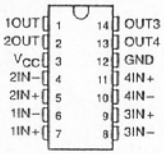
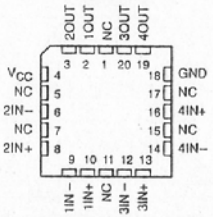
- Single Supply or Dual Supplies
- Wide Range of Supply Voltage
  2 V to 36 V
- Low Supply-Current Drain Independent of Supply Voltage . . . 0.8 mA Typ
- Low Input Bias Current . . . 25 nA Typ
- Low Input Offset Current . . . 3 nA Typ (LM139)
- Low Input Offset Voltage . . . 2 mV Typ
- Common-Mode Input Voltage Range Includes Ground
- Differential Input Voltage Range Equal to Maximum-Rated Supply Voltage . . . ±36 V
- Low Output-Saturation Voltage
- Output Compatible With TTL, MOS, and CMOS

D, DB, J, N, OR PW PACKAGE
(TOP VIEW)



FK PACKAGE
(TOP VIEW)



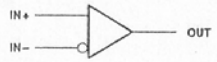
NC – No internal connection

description

These devices consist of four independent voltage comparators that are designed to operate from a single power supply over a wide range of voltages. Operation from dual supplies is also possible as long as the difference between the two supplies is 2 V to 36 V and V_{CC} is at least 1.5 V more positive than the input common-mode voltage. Current drain is independent of the supply voltage. The outputs can be connected to other open-collector outputs to achieve wire-AND relationships.

The LM139 and LM139A are characterized for operation from −55°C to 125°C. The LM239 and LM239A are characterized for operation from −25°C to 125°C. The LM339 and LM339A are characterized for operation from 0°C to 70°C. The LM2901 and LM2901Q are characterized for operation from −40°C to 125°C.

symbol (each comparator)



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absolute maximum ratings over operating free-air temperature range (unless otherwise noted)†

Supply voltage, V_{CC} (see Note 1)	36 V
Differential input voltage, V_{ID} (see Note 2)	±36 V
Input voltage range, V_I (either input)	−0.3 V to 36 V
Output voltage, V_O	36 V
Output current, I_O	20 mA
Duration of output short circuit to ground (see Note 3)	unlimited
Continuous total dissipation	See Dissipation Rating Table
Operating free-air temperature range, T_A: LM139, LM139A	−55°C to 125°C
LM239, LM239A	−25°C to 85°C
LM339, LM339A	0°C to 70°C
LM2901, LM2901Q	−40°C to 125°C
Storage temperature range	−65°C to 150°C
Case temperature for 60 seconds: FK package	260°C
Lead temperature 1,6 mm (1/16 inch) from case for 10 seconds: D, DB, N, or PW package	260°C
Lead temperature 1,6 mm (1/16 inch) from case for 60 seconds: J package	300°C

† Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

NOTES:
1. All voltage values, except differential voltages, are with respect to network ground.
2. Differential voltages are at IN+ with respect to IN−.
3. Short circuits from outputs to V_{CC} can cause excessive heating and eventual destruction.

DISSIPATION RATING TABLE

PACKAGE	$T_A \le 25°C$ POWER RATING	DERATING FACTOR	DERATE ABOVE T_A	$T_A = 70°C$ POWER RATING	$T_A = 85°C$ POWER RATING	$T_A = 125°C$ POWER RATING
D	900 mW	7.6 mW/°C	31°C	608 mW	494 mW	—
DB	775 mW	6.2 mW/°C	25°C	496 mW	403 mW	155 mW
FK	900 mW	11.0 mW/°C	68°C	880 mW	715 mW	275 mW
J	900 mW	11.0 mW/°C	68°C	880 mW	715 mW	275 mW
N	900 mW	9.2 mW/°C	52°C	736 mW	598 mW	—
PW	700 mW	5.6 mW/°C	25°C	448 mW	364 mW	140 mW