DP339

Quadruple Differential Comparators

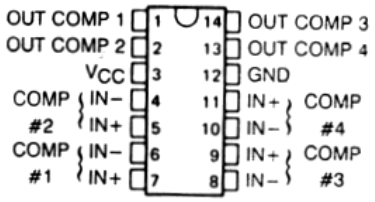
DESCRIPTION

The DP339 consists of four independent voltage comparators. These were designed specifically to operate from a single power supply over a wide range of voltages. 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. The outputs can be connected to other open-collector outputs to achieve wired-AND relationships.

FEATURES

- Wide supply voltage range
- Low supply current drain independent of supply voltage.
- Low input biasing current
- Low input offset current
- Low input offset voltage
- Input common-mode voltage range includes GND
- Differential input voltage range equal to the power supply voltage
- Low output saturation voltage
- Output voltage compatible with TTL, MOS and CMOS logic

PACKAGE INFORMATION



ELECTRICAL CHARACTERISTICS

at specified free-air temperature, V_{CC}=5V (unless otherwise noted)

PARAMETER	TEST CONDITIONS*			MIN	TYP	MAX	UNIT
V_{IO} Input offset voltage	V_{CC}=5V to 30V, V_{IC}= V_{ICRmin}, V_O=1.4V		25 °C		2	5	mV
			Full range			9	
I_{IO} Input offset current	V_O=1.4V		25 °C		5	50	nA
			Full range			150	
I_{IB} Input bias current	V_O=1.4V		25 °C		−25	−250	nA
			Full range			−400	
V_{ICR} Common-mode input voltage range**			25 °C	0 to Vcc−1.5			V
			Full range	0 to Vcc−2			
A_{VD} Large-signal differential voltage amplification	V_{CC}=15V, V_O=1.4V to 11.4V, R_L ≥15kΩ to V_{CC}		25 °C	50	200		V/mV
I_{OH} High-level output current	V_{OH}=5V, V_{ID}=1V		25 °C		0.1	50	nA
	V_{OH}=30V, V_{ID}=1V		Full range			1	μA
V_{OL} Low-level output voltage	I_{OL}=4mA, V_{ID}= −1V		25 °C		150	400	mV
			Full range			700	
I_{OL} Low-level output current	V_{OL}=1.5V, V_{ID}= −1V		25 °C	6			mA
I_{CC} Supply current	R_L= ∞	V_{CC}=5V	25 °C		0.8	2	mA
		V_{CC}=30V	Full range			2.5	

* Full range (MIN to MAX), for the LM339 is 0 °□ to 70 °□. All characteristics are measured with zero common-mode input voltage unless otherwise specified.
** The voltage at either input or common-mode should not be allowed to go negative by more than 0.3 V. The upper end of the common-mode voltage range is V_{CC} −1.5 V, but either or both inputs can go to 30 V without damage.

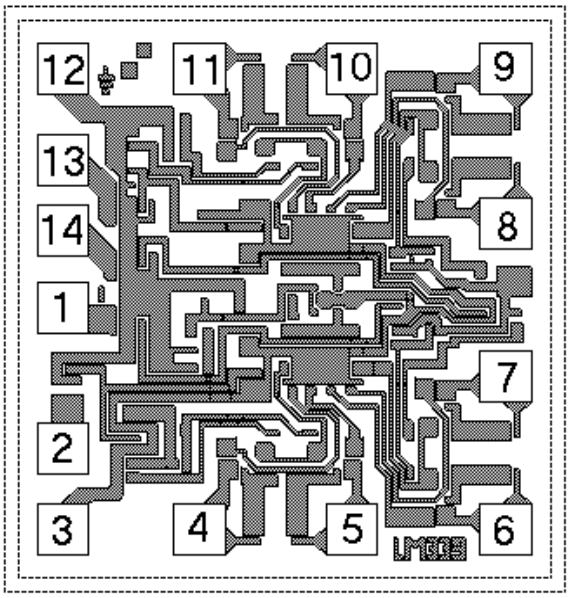
SWITCHING CHARACTERISTICS, V_{CC}=5V, □$_A$=25 °C

PARAMETER	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Response time	R_L connected to 5V through 5.1kΩ, C_L=15pF* (See Note 1)	100-mV input step with 5-mV overdrive		1.3		μs
		TTL-level input step		0.3		

* C_L includes probe and jig capacitance.

NOTE 1: The response time specified is the interval between the input step function and the instant when the output crosses 1.4V.

PAD LOCATION DP339

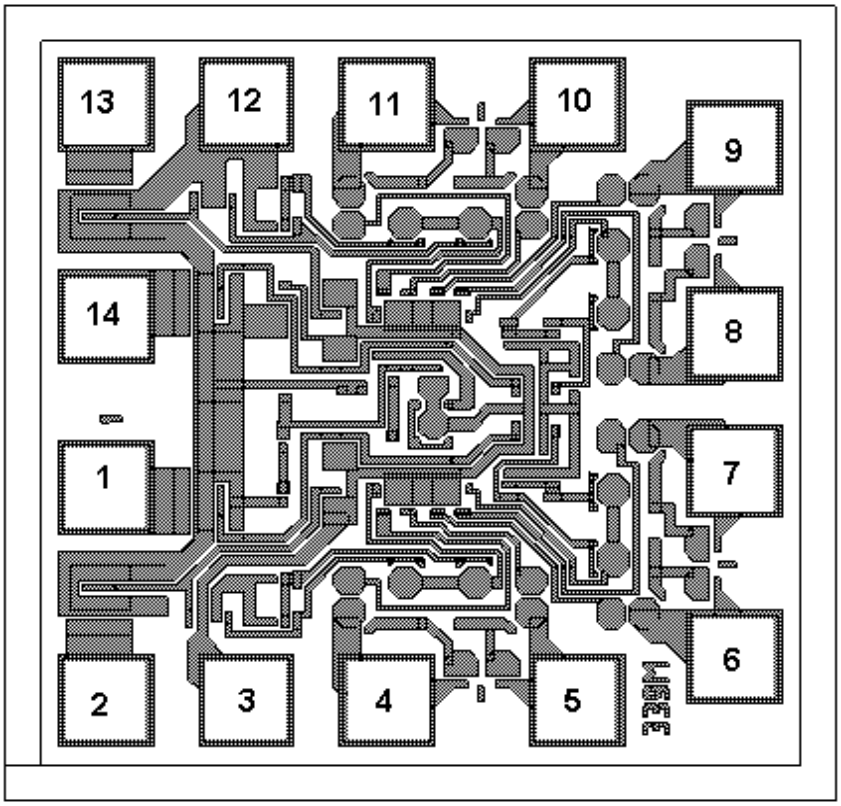


Chip Size: 1.55 x 1.6 mm

PAD LOCATION COORDINATES

Pad N	Pad Name	Coordinates, mkm	
		X	Y
1	#1 OUT	105	718
2	#2 OUT	105	333
3	V_{CC}	105	110
4	#2 IN−	480	110
5	#2 IN+	900	110
6	#1 IN−	1325	110
7	#1 IN+	1325	530
8	#3 IN−	1325	949
9	#3 IN+	1325	1369
10	#4 IN−	900	1369
11	#4 IN+	480	1369
12	GND	105	1369
13	#4 OUT	105	1118
14	#3 OUT	105	928

PAD LOCATION DP339M



Chip Size: 0.92 x 0.90 mm^2

PAD LOCATION COORDINATES

Pad N	Pad Name	Pad size (µm × µm)	Coordinates, mkm	
			X	Y
1	#1 OUT	95 x 95	112	353
2	#2 OUT	95 x 95	112	112
3	V_{CC}	95 x 95	267	112
4	#2 IN−	95 x 95	422	112
5	#2 IN+	95 x 95	633	112
6	#1 IN−	95 x 95	807	161
7	#1 IN+	95 x 95	807	372
8	#3 IN−	95 x 95	807	527
9	#3 IN+	95 x 95	807	738
10	#4 IN−	95 x 95	633	787
11	#4 IN+	95 x 95	422	787
12	GND	95 x 95	267	787
13	#4 OUT	95 x 95	112	787
14	#3 OUT	95 x 95	112	546