LM339S, LM2901S

Single Supply Quad Comparators

October, 2014 − Rev. 0
Publication Order Number:
LM339S/D

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Power Supply Voltage	V		

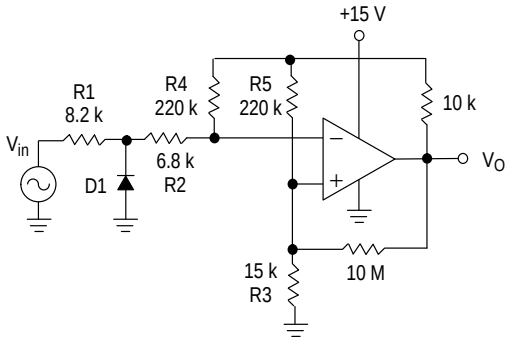
ELECTRICAL CHARACTERISTICS (V_{CC} = +5.0 Vdc, T_A = +25°C, unless otherwise noted)

Characteristic	Symbol	LM339S			LM2901S	Unit
		Min	Typ	Max		

APPLICATIONS INFORMATION

These quad comparators feature high gain, wide bandwidth characteristics. This gives the device oscillation tendencies if the outputs are capacitively coupled to the inputs via stray capacitance. This oscillation manifests itself during output transitions (V_{OL} to V_{OH}). To alleviate this situation input resistors < 10 kΩ should be used. The addition of positive feedback (< 10 mV) is also recommended. It is good design practice to ground all unused input pins.

Differential input voltages may be larger than supply voltages without damaging the comparator's inputs. Voltages more negative than −300 mV should not be used.



D1 prevents input from going negative by more than 0.6 V.

$R1 + R2 = R3$

$R3 \leq \frac{R5}{10}$ for small error in zero crossing

Figure 6. Zero Crossing Detector (Single Supply)

$V_{in(min)} \approx 0.4$ V peak for 1% phase distortion ($\Delta\theta$).

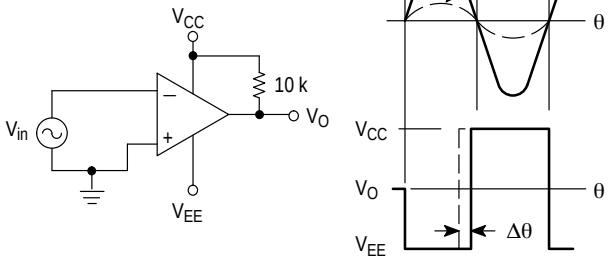
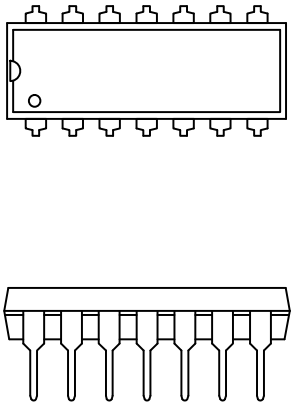


Figure 7. Zero Crossing Detector (Split Supplies)

ORDE0 0 cf*Qq 1 0 . 0 12 258.1795 757.8709 Tm0 g0 T87 -1.444V-7-46tl11.Q1 gq 1 0Tj/F6 4 - 0 6trm 007-4 - 0 6trm 007-4 - 24 1.1055

PDIP–



STYLE 1:
PIN 1. COLLECTOR
2. BASE
3. EMITTER
4. NO CONNECTION
5. EMITTER
6. BASE
7. COLLECTOR
8. COLLECTOR
9. BASE
10. EMITTER
11. NO CONNECTION
12. EMITTER
13. BASE
14. COLLECTOR

STYLE 2:
CANCELLED

STYLE 3:
CANCELLED

STYLE 6:
PIN 1. COMMON CATHODE
2. ANODE/CATHODE
3. ANODE/CATHODE
4. NO CONNECTION
5. ANODE/CATHODE
6. NO CONNECTION
7. ANODE/CATHODE
8. ANODE/CATHODE
9. ANODE/CATHODE
10. NO CONNECTION
11. ANODE/CATHODE
12. ANODE/CATHODE
13. NO CONNECTION
14. COMMON ANODE

STYLE 7:
PIN 1. NO CONNECTION
2. ANODE
3. ANODE
4. NO CONNECTION
5. ANODE
6. NO CONNECTION
7. ANODE
8. ANODE
9. ANODE
10. NO CONNECTION
11. ANODE
12. ANODE
13. NO CONNECTION
14. COMMON CATHODE

STYLE 8:
PIN 1. NO CONNECTION
2. CATHODE
3. CATHODE
4. NO CONNECTION
5. CATHODE
6. NO CONNECTION
7. CATHODE
8. CATHODE
9. CATHODE
10. NO CONNECTION
11. CATHODE
12. CATHODE
13. NO CONNECTION
14. COMMON ANODE