



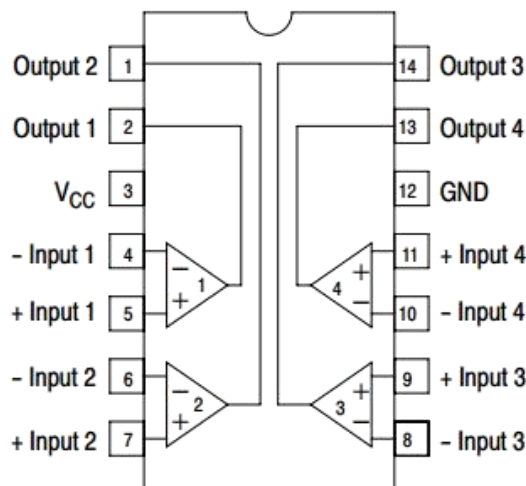
## DESCRIPTION

The LM339 consists of four independent voltage comparators designed specifically to operate from a single power supply over a wide voltage range.

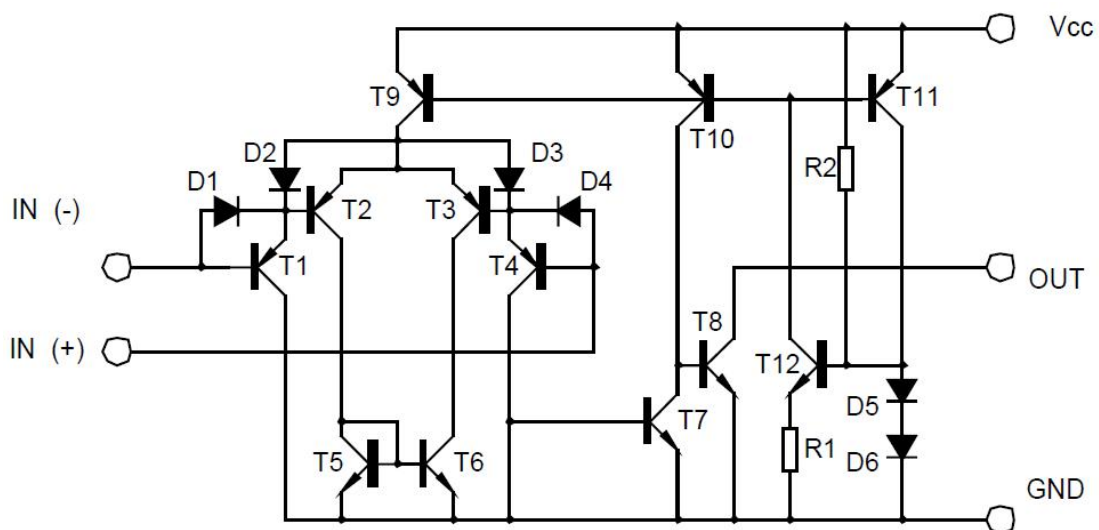
## FEATURES

- Single or dual supply operation
- Wide operating supply range: ( $V_{CC}=3V\sim 30V$  or  $\pm 1.5$  to  $\pm 15V$ )
- Input common-mode voltage includes ground
- Low supply current drain:  $I_{CC}=0.8mA$ (Typical)
- Low input bias current  $I_{bias}=25nA$ (Typical)
- Output compatible with TTL, DTL, and CMOS logic System

## PIN CONFIGURATION



## BLOCK DIAGRAM





## ABSOLUTE MAXIMUM RATINGS(Ta=25°C )

Characteristic	Symbol	Value	Unit
Supply Voltage	VCC	±15 OR +30	V
Differential input voltage	Vi (diff)	30	V
Input Voltage	VI	-0.3~30V	V
Power Dissipation	Pd	570	V
Operating Temperature	Topr	0 to +70	°C
Storage Temperature	Tstg	-65 to 150	°C

## ELECTRICAL CHARACTERISTICS

(Vcc=5.0V, Ta=25°C, All voltage referenced to GND unless otherwise specified)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Input offset voltage	VIO	VCM=0 to VCC-1.5, VO(P)=1.4V, Rs=0		±4.0	±7.0	mV
Input offset current	IIO			±5	±50	nA
Input Bias current	Ib			65	250	nA
Input Common-mode voltage range	VI(R)		0		VCC-1.5	V
Differential Input Voltage	VI(diff)				30	V
Supply Current	ICC	RL=∞		0.6	1.0	mA
		RL=∞, VCC=30V		0.8	2.5	mA
Large signal Voltage Gain	GV	VCC=15V, RL > 15KΩ	50	200		V/mV
Large signal response time	tres	Vi=TTL logic wing Vref=1.4V, VRL=5V, RL=5.1kΩ		350		ns
Response time	tres	VRL=5V, RL=5.1KΩ		1400		ns
Output sink current	Isink	Vi(-) > 1V, Vi(+)=0V, Vo(P) < 1.5V	6	18		mA
Output saturation voltage	Vsat	Vi(-) > 1V, Vi(+)=0V, Isink=4mA	160	400		mV
Output leakage current	Ileakage	VI(+)=1V, VI(-)=0, VO(P)=5V	0.1			nA



## TYPICAL CHARACTERISTICS PERFORMANCE

Fig.1 supply current

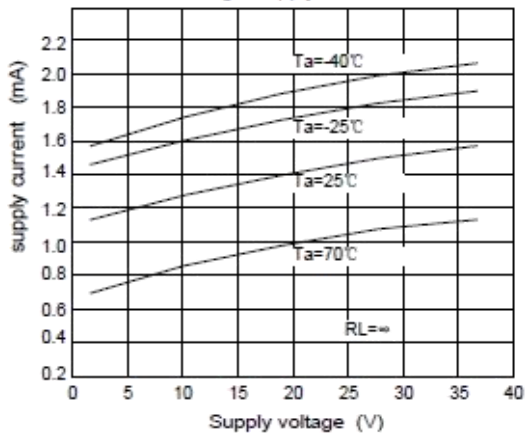


Fig.2 Input current

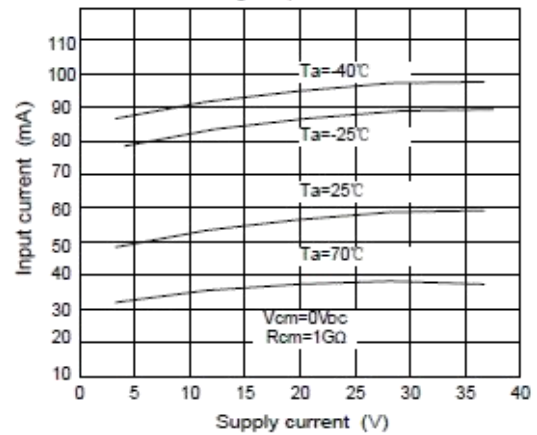


Fig.3 Output saturation voltage

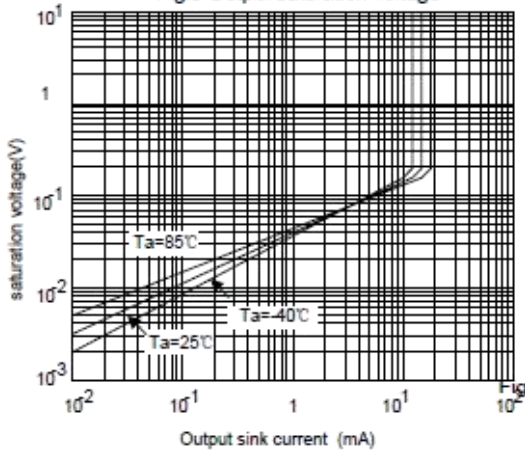


Fig.4 Reponse time for various input overdrive negative transition

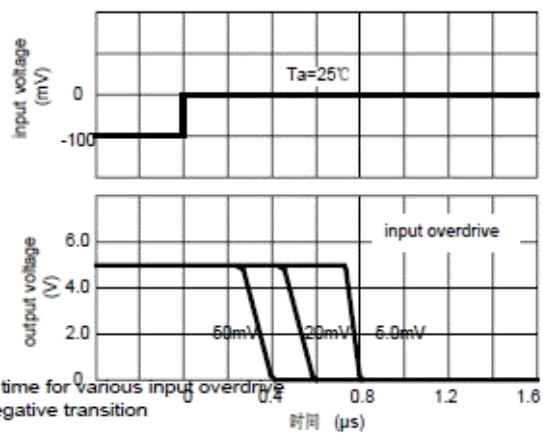


Fig.4 Reponse time for various input overdrive positive transition

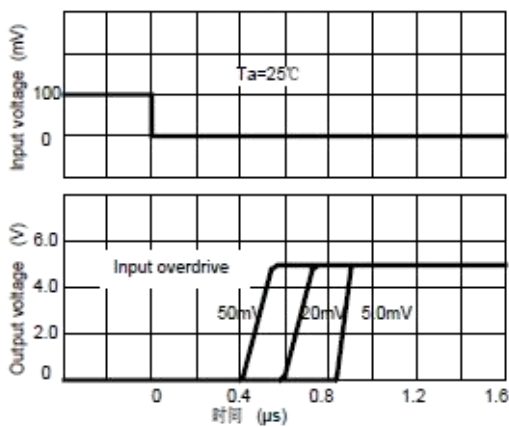




Fig.7

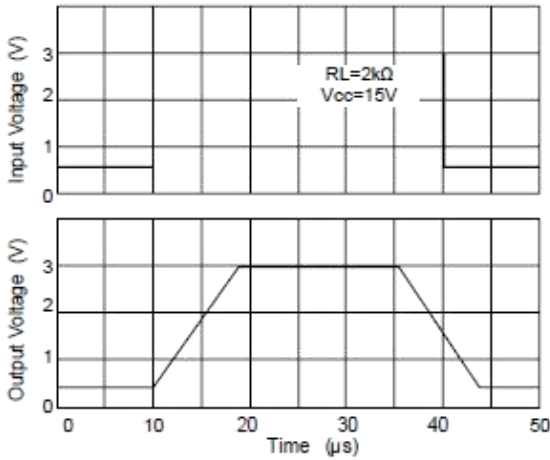


Fig.8 voltage Follower pulse response (small signal)

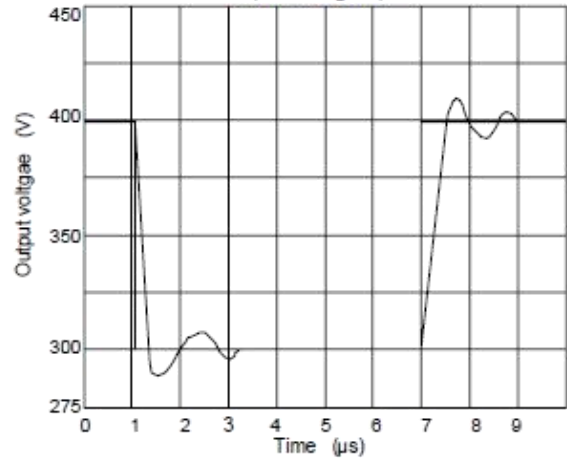


Fig.9 Large signal Frequency Response

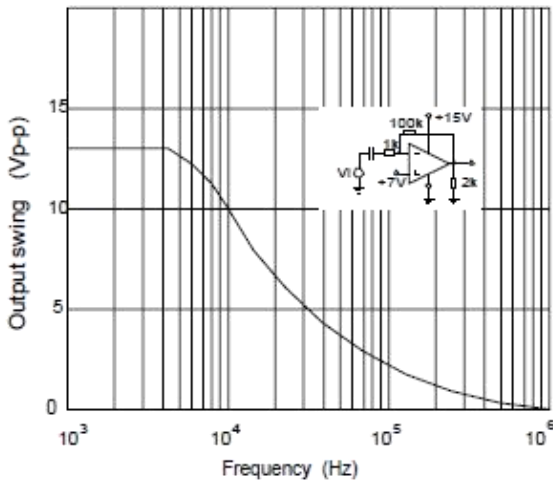


Fig.10 Output Characteristics current sourcing

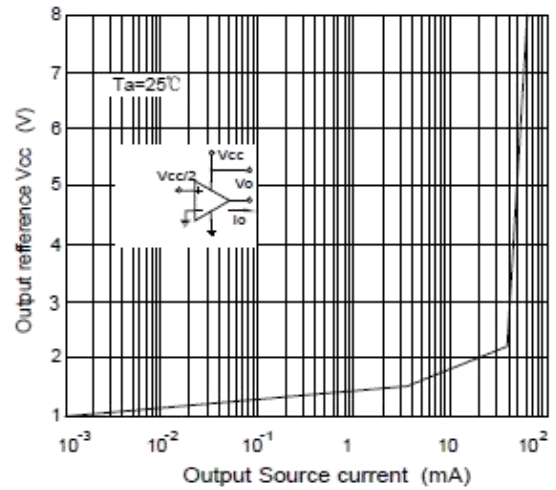


Fig.11 Output Characteristics Current sinking

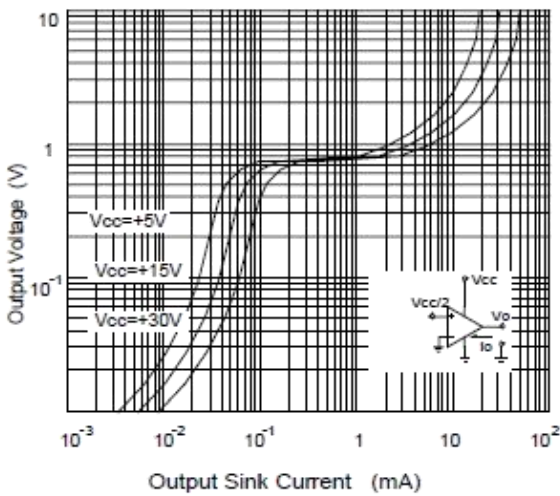
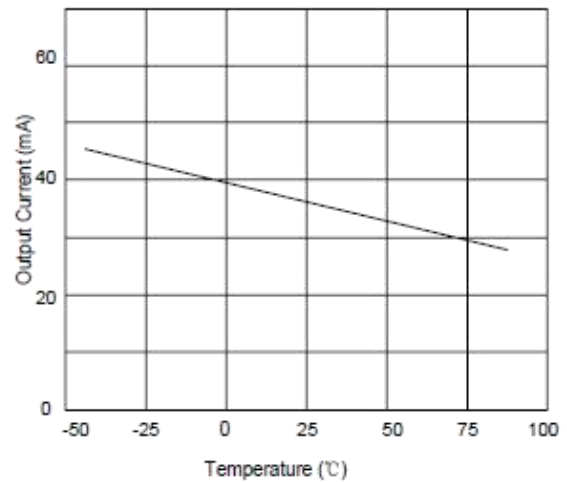


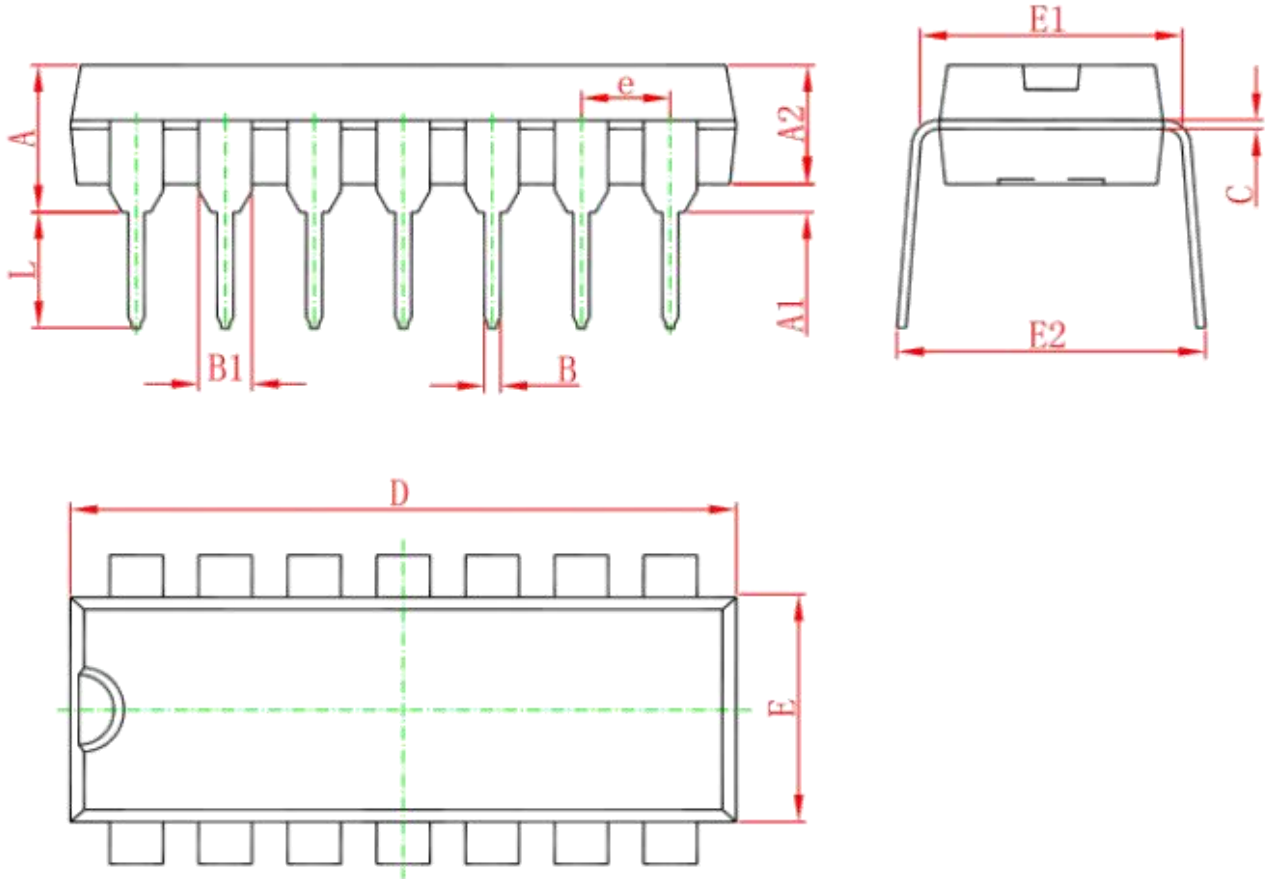
Fig.12 Current Limiting





## OUTLINE DIMENSIONS

### DIP-14

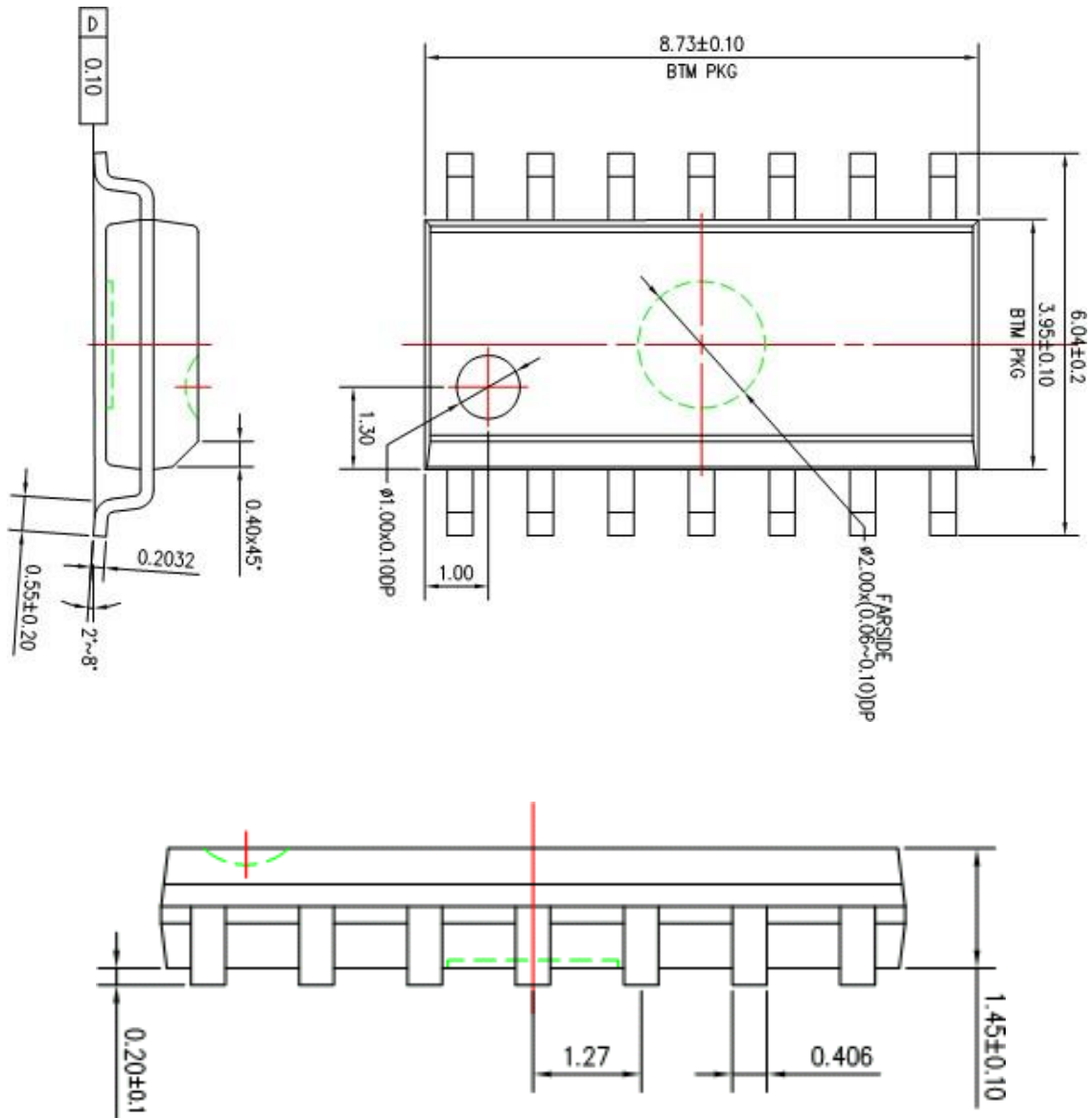


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.710	4.310	0.146	0.170
A1	0.510		0.020	
A2	3.200	3.600	0.126	0.142
B	0.380	0.570	0.015	0.022
B1	1.524 (BSC)		0.060 (BSC)	
C	0.204	0.360	0.008	0.014
D	18.800	19.200	0.740	0.756
E	6.200	6.600	0.244	0.260
E1	7.320	7.920	0.288	0.312
e	2.540 (BSC)		0.100 (BSC)	
L	3.000	3.600	0.118	0.142
E2	8.400	9.000	0.331	0.354



## OUTLINE DIMENSIONS

### SOP-14





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