



LM339

LINEAR INTEGRATED CIRCUIT

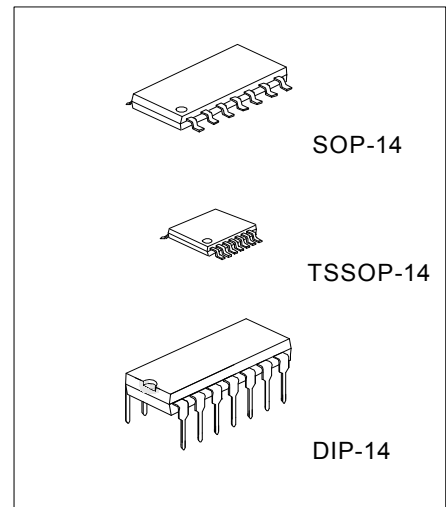
QUAD DIFFERENTIAL COMPARATOR

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 ($V_{CC}=2V\sim 36V$).
- *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.



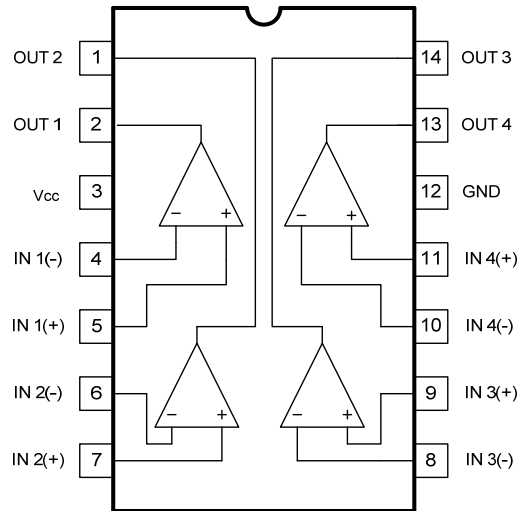
Lead-free: LM339L
 Halogen-free: LM339G

ORDERING INFORMATION

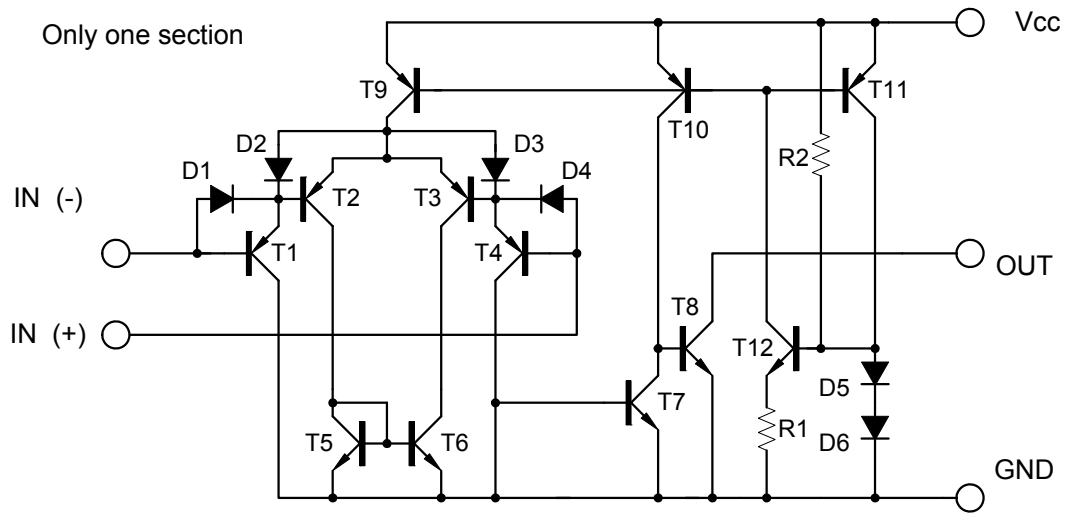
Ordering Number			Package	Packing
Normal	Lead Free Plating	Halogen-Free		
LM339-S14-R	LM339L-S14-R	LM339G-S14-R	SOP-14	Tape Reel
LM339-P14-R	LM339L-P14-R	LM339G-P14-R	TSSOP-14	Tape Reel
LM339-D14-T	LM339L-D14-T	LM339G-D14-T	DIP-14	Tube

<p>LM339L-S14-R</p> <p>(1)Packing Type (2)Package Type (3)Lead Plating</p>	<p>(1) R: Tape Reel, T: Tube (2) S14: SOP-14, P14: TSSOP-14, D14: DIP-14 (3) G: Halogen Free, L: Lead Free Plating, Blank: Pb/Sn</p>
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■ PIN CONFIGURATION



■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V _{CC}	+ - 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}	-20 ~ +85	°C
Storage Temperature	T _{STG}	-40 ~ 150	°C

Note: 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.

■ ELECTRICAL CHARACTERISTICS

(V_{CC}=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 ~ V _{CC} -1.5 V _{OUT(p)} =1.4V, R _S =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		V _{CC} -1.5	V
Supply Current	I _{CC}	R _L =∞		1.1	2.0	mA
Large Signal Voltage Gain	G _V	V _{CC} =15V, R _L >15kΩ	50	200		V/mV
Large Signal Response Time	t _{res}	V _{IN} =TTL logic wing V _{REF} =1.4V, V _{RL} =5V, R _L =5.1kΩ		350		ns
Response Time	t _{res}	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

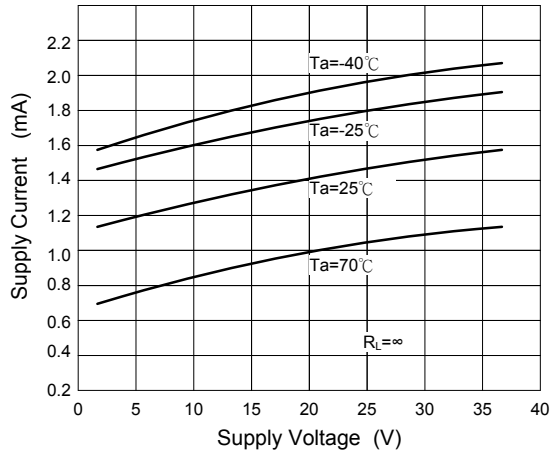


Fig.2 Input Current

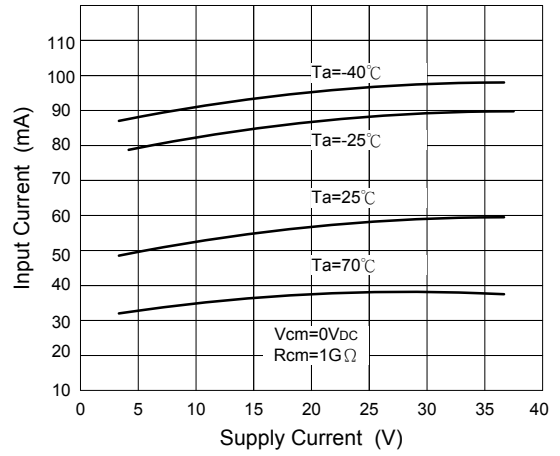


Fig.3 Output Saturation Voltage

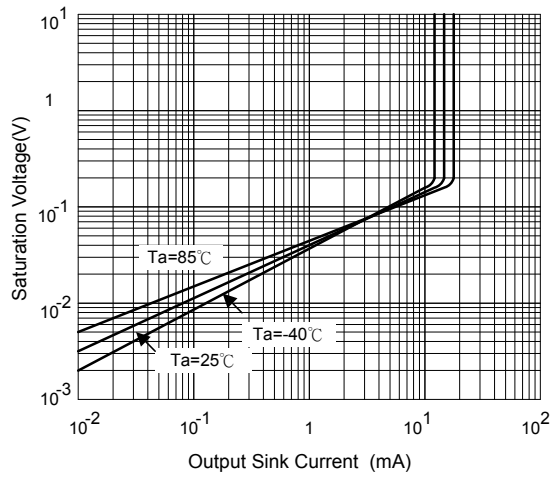


Fig.4 Reponse Time For Various Input Overdrive Negative Transition

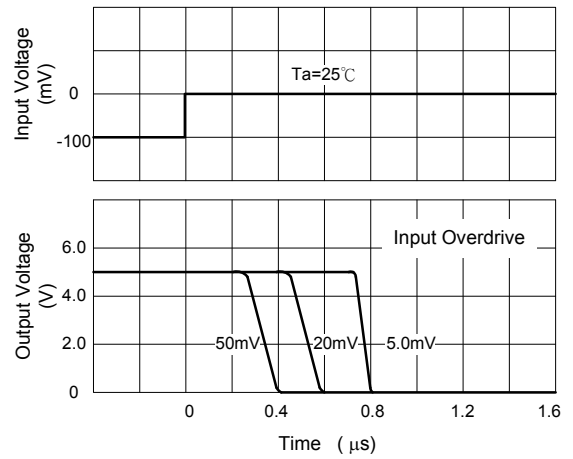
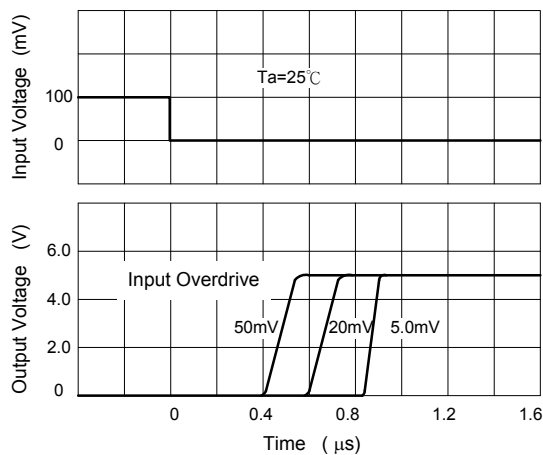


Fig.5 Reponse Time For Various Input Overdrive Positive Transition



■ TYPICAL CHARACTERISTICS(cont.)

Fig.6

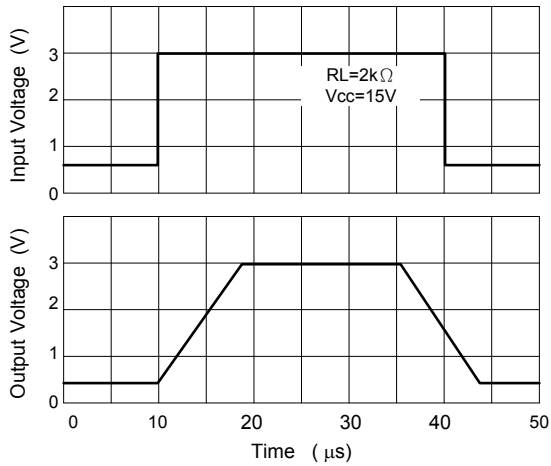


Fig.7 Voltage Follower Pulse Response (Small Signal)

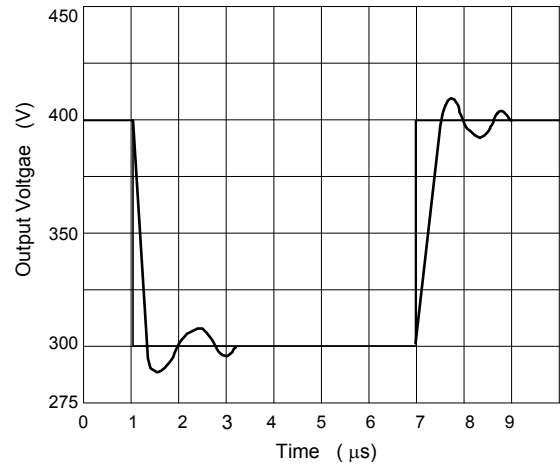


Fig.8 Large Signal Frequency Response

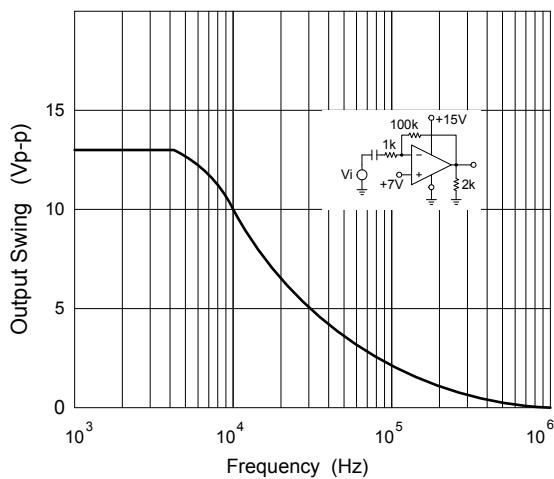


Fig.9 Output Characteristics Current Sourcing

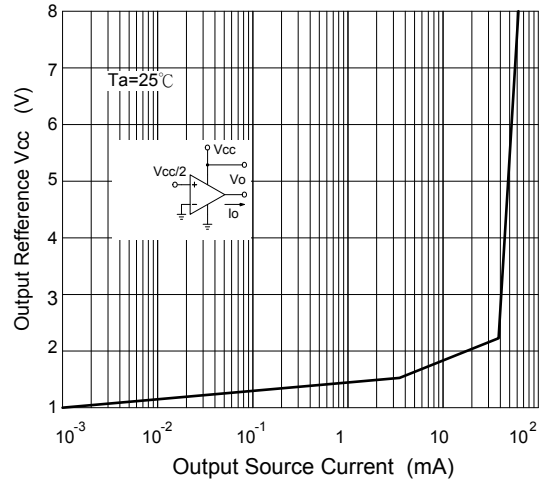


Fig.10 Output Characteristics Current Sinking

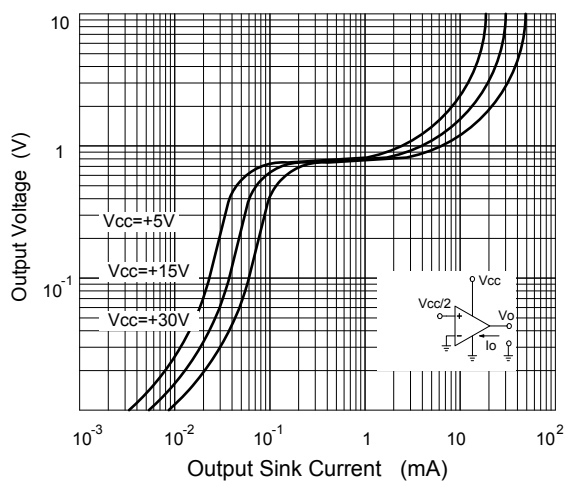
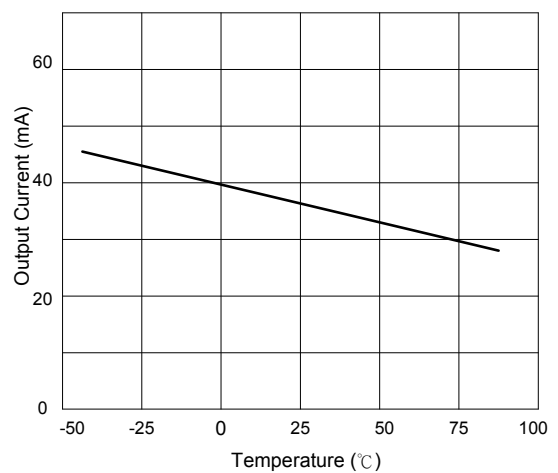


Fig.11 Current Limiting



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