



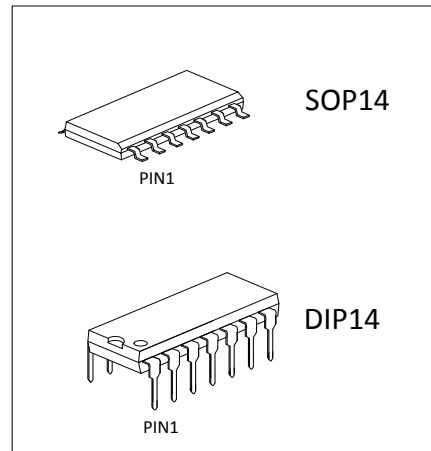
## 概述

LM339N是一块四比较器集成电路，主要应用于消费类和工业类电子产品中，进行电平检波和低电平探测。

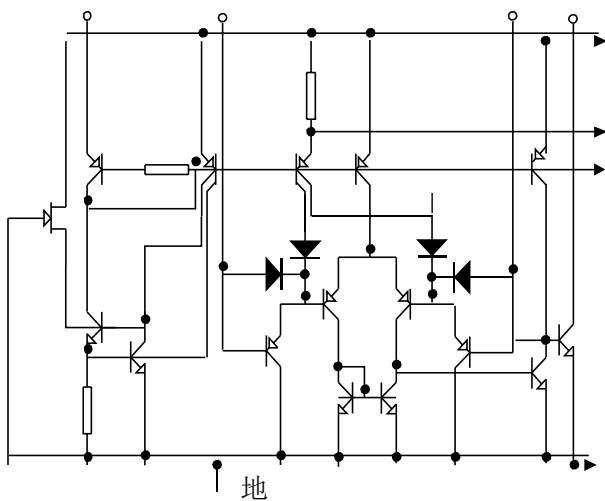
采用 DIP-14、SOP-14 封装形式。

## 主要特点

- ☞ 单电源或双电源工作
- ☞ 输入偏置电流低：25nA（典型）
- ☞ 输入失调电流低：±5.0nA（典型）
- ☞ 输出饱和电压低：130mV
- ☞ 可与 TTL 及 CMOS 兼容

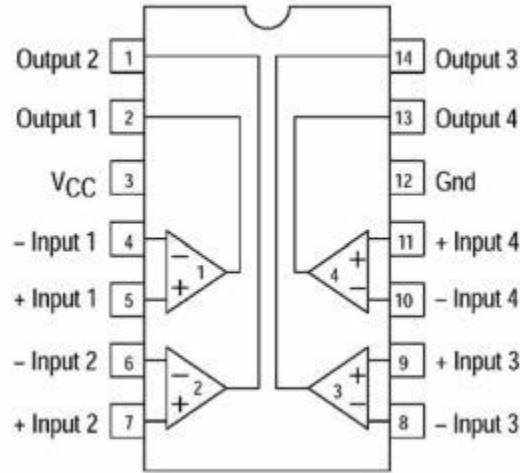


## 内部电路图





### 引脚端功能符号



引出端序号	功 能	符 号	引出端序号	功 能	符 号
1	输出 2	OUT2	8	反相输入 3	IN3 (-)
2	输出 1	OUT1	9	正相输入 3	IN3 (+)
3	电源	Vcc	10	反相输入 4	IN4 (-)
4	反相输入 1	IN1 (-)	11	正相输入 4	IN4 (+)
5	正相输入 1	IN1 (+)	12	地	GND
6	反相输入 2	IN2 (-)	13	输出 4	OUT4
7	正相输入 2	IN2 (+)	14	输出 3	OUT3

### 极限参数 (绝对最大额定值, 若无其它规定, Tamb=25°C)

参 数	符 号	数 值	单 位
电源电压	Vcc	36 或 ±18	V
输入差分电压范围	VIDR	36	V
输入共模电压范围	VICMR	-0.3~Vcc	V
输出电流	ISC	50	mA
功耗 (*)	PD	1.0	W
工作环境温度	Tamb	0~70	°C
贮存温度	Tstg	-65~150	°C

注 (\*): 在 25°C 以上使用时, 每升高 1°C, 功耗减少 8mW。

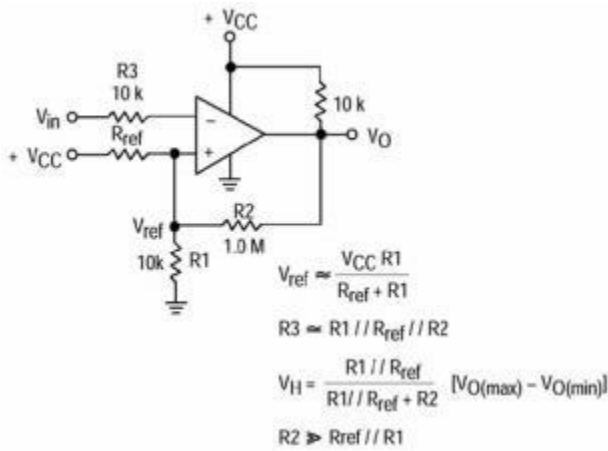


**电特性** (若无其它规定,  $V_{CC}=5V$ ,  $T_{amb}=25^{\circ}C$ )

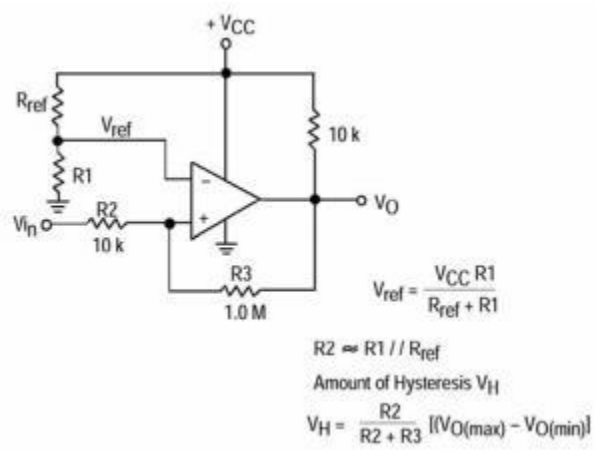
特性	测试条件	符 号	规 范 值			单 位
			最小	典型	最大	
输入失调电压		$V_{IO}$		$\pm 2.0$	$\pm 5.0$	mV
	$0^{\circ}C \leq T_a \leq 70^{\circ}C$				$\pm 9.0$	
输入失调电流		$I_{IO}$		$\pm 5.0$	$\pm 50$	nA
	$0^{\circ}C \leq T_a \leq 70^{\circ}C$				$\pm 150$	
输入偏置电流		$I_{IB}$		25	250	nA
	$0^{\circ}C \leq T_a \leq 70^{\circ}C$				400	
输入共模电压范围		$V_{ICR}$	0		$V_{CC}-1.5$	V
	$0^{\circ}C \leq T_a \leq 70^{\circ}C$		0		$V_{CC}-2.0$	
电源电流	$R_L = \infty$	$I_{CC}$		0.8	2.0	mA
	$R_L = \infty, V_{CC} = 30V$			1.0	2.5	
电压增益	$R_L > 15K, V_{CC} = 15V$	$G_V$	50	200		V/mV
大信号响应时间	$V_{IN} = TTL$ 逻辑摆幅, $V_{REF} = 1.4V$ , $V_{RL} = 5.0V, R_L = 5.1K$	$t_{RES}$		300		ns
响应时间	$V_{RL} = 5.0V, R_L = 5.1K$	$t_{RES}$		1.3		ns
输入差分电压		$V_{ID}$			$V_{CC}$	V
输出陷电流	$V_{IN(-)} > 1.0V, V_{IN(+)} = 0V, V_O < 1.5V$	$I_{SINK}$	6.0	16		mA
输出饱和电压	$V_{IN(-)} > 1.0V, V_{IN(+)} = 0V, I_{SINK} < 4.0mA$	$V_{SAT}$		130	400	mV
	$V_{IN(-)} > 1.0V, V_{IN(+)} = 0V, I_{SINK} < 4.0mA$ $0^{\circ}C \leq T_a \leq 70^{\circ}C$				700	
输出漏电流	$V_{IN(+)} > 1.0V, V_{IN(-)} = 0V, V_O = 5.0V$	$I_{OL}$		0.1		nA
	$V_{IN(+)} > 1.0V, V_{IN(-)} = 0V, V_O = 30V$ $0^{\circ}C \leq T_a \leq 70^{\circ}C$				1000	



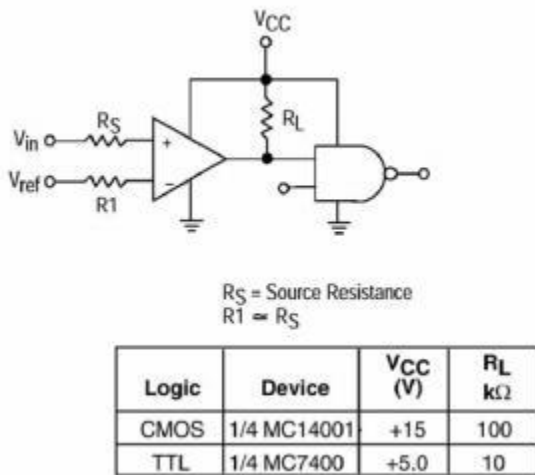
应用图



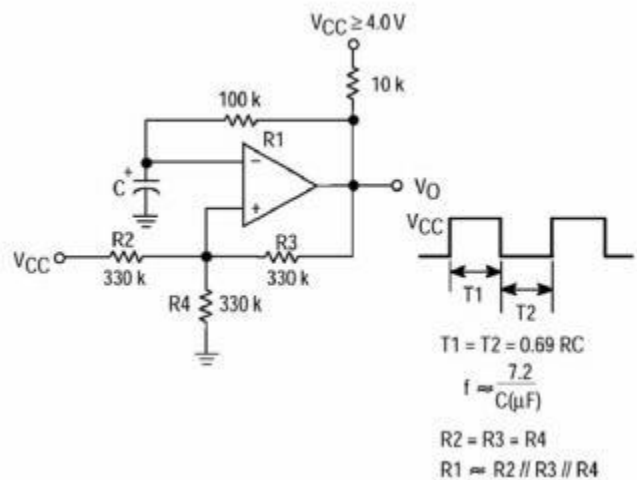
带滞后的反相比较器



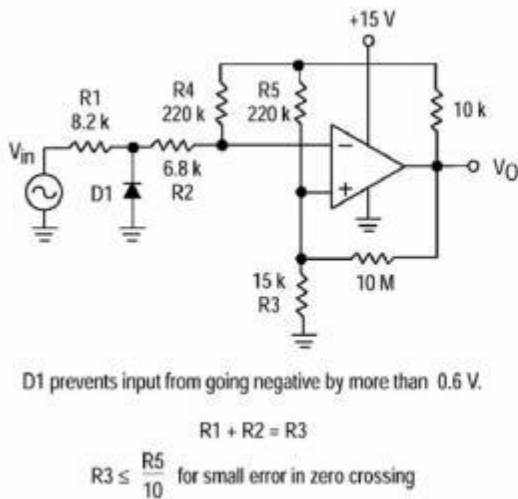
带滞后的正相比较器



逻辑驱动器

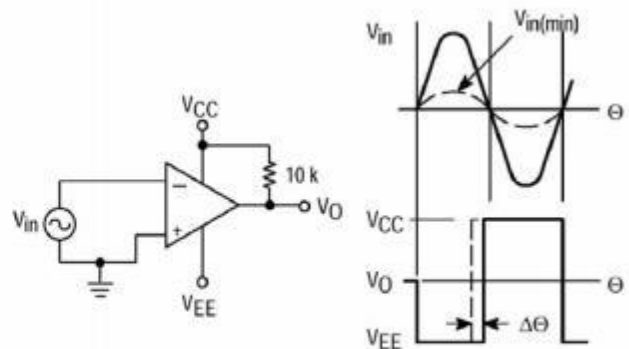


方波振荡器



过零检波器(单电源应用)

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

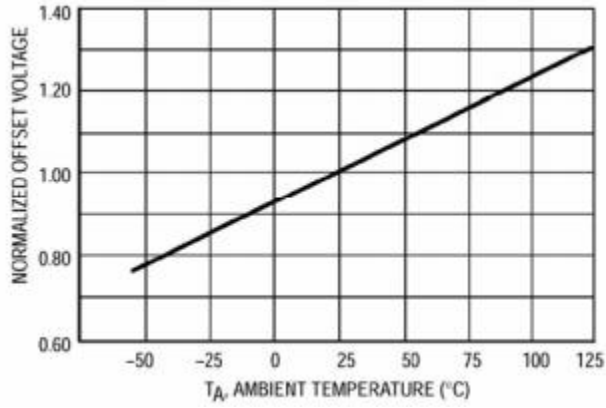


过零检波器(双电源应用)

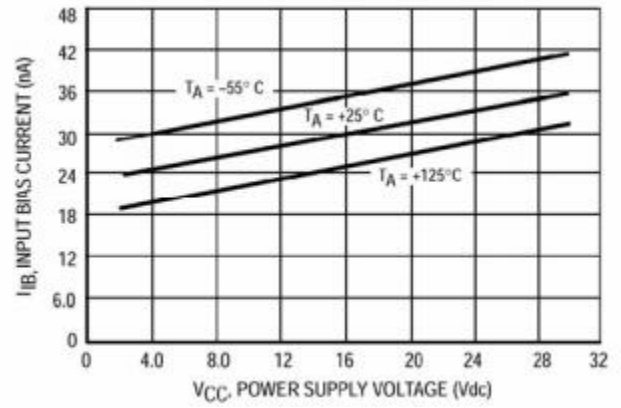


### 特性曲线

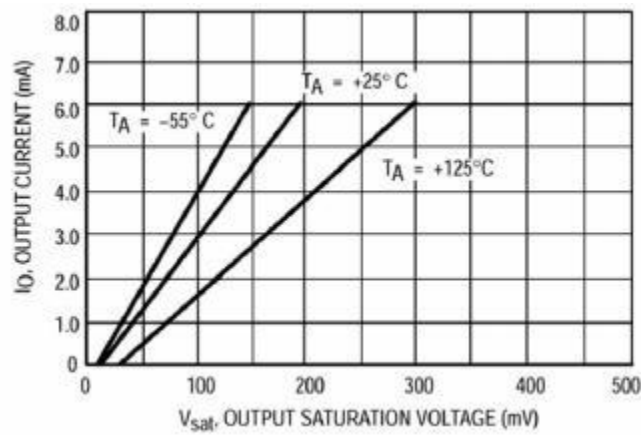
正常输入失调电压



输入偏置电流

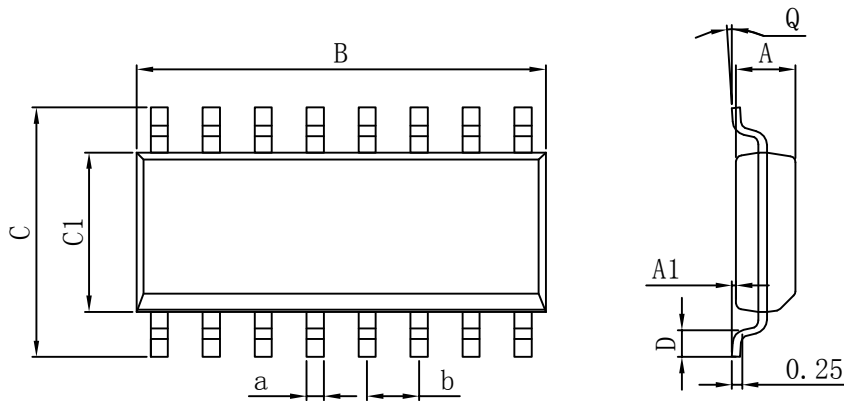


输出陷电流与输出饱和电压



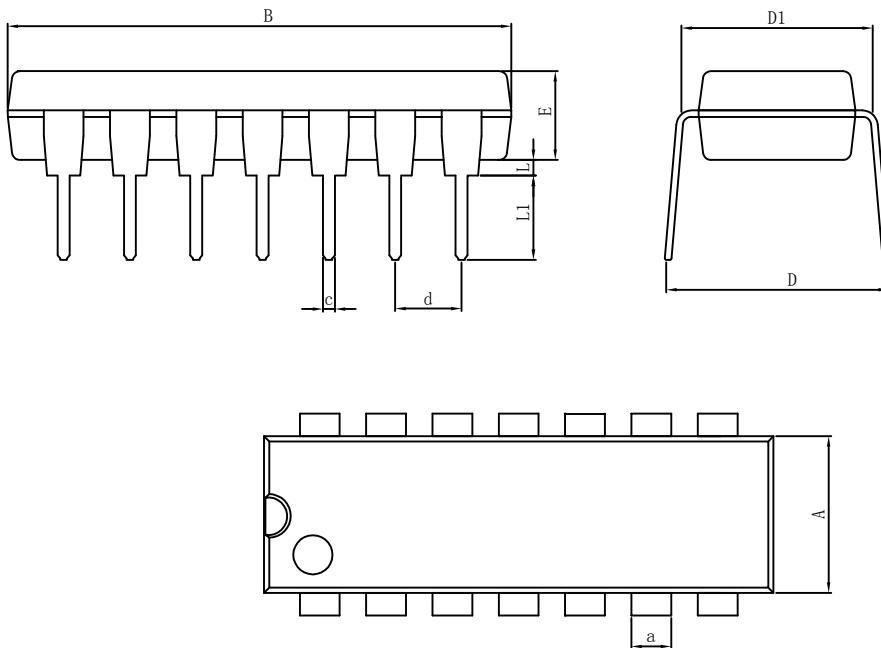


SOP14



UNIT: mm							
DIM.	MIN	TYP	MAX	DIM.	MIN	TYP	MAX
A	4.520	4.570	4.620	a	0.400	0.420	0.440
A1	0.100	-	0.250	b	1.260	1.270	1.280
B	8.500	8.750	9.000	Q	0°	-	8°
C	5.800	6.100	6.250				
C1	3.800	3.900	4.000				
D	0.400	-	0.950				

DIP14



UNIT: mm							
DIM.	MIN	TYP	MAX	DIM.	MIN	TYP	MAX
A	6.100	6.300	6.680	a	1.504	1.524	1.544
B	18.940	19.200	19.560	c	0.437	0.457	0.477
D	8.200	8.700	9.200	d	2.530	2.540	2.550
D1	7.42	7.62	7.82	L	0.500	-	0.800
E	3.100	3.300	3.550	L1	3.000	3.200	3.600



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