Quad Differential Comparator

LM339PC

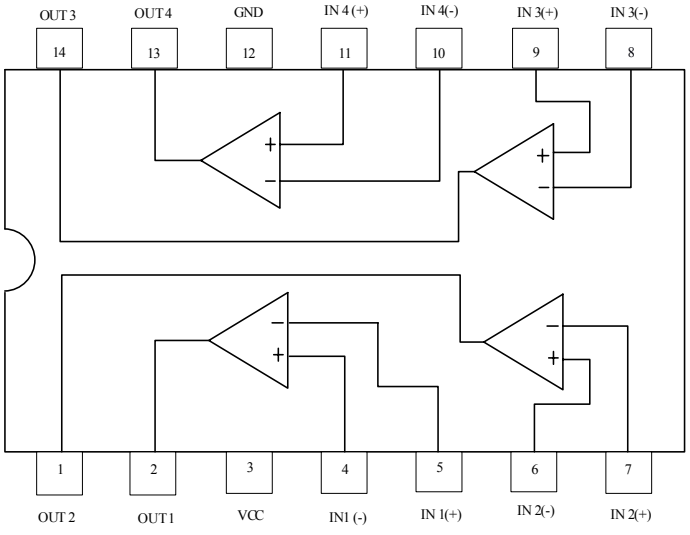
Description

The LM339PC consists of four independent voltage comparators, designed specifically to operate from a single power over a wide voltage range.

Features

- Single or dual supply operation.
- Wide operating supply range(V_{CC}=2V~36V).
- Input common-mode voltage includes ground.
- Low supply current drain I_{CC}=0.8mA(typical).
- Low input bias current Ibias=25nA(typical).
- Output compatible with TTL, DTL and CMOS logic system.

Pin Configurations



Pin1: OUT 2	Pin8: IN 3 (-)
Pin2: OUT 1	Pin9: IN 3 (+)
Pin3: VCC	Pin10: IN 4 (-)
Pin4: IN 1(-)	Pin11: IN 4 (+)
Pin5: IN 1 (+)	Pin12: GND
Pin6: IN 2 (-)	Pin13: OUT 4
Pin7: IN 2 (+)	Pin14: OUT 3

Absolute Maximum Rating

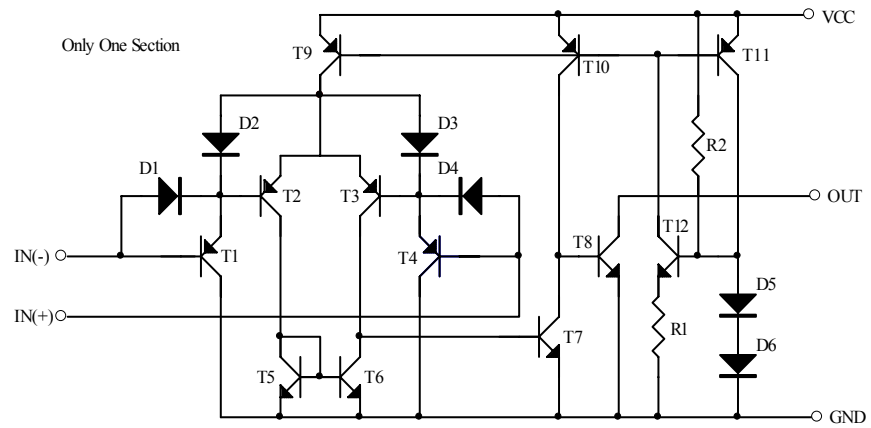
Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	±18 or 36	V
Differential Input Voltage	V_{IDiff}	36	V
Input Voltage	V_I	-0.3 ~ 36	V
Power Dissipation	P_D	570	mW
Operating Temperature	Topr	0 ~ +70	℃
Storage Temperature	Tstg	-65 ~ +150	℃

Electrical Characteristics (V_{CC}=5V,Ta=25°C, all voltage referenced to ground unless otherwise specified.)

Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Input Offset Voltage	V_{CC}=5~30V, V_{IC}=$V_{ICR(min)}$ V_O=1.4V, Rs=0	V_{IO}	-	±2	±5	mV
Input Offset Current	V_O=1.4V	I_{IO}	-	±5	±50	nA
Input Bias Current	V_O=1.4V	I_{BIAS}	-	-25	-250	nA
Input Common-Mode Voltage Range (Note 1)		V_{ICR}	0	-	V_{CC}-1.5	V
Supply Current	R_L=∞, V_{CC}=5V	I_{CC}	-	0.8	2.0	mA
	R_L=∞, V_{CC}=30V (full range)		-	-	2.5	mA
Large Signal Differential Voltage Amplification	V_{CC}=15V, V_O=1.4V~11.4V R_L≥15kΩ to V_{CC}	A_{VD}	50	200	-	V/mV
Response Time	TTL level input step (Note 2) V_{RL}=5V, R_L=5.1kΩ, C_L=15pF	tres	-	350	-	ns
	100mV input step with 5mV overdrive (Note 2) V_{RL}=5V, R_L=5.1kΩ, C_L=15pF		-	1400	-	ns
Low-level Output Current	$V_{IN(-)}$=1V, $V_{IN(+)}$=0V, V_{OL}=1.5V	I_{OL}	6	18	-	mA
Low-level Output Voltage	$V_{IN(-)}$=1V, $V_{IN(+)}$=0V, I_{OL}=4mA	V_{OL}	-	150	400	mV
High-level Output Current	$V_{IN(+)}$=1V, $V_{IN(-)}$=0V, V_{OH}=5V	I_{OH}	-	0.1	-	nA
	V_{OH}=30V (full range)		-	-	1.0	μA

Note : 1. The voltage at either input or common-mode should not be allowed to negative by more than 0.3V. The upper end of the common-mode voltage range is V_{CC}-1.5V, but either or both input can go to 30V without damage.
2. The response time specified is the interval between the input step function and instant when the output crosses 1.4V.

Block Diagram



Typical Characteristics

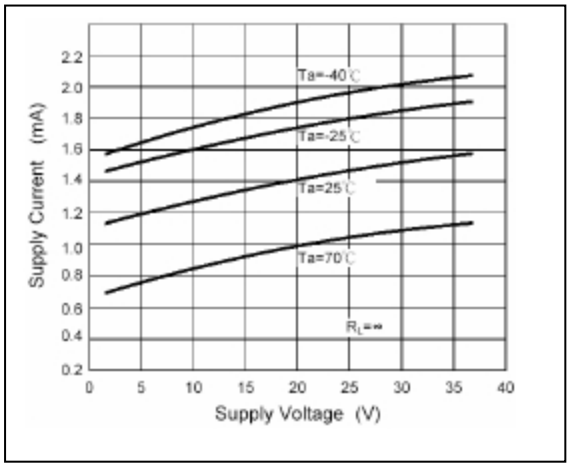


Fig. 1 Supply Current

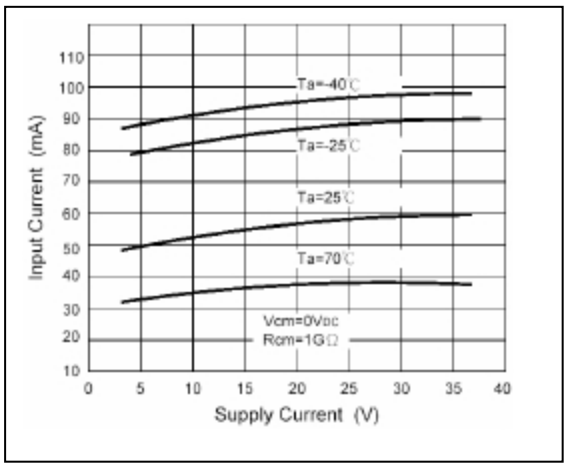


Fig. 2 Input Current

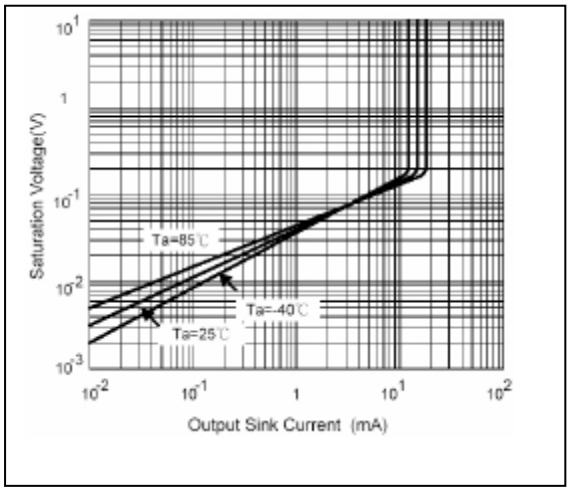


Fig. 3 Output Saturation Voltage

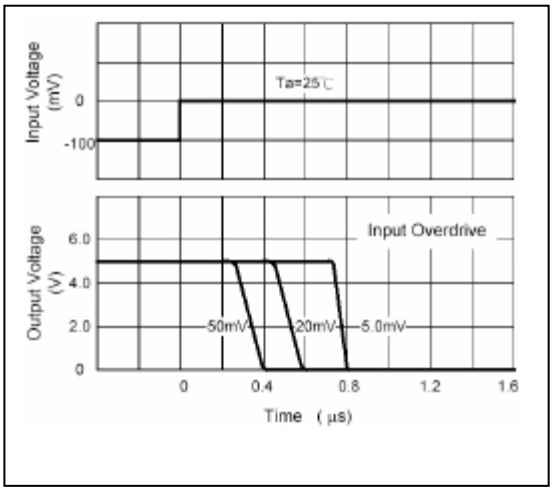


Fig. 4 Response Time for Various Input Overdrive Negative Transition

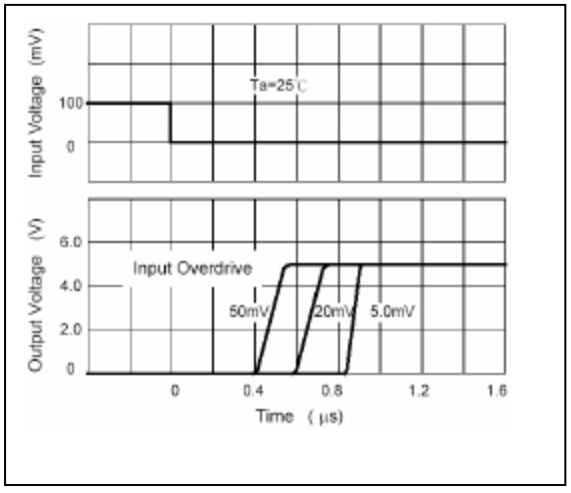


Fig. 5 Response Time for Various Input Overdrive Positive Transition

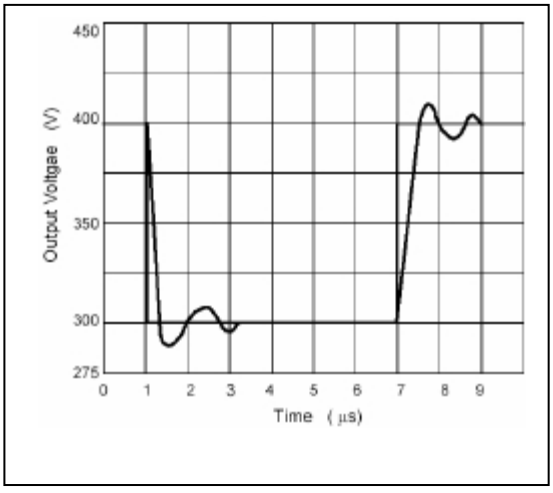


Fig. 6 Voltage Follower Pulse Response (Small Signal)

Typical Characteristics(Cont.)

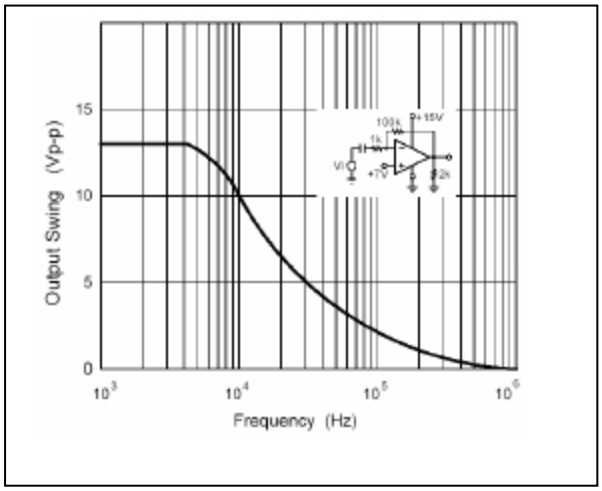


Fig. 7 Large Signal Frequency Response

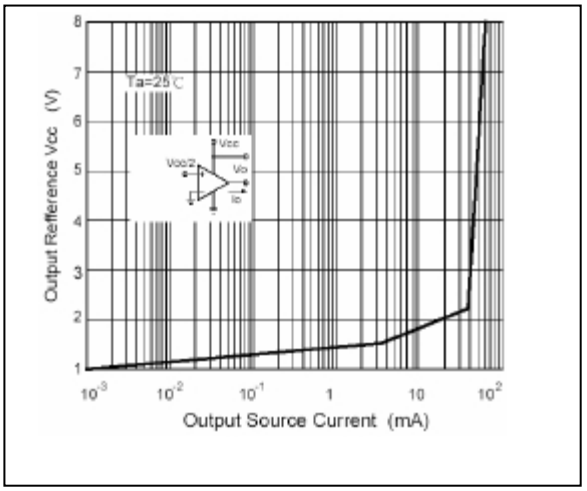


Fig. 8 Output Characteristics Current Sourcing

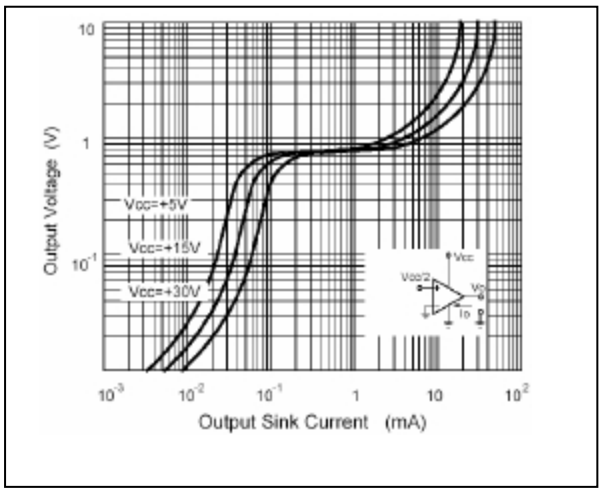


Fig. 9 Output Characteristics Current Sinking

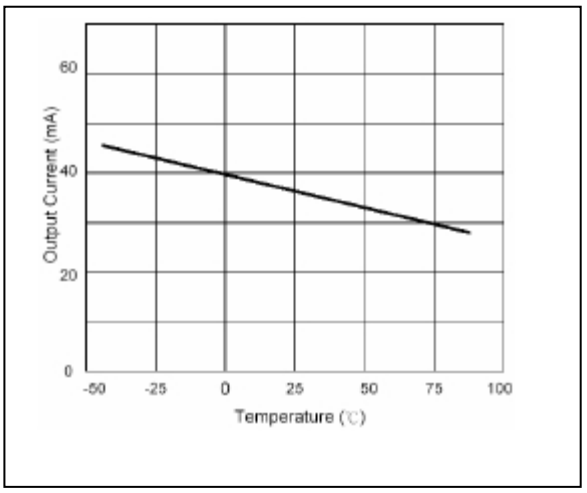
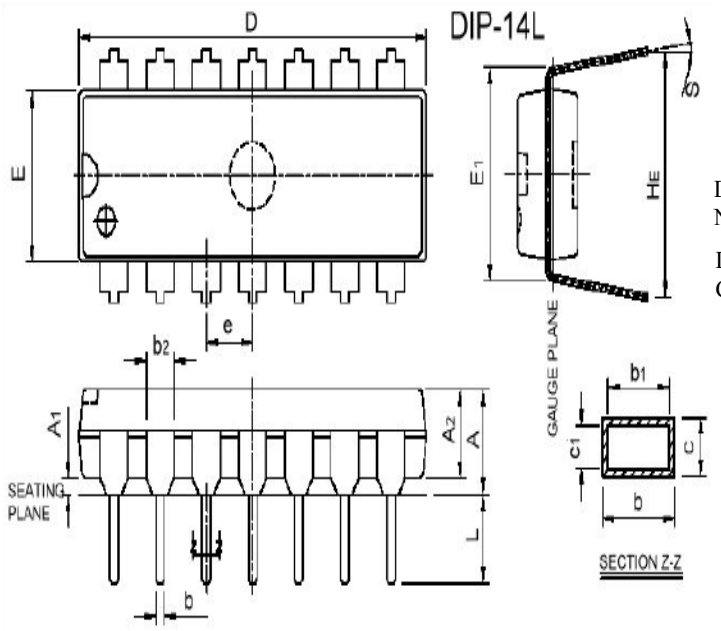
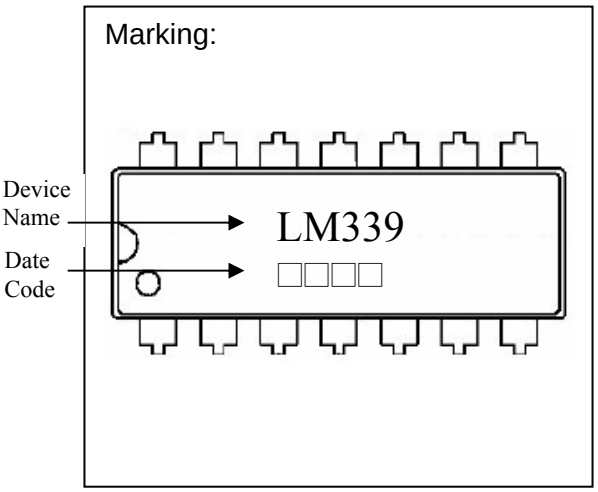


Fig. 10 Current Limiting

DIP-14L Dimension





DIP-14L Plastic Package
CYStek Package Code : PC

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	-	5.334	-	0.210	D	18.920	19.690	0.745	0.775
A1	0.381	-	0.015	-	E	6.096	6.604	0.240	0.260
A2	3.175	3.429	0.125	0.135	E1	7.493	8.001	0.295	0.315
b	0.406	0.508	0.016	0.020	e	2.413	2.667	0.095	0.105
b1	0.356	0.508	0.014	0.020	HE	8.509	9.525	0.335	0.375
b2	1.270	1.778	0.050	0.070	L	3.175	3.683	0.125	0.145
c	0.203	0.356	0.008	0.014	S	0°	15°	0°	15°
c1	0.203	0.279	0.008	0.011					

Notes : 1.Controlling dimension : millimeters.
2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material :
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0.