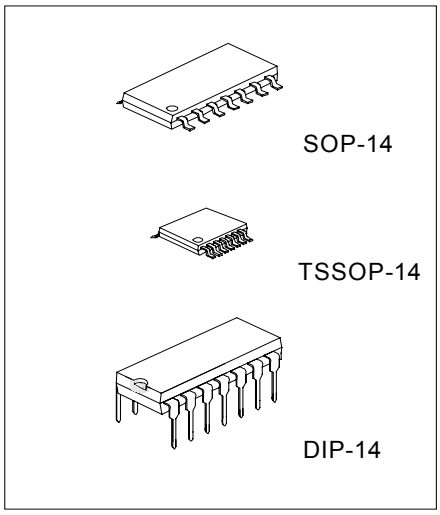
QUAD DIFFERENTIAL COMPARATOR



*Pb-free plating product number: LM339L

■ DESCRIPTION

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

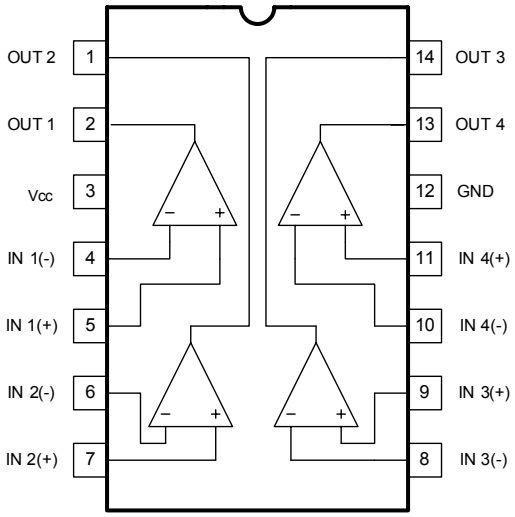
■ FEATURES

*Signal or dual supply operation.
*Wide operating supply range (Vcc=2V~36V).
*Input common-mode voltage includes ground.
*Low supply current drain I_F=0.8mA (Typical).
*Open collector outputs for wired and connection.
*Low input bias current I_{BIAS}=25nA (Typical).
*Low output saturation voltage.
*Output compatible with TTL, DTL, and CMOS logic system.

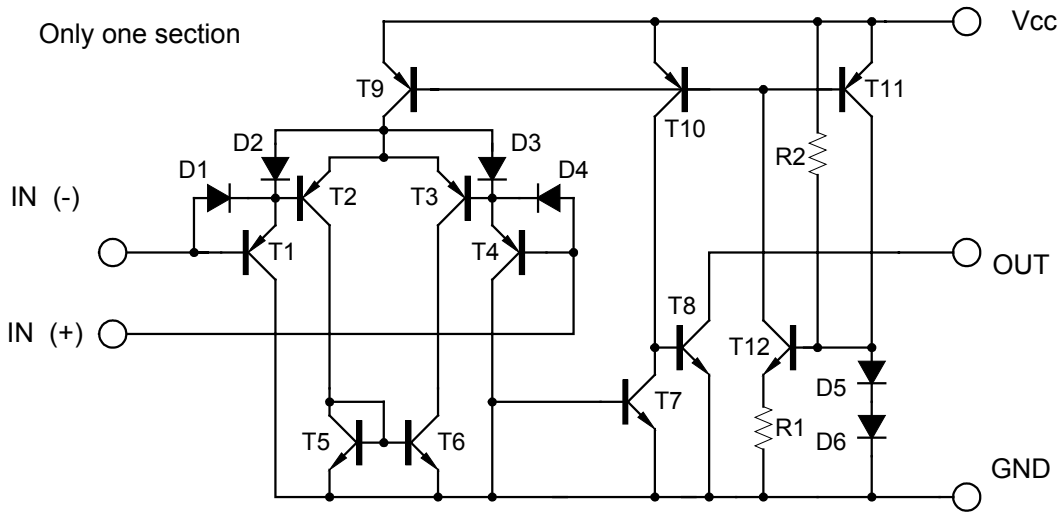
■ ORDERING INFORMATION

Order Number		Package	Packing
Normal	Lead free		
LM339–S14-R	LM339L –S14-R	SOP-14	Tape & Reel
LM339–S14-T	LM339L –S14-T	SOP-14	Tube
LM339–P14-R	LM339L –P14-R	TSSOP-14	Tape & Reel
LM339–P14-T	LM339L –P14-T	TSSOP-14	Tube
LM339–D14-T	LM339L –D14-T	DIP-14	Tube

■ PIN CONFIGURATION



■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	Vcc	+- 18 or 36	V
Differential input Voltage	$V_{I(DIFF)}$	36	V
Input Voltage	V_{IN}	-0.3~36	V
Power Dissipation	P_D	570	mW
Junction Temperature	T_J	125	°C
Operating Temperature	T_{OPR}	0 ~ +70	°C
Storage Temperature	T_{STG}	-40 ~ 150	°C

Note 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. The device is guaranteed to meet performance specification within 0℃ ~ 70℃ operating temperature range and assured by design from –20℃ ~ +85℃.

■ ELECTRICAL CHARACTERISTICS

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP.	MAX	UNIT
Input Offset Voltage	$V_{I(OFF)}$	V_{CM}=0 ~ Vcc-1.5 V_{OUT}(p)=1.4V, Rs=0		+-1.5	+-5.0	mV
Input Offset Current	$I_{I(OFF)}$			+-2.3	+-50	nA
Input Bias Current	I_{BIAS}			57	250	nA
Input Common-Mode Voltage Range	$V_{IN(R)}$		0		Vcc-1.5	V
Supply Current	Icc	R_L=∞		1.1	2.0	mA
Large Signal Voltage Gain	G_V	Vcc=15V, R_L>15kΩ	50	200		V/mV
Large Signal Response Time	tres	V_{IN}=TTL logic wing V_{REF}=1.4V, V_{RL}=5V, R_L=5.1kΩ		350		ns
Response Time	tres	V_{RL}=5V, R_L=5.1kΩ		1400		ns
Output Sink Current	I_{SINK}	V_{IN} (-)>1V, V_{IN} (+)=0V, V_{OUT}(p)<1.5V	6	18		mA
Output Saturation Voltage	V_{SAT}	V_{IN} (-)>1V, V_{IN} (+)=0V, I_{SINK}=4mA		140	400	mV
Output Leakage Current	I_{LEAK}	V_{IN} (+)=1V,V_{IN} (-)=0 V_{OUT}(p)= 5V V_{OUT} (p)=30V		0.1	 1.0	 nA μA
Differential Input Voltage	$V_{IN(DIFF)}$				36	V

■ TYPICAL CHARACTERISTICS

Fig.1 Supply Current

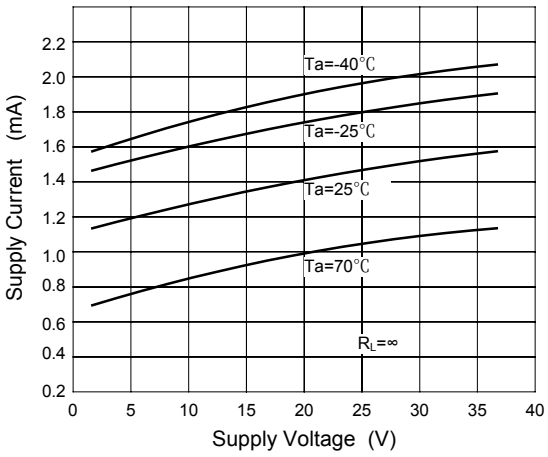


Fig.2 Input Current

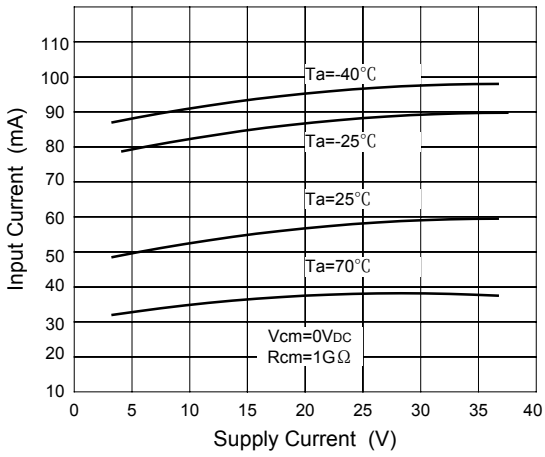


Fig.3 Output Saturation Voltage

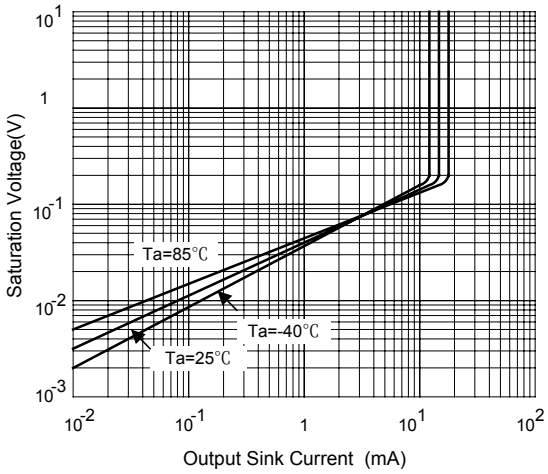


Fig.4 Reponse Time For Various Input Overdrive Negative Transition

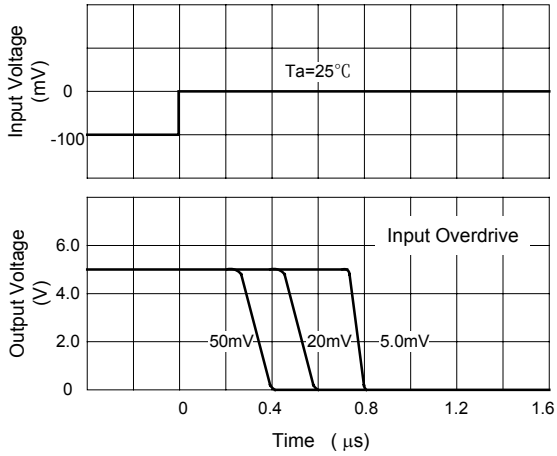
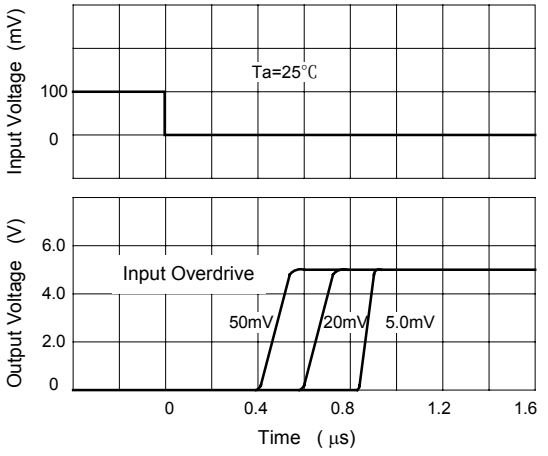


Fig.5 Reponse Time For Various Input Overdrive Positive Transition



■ TYPICAL CHARACTERISTICS(cont.)

Fig.6

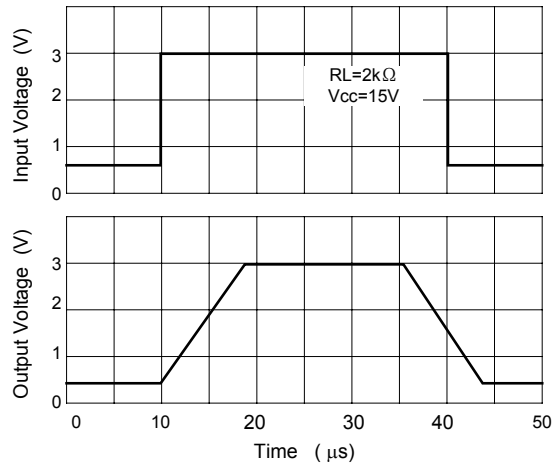


Fig.7 Voltage Follower Pulse Response (Small Signal)

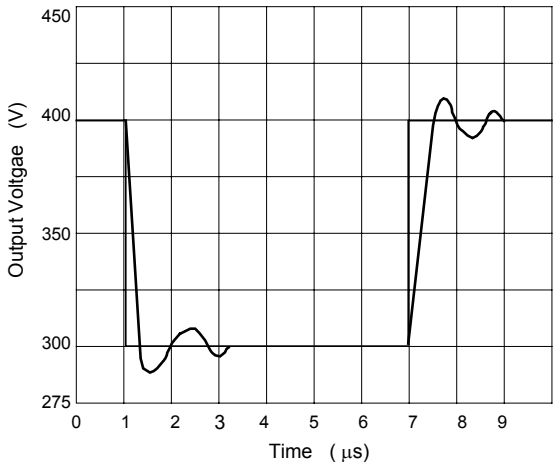


Fig.8 Large Signal Frequency Response

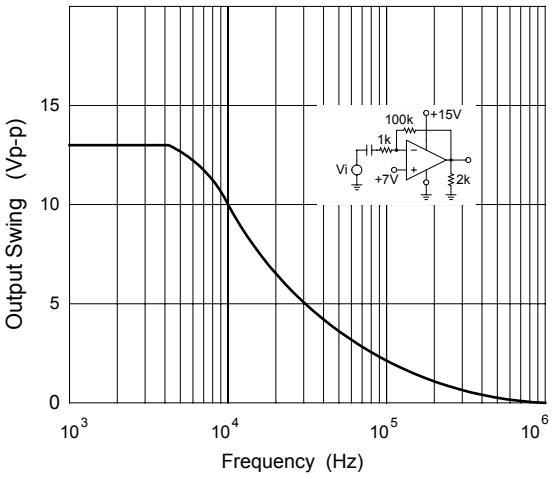


Fig.9 Output Characteristics Current Sourcing

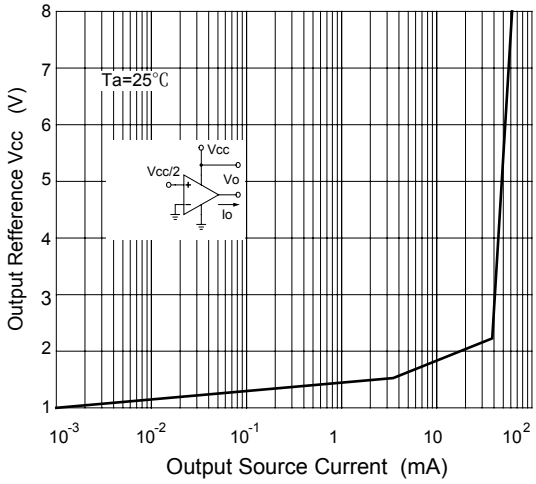


Fig.10 Output Characteristics Current Sinking

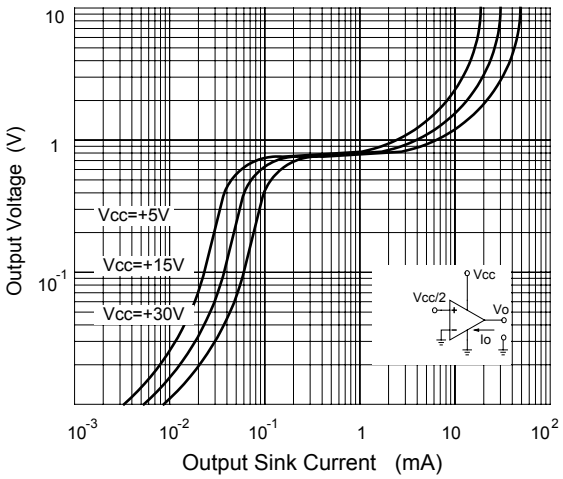


Fig.11 Current Limiting