



LM339N

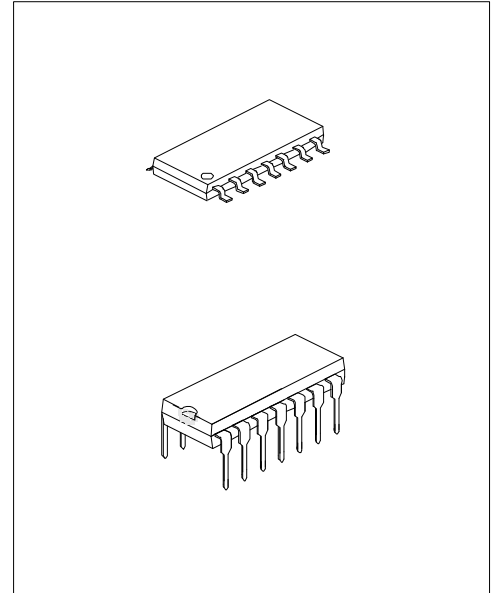
QUAD DIFFERENTIAL COMPARATOR

DESCRIPTION

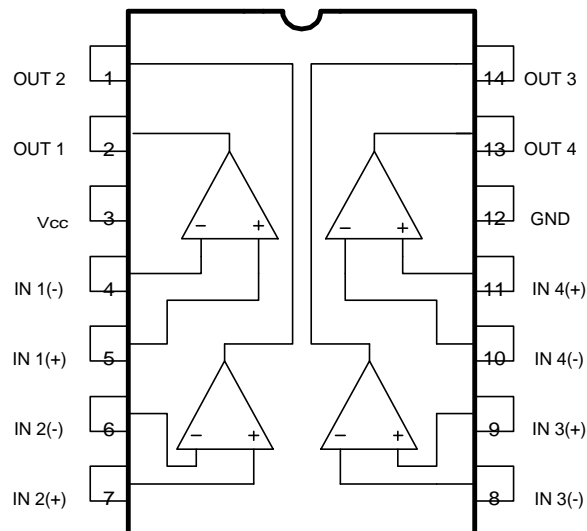
The LM339 consists of four independent voltage comparators, designed specifically to operate from a single power supply over a wide voltage range.

FEATURES

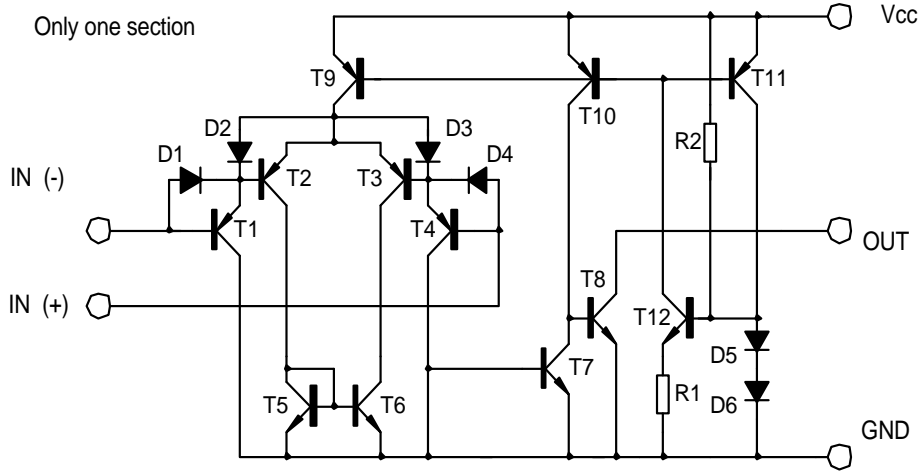
- *Signal or dual supply operation.
- *Wide operating supply range($V_{CC}=2V\sim 32V$).
- *Input common-mode voltage includes ground.
- *Low supply current drain $I_{CC}=0.8mA$ (Typical).
- *Open collector outputs for wired and connection.
- *Low input bias current $I_{bias}=25nA$ (Typical).
- *Low output saturation voltage.
- *Output compatible with TTL, DTL, and CMOS logic system.



PIN CONFIGURATIONS



BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS(Ta=25°C)

| PARAMETER | SYMBOL | VALUE | UNIT |
|----------------------------|---------|------------|------|
| Supply Voltage | Vcc | + 16OR 32 | V |
| Differential input Voltage | VIDiff) | 32 | V |
| Input Voltage | VI | -0.3~32V | V |
| Power Dissipation | Pd | 570 | mW |
| Operating Temperature | Topr | 0 to +70 | °C |
| Storage Temperature | Tstg | -65 to 150 | °C |

ELECTRICAL CHARACTERISTICS

(Vcc=5.0V, Ta=25°C, All voltage referenced to GND unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP. | MAX | UNIT |
|---------------------------------|----------|--|-----|------|---------|----------|
| Input Offset Voltage | Vio | VCM=0 to Vcc-1.5 Vo(p)=1.4V, Rs=0 | | +1.5 | +5.0 | mV |
| Input Offset Current | Iio | | | +2.3 | +50 | nA |
| Input Bias Current | Ib | | | 57 | 250 | nA |
| Input Common-Mode Voltage Range | VI(R) | | 0 | | Vcc-1.5 | V |
| Supply Current | Icc | RL=∞ | | 1.1 | 2.0 | mA |
| Large Signal Voltage Gain | Gv | Vcc=15V, RL>15kΩ | 50 | 200 | | V/mV |
| Large Signal Response Time | tres | Vi=TTL logic wing Vref=1.4V, VRL=5V, RL=5.1kΩ | | 350 | | ns |
| Response Time | tres | VRL=5V, RL=5.1kΩ | | 1400 | | ns |
| Output Sink Current | Isink | Vi(-)>1V, Vi(+)=0V, Vo(p)<1.5V | 6 | 18 | | mA |
| Output Saturation Voltage | Vsat | Vi(-)>1V, Vi(+)=0V, Isink=4mA | | 140 | 400 | mV |
| Output Leakage Current | Ileakage | VI(+)=1V, VI(-)=0 Vo(p)= 5V Vo(p)=30V | | 0.1 | | nA μA |
| Differential Input Voltage | VI(diff) | | | | 36 | V |

TYPICAL PERFORMANCE CHARACTERISTICS

Fig.1 supply current

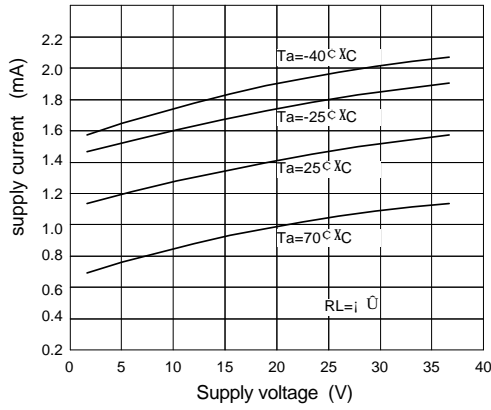


Fig.2 Input current

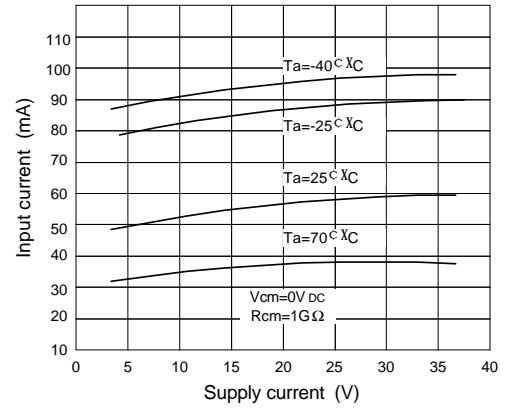


Fig.3 Output saturation voltage

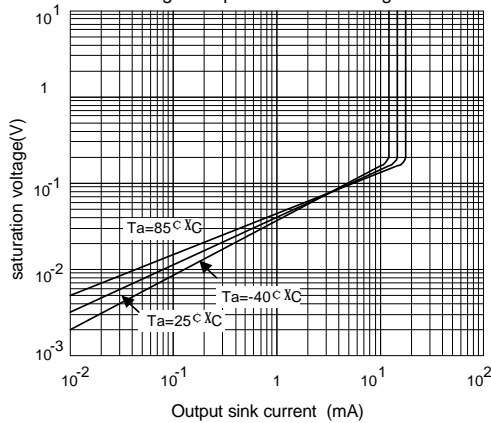


Fig.4 Reponse time for various input overdrive negative transition

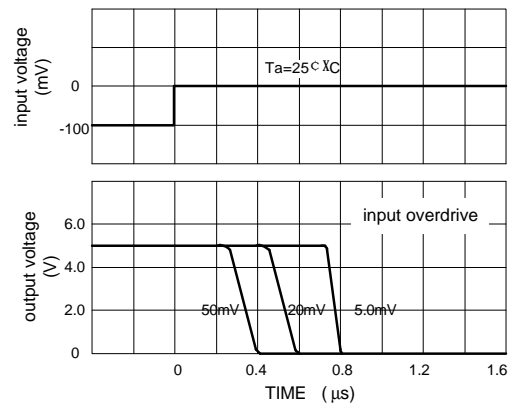


Fig.5 Reponse time for various input overdrive positive transition

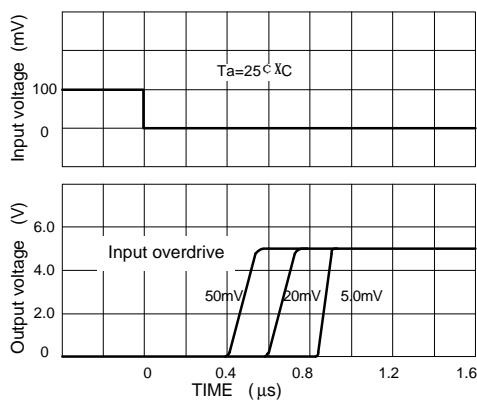


Fig.6

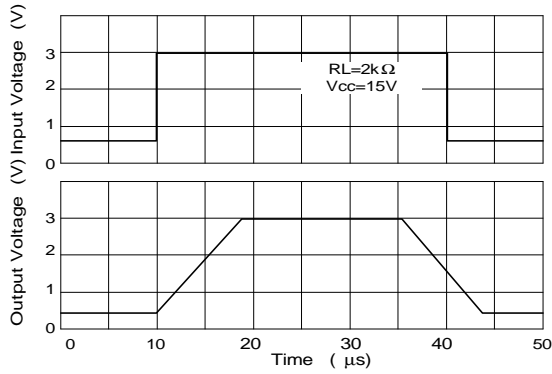


Fig.7 voltage Follower pulse response (small signal)

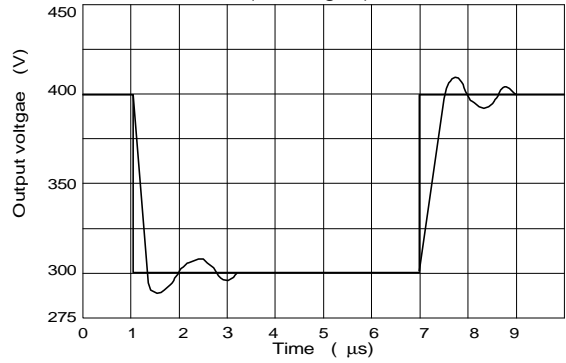


Fig.8 Large signal Frequency Response

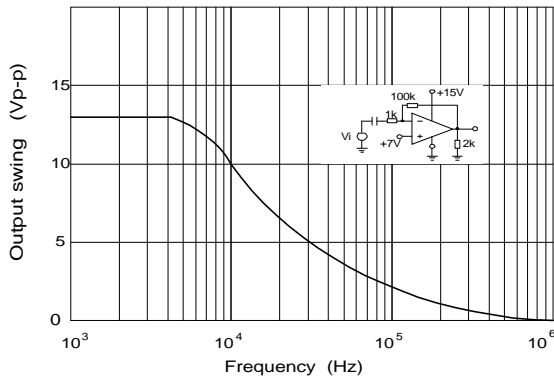


Fig.9 Output Characteristics current sourcing

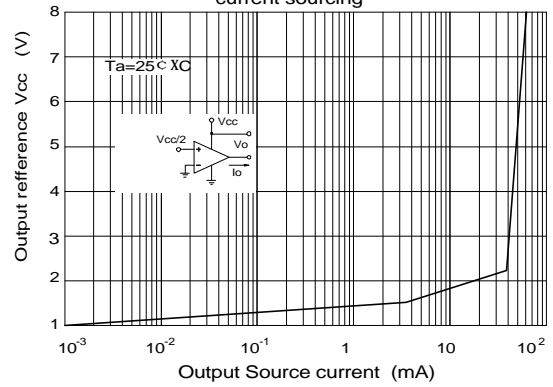


Fig.10 Output Characteristics Current sinking

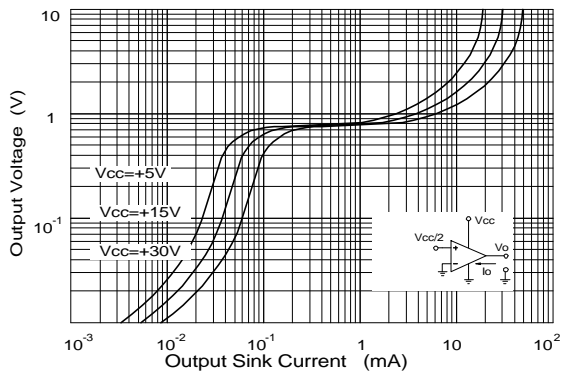


Fig.11 Current Limiting

