钍地半导体
Tudi Semiconductor

Product Specification

TUDI-LM239AMX

Quad Comparator

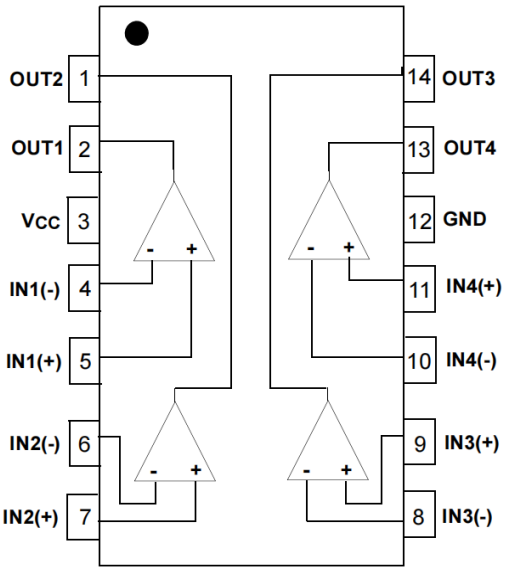
网址 www.sztdbdt.com

用芯智造·卓越品质

semiconductor device manufacturer

- Design
- research and development
- production
- and sales

Features



- Single or Dual Supply Operation
- Wide Range of Supply Voltage

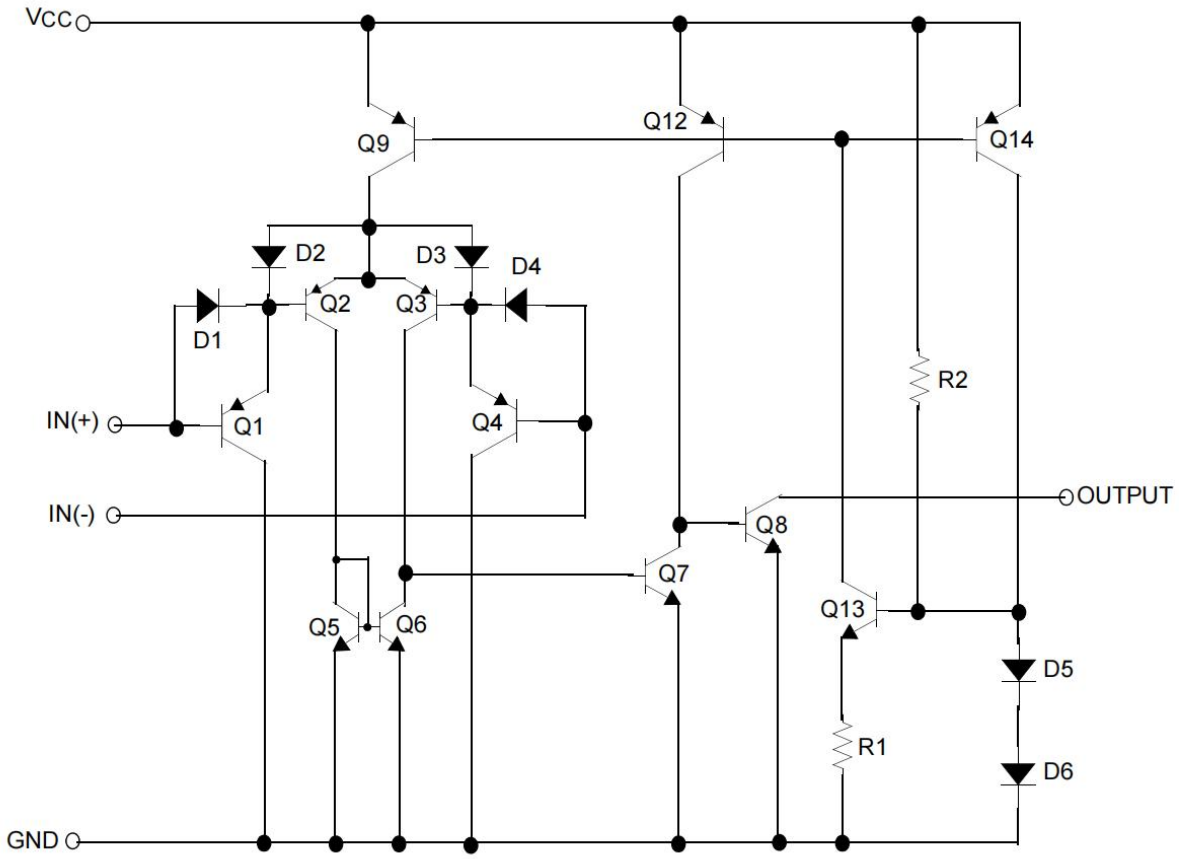
LM2901, LM339/LM339A, LM239A: 2 ~ 36V
(or ±1 ~ ±18V)

- Low Supply Current Drain 800μA Typ.
- Open Collector Outputs for Wired and Connectors
- Low Input Bias Current 25nA Typ.
- Low Input Offset Current ±2.3nA Typ.
- Low Input Offset Voltage ±1.4mV Typ.
- Input Common Mode Voltage Range Includes Ground.
- Low Output Saturation Voltage
- Output Compatible With TTL, DTL and MOS Logic System

Description

The LM339/LM339A ,LM239A, LM2901 consist of four independent voltage comparators designed to operate from single power supply over a wide voltage range.

Schematic Diagram



Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	±18 or 36	V
Differential Input Voltage	$V_{I(DIFF)}$	36	V
Input Voltage	V_I	-0.3 to +36	V
Output Short Circuit to GND	-	Continuous	-
Power Dissipation	P_D	570	mW
Operating Temperature LM339/LM339A LM2901 LM239A	T_{OPR}	 0 ~ +70 -40 ~ +85 -25 ~ +85	°C
Storage Temperature	T_{STG}	-65 ~ +150	°C

Electrical Characteristics

(V_{CC} = 5V, T_A = 25°C, unless otherwise specified)

Parameter	Symbol	Conditions		LM239A/LM339A			LM339			Unit
				Min.	Typ.	Max.	Min.	Typ.	Max.	
Input Offset Voltage	V_{IO}	$V_{O(P)}$ =1.4V, R_S = 0Ω		-	1	2	-	1.4	5	mV
			Note1	-	-	4.0	-	-	9.0	
Input Offset Current	I_{IO}	$I_{IN(+)}$ - $I_{IN(-)}$, V_{CM} = 0V		-	2.3	50	-	2.3	50	nA
			Note1	-	-	150	-	-	150	
Input Bias Current	I_{BIAS}	V_{CM} = 0V		-	57	250	-	57	250	nA
			Note1	-	-	400	-	-	400	
Input Common Mode Voltage Range	$V_{I(R)}$	V_{CC} = 30V		0	-	V_{CC}-1.5	0	-	V_{CC}-1.5	V
			Note1	0	-	V_{CC}-2	0	-	V_{CC}-2	
Supply Current	I_{CC}	V_{CC} = 5V, R_L = ∞		-	1.1	2.0	-	1.1	2.0	mA
Voltage Gain	G_V	V_{CC} =15V, R_L ≥ 15kΩ (for large swing)		50	200	-	50	200	-	V/mV
Large Signal Response Time	T_{LRES}	V_I = TTL Logic Swing V_{REF} = 1.4V, V_{RL} = 5V, R_L = 5.1kΩ (Note2)		-	300	-	-	300	-	ns
Response Time	T_{RES}	V_{RL} = 5V, R_L = 5.1kΩ (Note2)		-	1.3	-	-	1.3	-	μs
Output Sink Current	I_{SINK}	$V_{I(-)}$ ≥ 1V, $V_{I(+)}$ = 0V, $V_{O(P)}$ ≤ 1.5V		6	18	-	6	18	-	mA
Output Saturation Voltage	V_{SAT}	$V_{I(-)}$ ≥ 1V, $V_{I(+)}$ = 0V		-	140	400	-	140	400	mV
		I_{SINK} = 4mA	Note1	-	-	700	-	-	700	
Output Leakage Current	$I_{O(LKG)}$	$V_{I(-)}$ = 0V $V_{I(+)}$ = 1V	$V_{O(P)}$ = 5V	-	0.1	-	-	0.1	-	nA
			$V_{O(P)}$ = 30V	-	-	1.0	-	-	1.0	μA
Differential Voltage	$V_{I(DIFF)}$		Note1	-	-	36	-	-	36	V

Note:

1. LM339/LM339A : 0 ≤ T_A ≤ +70°C
   LM2901 : -40 ≤ T_A ≤ +85°C
   LM239A : -25 ≤ T_A ≤ +85°C
2. These parameters, although guaranteed, are not 100% tested in production.

Electrical Characteristics (Continued)

(V_{CC} = 5V, T_A = 25°C, unless otherwise specified)

Parameter	Symbol	Conditions		LM2901			Unit
				Min.	Typ.	Max.	
Input Offset Voltage	V_{IO}	$V_{O(P)}$ =1.4V, R_S = 0Ω		-	2	7	mV
			Note1	-	9	15	
Input Offset Current	I_{IO}			-	2.3	50	nA
			Note1	-	50	200	
Input Bias Current	I_{BIAS}			-	57	250	nA
			Note1	-	200	500	
Input Common Mode Voltage Range	$V_{I(R)}$	LM2901, V_{CC} =30V		0	-	V_{CC}-1.5	V
			Note1	0	-	V_{CC}-2	
Supply Current	I_{CC}	R_L =∞, V_{CC}=5V		-	1.1	2.0	mA
		R_L =∞,V_{CC}=30V		-	1.6	2.5	
Voltage Gain	G_V	V_{CC} =15V, R_L ≥ 15kΩ (for large swing)		25	100	-	V/mV
Large Signal Response Time	T_{LRES}	V_I =TTL Logic Swing V_{REF} =1.4V, V_{RL} =5V, R_L =5.1kΩ (Note2)		-	300	-	ns
Response Time	T_{RES}	V_{RL} = 5V, R_L = 5.1kΩ (Note2)		-	1.3	-	μs
Output Sink Current	I_{SINK}	$V_{I(-)}$ ≥ 1V, $V_{I(+)}$ =0V, $V_{O(P)}$ ≤ 1.5V		6	18	-	mA
Output Saturation Voltage	V_{SAT}	$V_{I(-)}$ ≥ 1V, $V_{I(+)}$ = 0V		-	140	400	mV
		I_{SINK} =4mA	Note1	-	-	700	
Output Leakage Current	$I_{O(LKG)}$	$V_{I(-)}$ = 0V $V_{I(+)}$ = 1V	$V_{O(P)}$ = 5V	-	0.1	-	nA
			$V_{O(P)}$ = 30V	-	-	1.0	μA
Differential Voltage	$V_{I(DIFF)}$		Note1	-	-	36	V

Note:

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   LM2901 : -40 ≤ T_A ≤ +85°C
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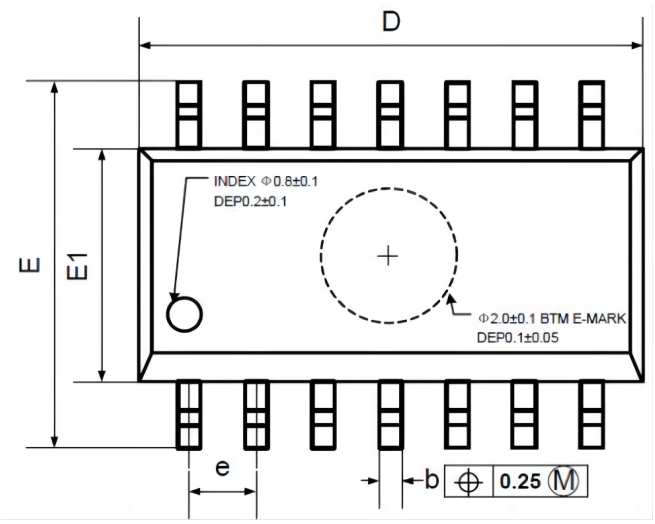
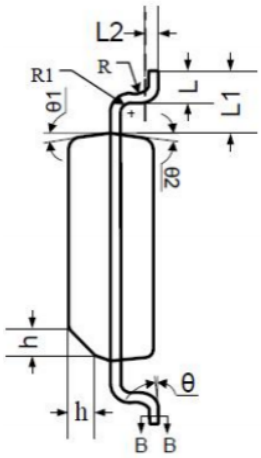
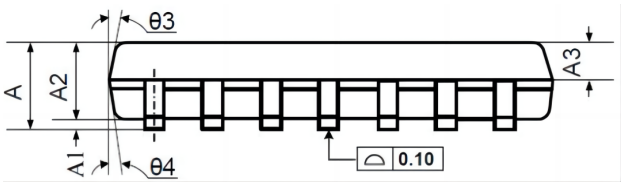
Order information

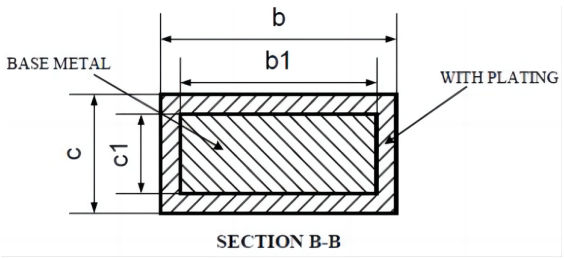
Order Number	Package	Package Quantity	Marking On The park
LM239AMX-TUDI	SOP14	Tape,Reel,2500	LM239AMX

Package SOP14









Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	1.35	1.60	1.75
A1	0.10	0.15	0.25
A2	1.25	1.45	1.65
A3	0.55	0.65	0.75
b	0.36		0.49
b1	0.35	0.40	0.45
C	0.16		0.25
c1	0.15	0.20	0.25
D	8.53	8.63	8.73
E	5.80	6.00	6.20
E1	3.80	3.90	4.00
e	1.27 BSC		
L	0.45	0.60	0.80
L1	1.04 REF		
L2	0.25 BSC		
R	0.07		
R1	0.07		
h	0.30	0.40	0.50
θ	0°		8°
θ1	6°	8°	10°
θ2	6°	8°	10°
θ3	5°	7°	9°
θ4	5°	7°	9°

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