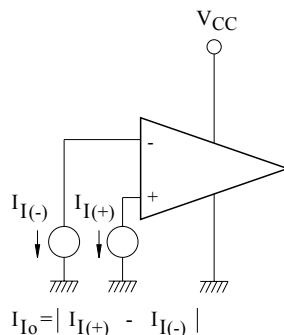
| CHARACTERISTIC             | SYMBOL     | TEST CIRCUIT | TEST CONDITION                       | MIN. | TYP. | MAX.         | UNIT    |
|----------------------------|------------|--------------|--------------------------------------|------|------|--------------|---------|
| Input Offset Voltage       | $V_{IO}$   | 4            | $V_O=1.4V$                           | -    | -    | 5            | mV      |
| Input Offset Current       | $I_{IO}$   | 2            | -                                    | -    | -    | 50           | nA      |
| Input Bias Current         | $I_I$      | 2            | -                                    | -    | -    | 250          | nA      |
| Common Mode Input Voltage  | $CMV_{IN}$ | 4            | -                                    | 0    | -    | $V_{CC}-1.5$ | V       |
| Voltage Gain               | $G_V$      | -            | $R_L=15k\Omega$                      | -    | 200  | -            | V/mV    |
| Supply Current             | $I_{CC}$   | 1            | No load                              | -    | -    | 1            | mA      |
| Sink Current               | $I_{sink}$ | 5            | $+IN=0V$ , $-IN=1V$ , $V_{OL}=1.5V$  | 6    | -    | -            | mA      |
| Output Voltage ("L" Level) | $V_{OL}$   | 5            | $+IN=0V$ , $-IN=1V$ , $I_{sink}=3mA$ | -    | -    | 0.7          | V       |
| Output Leak Current        | $I_{LEAK}$ | 3            | $+IN=1V$ , $-IN=0V$ , $V_O=5V$       | -    | 0.1  | -            | nA      |
| Response Time              | $t_{rsp}$  | 6            | $R_L=5.1k\Omega$ , $C_L=15pF$        | -    | 1.3  | -            | $\mu s$ |

## TEST CIRCUIT

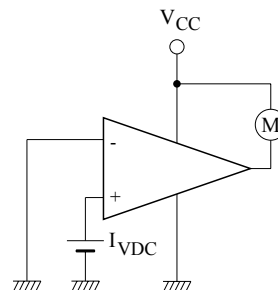
(1)  $I_{CC}$



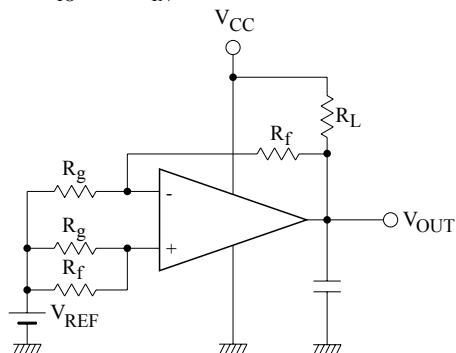
(2)  $I_I$ ,  $I_{IO}$



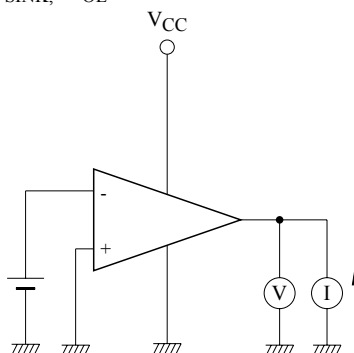
(3)  $I_{LEAK}$



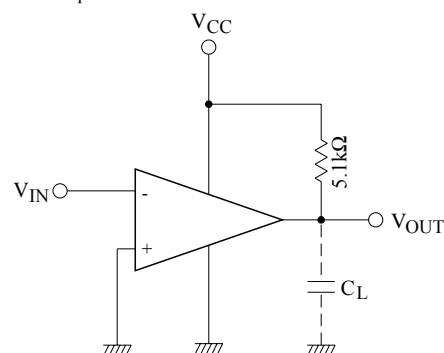
(4)  $V_{IO}$ ,  $CMV_{IN}$



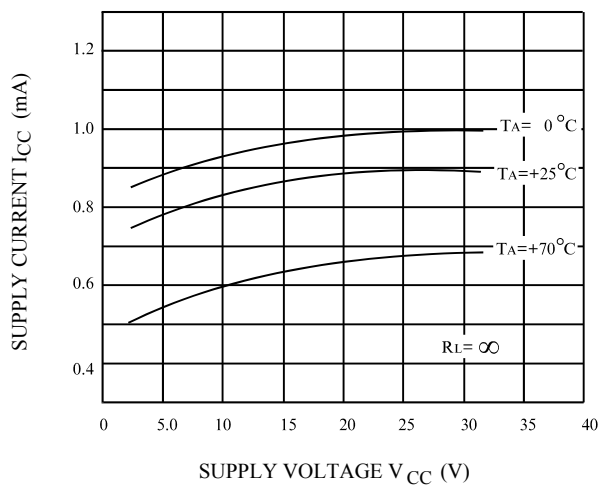
(5)  $I_{SINK}$ ,  $V_{OL}$



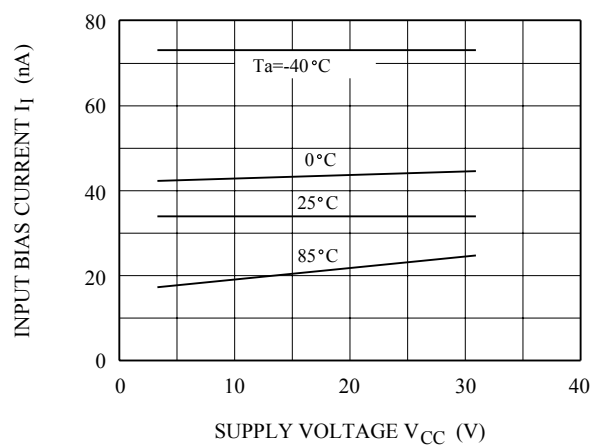
(6)  $t_{rsp}$



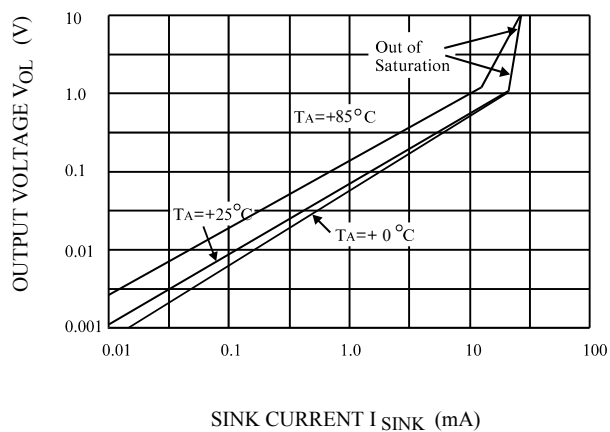
$V_{CC} - I_{CC}$



$V_{CC} - I_I$



$V_{OL} - I_{SINK}$



$P_D - T_a$

