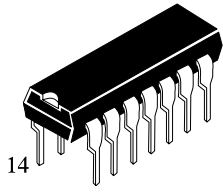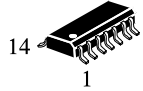# Quad Single Supply Comparator

 The LM2901 consists of four independent precision voltage comparators with an offset voltage specification as low as 2.0 mV max for four comparators which were designed specifically to operate from a single power supply over a wide range of voltages.

Application areas include limit comparators, simple analog to digital converters; pulse, squarewave and time delay generators; wide range VCO; MOS clock timers; multivibrators and high voltage digital logic gates.

* Single or Split Supply Operation
* Low Input Bias Current
* Low Input Offset Current
* Input Common Mode Voltage Range to Gnd
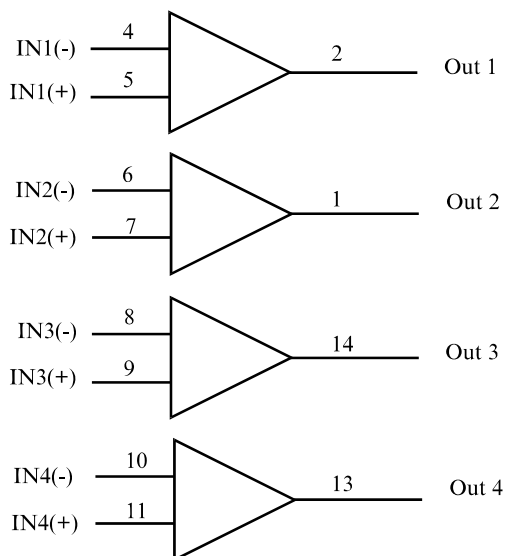* Low Output Saturation Voltage
* TTL and CMOS Compatible
*

N SUFFIX
PLASTIC

14
1

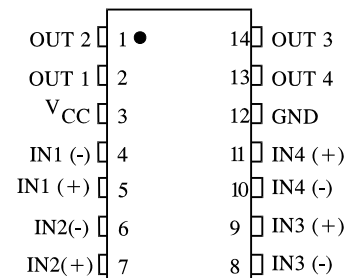D SUFFIX
SOIC

14
1

ORDERING INFORMATION
LM2901N Plastic
LM2901D SOIC
T_A = 0° to 70° C for all packages.

LOGIC DIAGRAM

IN1(-) 4
IN1(+) 5
2 → Out 1

IN2(-) 6
IN2(+) 7
1 → Out 2

IN3(-) 8
IN3(+) 9
14 → Out 3

IN4(-) 10
IN4(+) 11
13 → Out 4

PIN 3 = V_{CC}
PIN 12 = GND

OUT 2	1●	14	OUT 3
OUT 1	2	13	OUT 4
V_{CC}	3	12	GND
IN1 (-)	4	11	IN4 (+)
IN1 (+)	5	10	IN4 (-)
IN2(-)	6	9	IN3 (+)
IN2(+)	7	8	IN3 (-)

PIN ASSIGNMENT

MAXIMUM RATINGS[*]

Symbol	Parameter	Value	Unit
V_{CC}	Power Supply Voltages		
	Single Supply	36	V
	Split Supplies	±18	
V_{IDR}	Input Differential Voltage Range	36	V
V_{ICR}	Input Common Mode Voltage Range (1)	-0.3 to V_{CC}	V

I_{SC}	Output Short Circuit to Ground	Continuous	
I_{IN}	Input Current, per pin (2)	50	mA
T_J	Junction Temperature Plastic Packages	 150	 °C
Tstg	Storage Temperature	-65 to +150	°C
T_L	Lead Temperature, 1mm from Case for 10 Seconds	260	°C
P_D	Power Dissipation @T_A=25°C Plastic Package Derate above 25°C	 1.0 8.0	 W mW/°C

*Maximum Ratings are those values beyond which damage to the device may occur.
Functional operation should be restricted to the Recommended Operating Conditions.
Notes:
1. Split Power Supplies.
2. V_{IN}<-0.3V. This input current will only exist when voltage at any of the input leads is driven negative.

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit
V_{CC}	DC Supply Voltage	±2.5 or 5.0	±15 or 30	V
T_A	Operating Temperature, All Package Types	0	+70	°C

This device contains protection circuitry to guard against damage due to high static voltages or electric fields. However, precautions must be taken to avoid applications of any voltage higher than maximum rated voltages to this high-impedance circuit. For proper operation, V_{IN} and V_{OUT} should be constrained to the range GND≤(V_{IN} or V_{OUT})≤V_{CC}.

Unused inputs must always be tied to an appropriate logic voltage level (e.g., either GND or V_{CC}). Unused outputs must be left open.
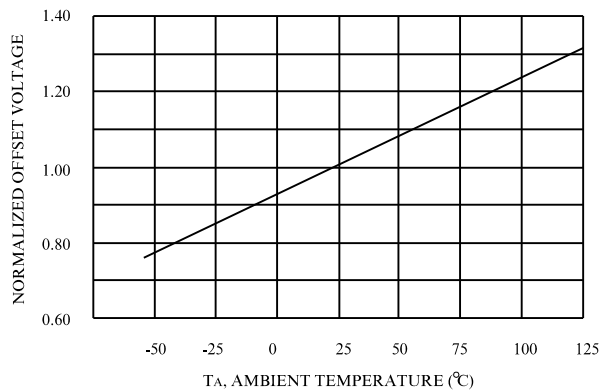
DC ELECTRICAL CHARACTERISTICS(T_A=0 to +70°C)

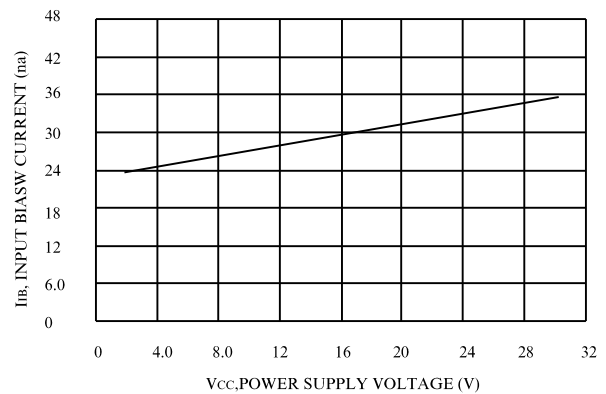| Symbol	Parameter	Test Conditions	Guaranteed Limit			Unit
			Min	Typ	Max	
V_{IO}	Input Offset Voltage	V_0=1.4V V_{CC}=5.0-30V;R_S≤100Ω V_{ICR}=0V - (V_{CC}-1.5)V	-		9.0	mV
I_{IB}	Input Bias Current	V_0=1.4V V_{CC}=5.0-30V V_{ICR}=0V - (V_{CC}-1.5)V	-		400	nA
I_{IO}	Input Offset Current	V_0=1.4V V_{CC}=5.0-30V V_{ICR}=0V - (V_{CC}-1.5)V	-		±150	nA
V_{ICR}	Input Common Mode Voltage Range	V_{CC}=5.0-30V	0		V_{CC}-2.0V	V
I_{CC}	Supply Current	R_L=∞,V_{CC}=5.0	-		2.0*	mA
		R_L=∞,V_{CC}=30V	-		2.5*	
A_{VOL}	Voltage Gain	V_{CC}=15V, R_L=15KΩ	-	200*	-	V/mV
t_1	Large Signal Response Time	V_{IN}=TTL Logic Swing, V_{ref}=1.4V, V_{CC}=5.0V, R_L=5.1KΩ, V_{RL}=5.0V	-	300*	-	ns
t_2	Response Time	V_{CC}=5.0V, R_L=5.1KΩ, V_{RL}=5.0V	-	1.3*	-	μs
I_{sink}	Output Sink Current	V_I(-)=1.0V, V_I(+)=0V, V_0≤1.5V, V_{CC}=5.0V	6.0*	-	-	mA
V_{sat}	Saturation Voltage	V_I(-)=1.0V, V_I(+)=0V, I_{sink}≤4.0mA, V_{CC}=5.0V	-	-	700	mV
I_{OL}	Output Leakage Current	V_I(+)=1.0V, V_I(-)=0V, V_0=5.0V V_0=30V		0.1*	 1000	nA
V_{IDR}	Differential Input Voltage Range	All V_{IN}≥GND or V-Supply (if used)			V_{CC}*	V

*=@25°C

TYPICAL PERFORMANCE CHARACTERISTICS
(V_{CC}=1.5V, T_A=+25°C, (each comporator))

Figure 1. Normalized Input Offset Voltage

X-axis: T_A, AMBIENT TEMPERATURE (°C)
Y-axis: NORMALIZED OFFSET VOLTAGE

Figure 2. Input Bias Current

X-axis: V_{CC}, POWER SUPPLY VOLTAGE (V)
Y-axis: I_{IB}, INPUT BIASW CURRENT (na)
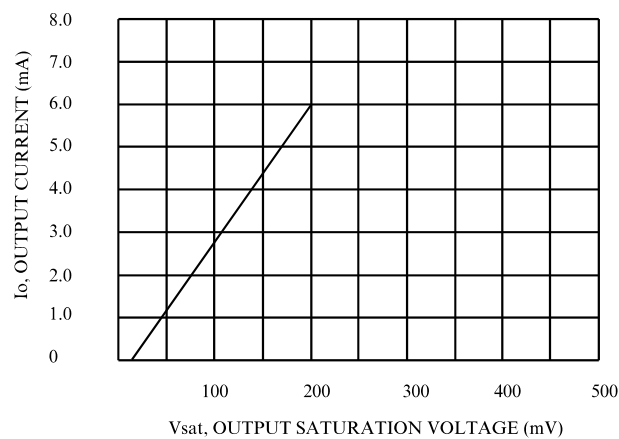
Figure 3. Output Sink Current versus Output Saturation Voltage

X-axis: V_{sat}, OUTPUT SATURATION VOLTAGE (mV)
Y-axis: I_O, OUTPUT CURRENT (mA)

Important statement:

Huaguan Semiconductor Co,Ltd. reserves the right to change the products and services provided without notice. Customers should obtain the latest relevant information before ordering, and verify the timeliness and accuracy of this information.

Customers are responsible for complying with safety standards and taking safety measures when using our products for system design and machine manufacturing to avoid potential risks that may result in personal injury or property damage.

Our products are not licensed for applications in life support, military, aerospace, etc., so we do not bear the consequences of the application of these products in these fields.

Our documentation is only permitted to be copied without any tampering with the content, so we do not accept any responsibility or liability for the altered documents.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Analog Comparators *category:*

Click to view products by HGSEMI *manufacturer:*

Other Similar products are found below :

633740E ADCMP396ARZ-RL7 NCV2200SN2T1G NCV2200SQ2T2G SC339DR2G LM2901SNG LM339SNG AP393AM8G-13 418524AB TS393CD C3 LM393SNG 55122 5962-8757203IA MAX971ESA+T MAX961ESAT MAX944ESD+T MAX931ESAT MAX984CPE MAX9062EBSTG45 MAX9041AEUTT MAX9022ASAT RT2902YDT M38510/11201B2A NTE911 5962-8751601DA 5962-8751601CA MAX961EUA+T MAX9065EBS+TG45 NCV2202SN2T1G MAX919ESA+T LT6700HS6-2#TRMPBF MAX19005CCS+ LM339EDR2G LT6700HS6-2#TRM NTE919 NTE922 TS883IQ2T LT6700HVCS6-3#TRMPBF LT6700HVHS6-3#TRMPBF MAX978EEE+T MAX975ESA+T MAX9602EUG+T MAX997EUA+T MIC841NYC5-T5 LM393WDT MCP6564T-E/STVAO MAX983ESA+T NCX2200GMAZ LTC1540CMS8#PBF MC10E1651FNG