



LM339

LINEAR INTEGRATED CIRCUIT

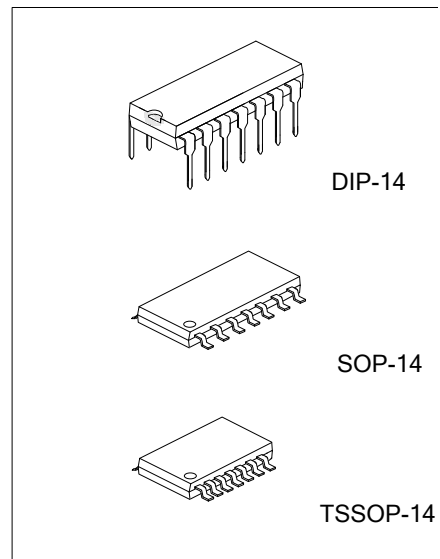
QUAD DIFFERENTIAL COMPARATOR

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.



ORDERING INFORMATION

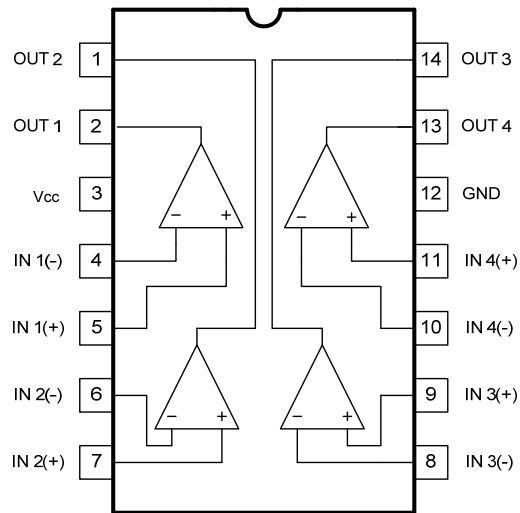
Ordering Number		Package	Packing
Lead Free	Halogen-Free		
LM339L-D14-T	LM339G-D14-T	DIP-14	Tube
-	LM339G-S14-R	SOP-14	Tape Reel
-	LM339G-P14-R	TSSOP-14	Tape Reel

<p>LM339L-D14-T</p> <p>(1)Packing Type (2)Package Type (3)Green Package</p>	<p>(1) T: Tube, R: Tape Reel (2) DIP: DIP-14, S14: SOP-14, P14: TSSOP-14 (3) L: Lead Free, G: Halogen Free and Lead Free</p>
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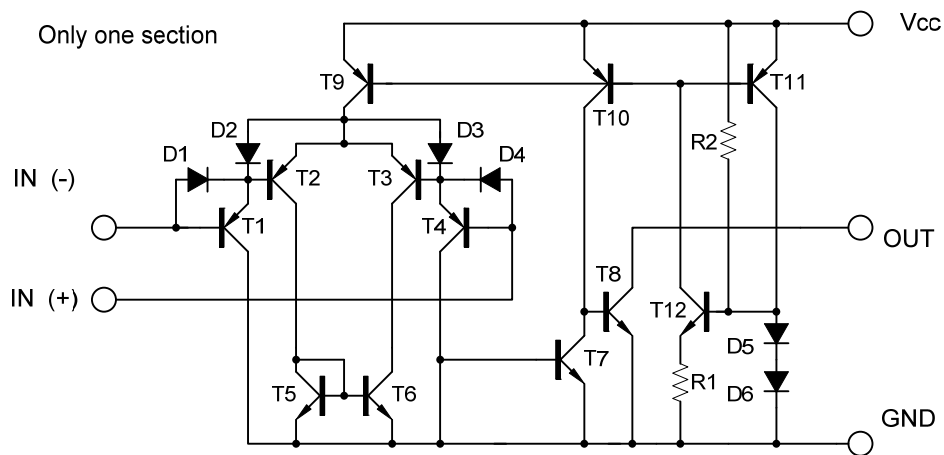
MARKING

DIP-14	SOP-14 / TSSOP-14
<p>14 13 12 11 10 9 8 UTC □□□□ LM339 □□ □□ 1 2 3 4 5 6 7</p> <p>→ Date Code → L: Lead Free → G: Halogen Free → Lot Code</p>	<p>14 13 12 11 10 9 8 UTC □□□□ LM339G □□ 1 2 3 4 5 6 7</p> <p>→ Date Code → Lot Code</p>

■ PIN CONFIGURATION



■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified)

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	DIP-14	P _D	760	mW
	SOP-14		560	mW
	TSSOP-14		440	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, T_A=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	±3.0	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(-)} =0V		0.1		nA
			V _{OUT(P)} =5V V _{OUT(P)} =30V			1.0
Differential Input Voltage	V _{IN(DIFF)}				36	V

TYPICAL CHARACTERISTICS

Fig.1 Supply Current

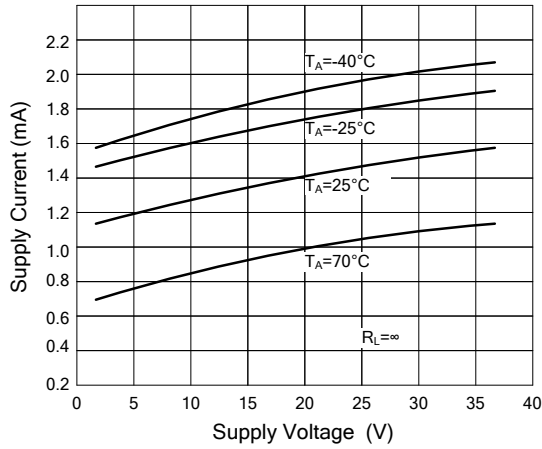


Fig.2 Input Current

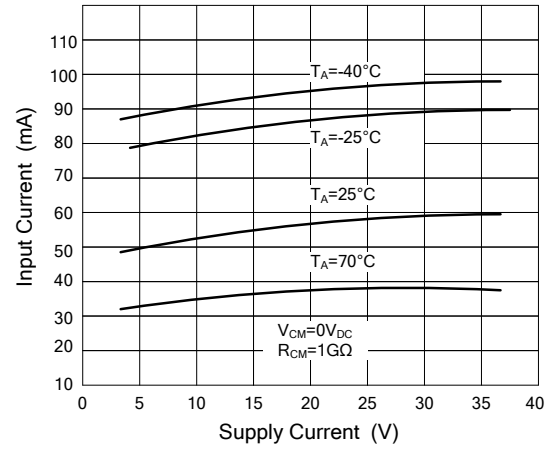


Fig.3 Output Saturation Voltage

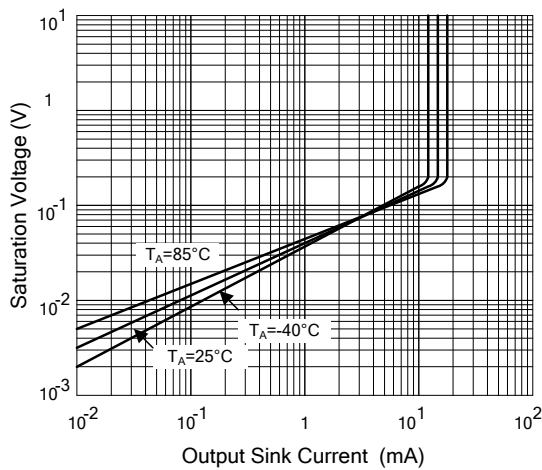


Fig.4 Reponse Time For Various Input Overdrive Negative Transition

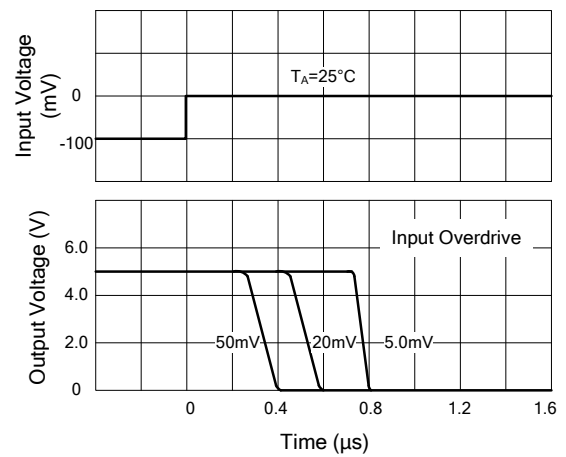
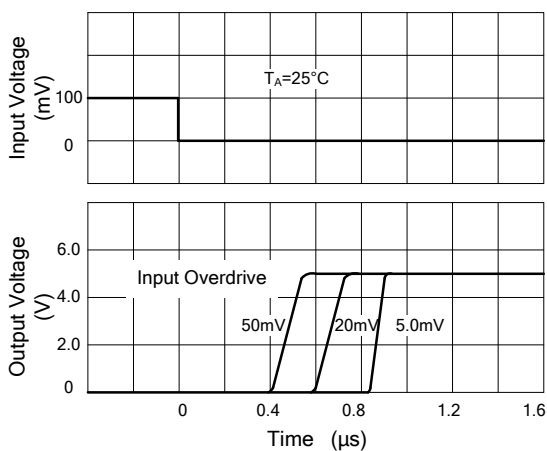


Fig.5 Reponse Time For Various Input Overdrive Positive Transition



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