

**LA6339**

## High-Performance Quad Comparator

### Overview

The LA6339 is a high-performance quad comparator that is capable of operating from a single power supply over a wide range of 2V to 36V. Because of its excellent input characteristics and low power, it can be very conveniently applied to multisignal parallel comparator circuits that require high-density assembly.

### Features

- Wide supply voltage range (Single supply : 2.0 to 36.0V, dual supplies :  $\pm 1.0$  to  $\pm 18.0$ V).
- Wide common-mode input voltage range (0 to  $V_{CC}-1.5$ V).
- Open collector output enabling wired OR.
- Small current dissipation ( $0.8\text{mA}/V_{CC}=5\text{V}$ ,  $R_L=\infty$ ) and low power.

### Specifications

**Absolute Maximum Ratings** at  $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC\text{ max}}$		36	V
Differential input voltage	$V_{ID}$		36	V
Common-mode input voltage	$V_{ICM}$		-0.3 to +36	V
Allowable power dissipation	$P_d\text{ max}$		700	mW
Operating temperature	$T_{opr}$		-30 to +85	$^\circ\text{C}$
Storage temperature	$T_{stg}$		-55 to +125	$^\circ\text{C}$

**Operating Characteristics** at  $T_a = 25^\circ\text{C}$ ,  $V_{CC}=5\text{V}$

Parameter	Symbol	Conditions	Test Circuit	Ratings			Unit
				min	typ	max	
Input offset voltage	$V_{IO}$		1		$\pm 2$	$\pm 5$	mV
Input offset current	$I_{IO}$		2		$\pm 5$	$\pm 50$	nA
Input bias current	$I_B$		3		25	250	nA
Common-mode input voltage	$V_{ICM}$			0		$V_{CC}-1.5$	V
Current drain	$I_{CC}$	$R_L=\infty$	4		0.8	2	mA
Voltage gain	$V_G$	$R_L=15\text{k}\Omega$	5		200		V/mV
Response time		$V_{RL}=5\text{V}$ , $R_L=5.1\text{k}\Omega$	6		1.3		$\mu\text{s}$
Output sink current	$I_{SINK}$	$V_{IN}^-=1\text{V}$ , $V_{IN}^+=0\text{V}$ , $V_O\leq 1.5\text{V}$	7	6	16		mA
Output saturation voltage	$V_{OL}$	$V_{IN}^-=1\text{V}$ , $V_{IN}^+=0\text{V}$ , $I_{SINK}\leq 3\text{mA}$	8		0.2	0.4	V
Output leakage current	$I_{LEAK}$	$V_{IN}^-=0\text{V}$ , $V_{IN}^+=1\text{V}$ , $V_O=5\text{V}$	9		0.1		nA

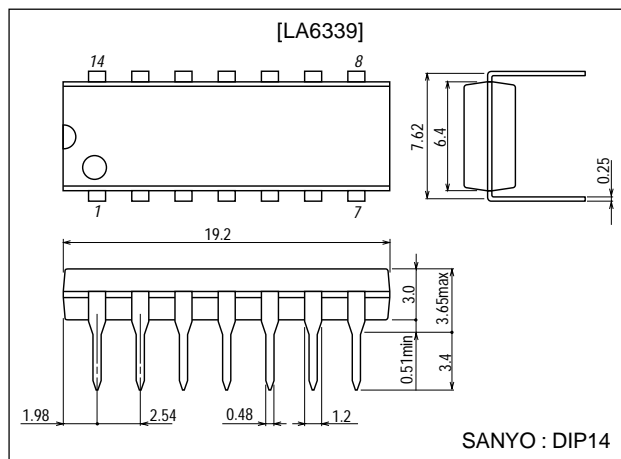
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### Package Dimensions

unit:mm

3003A-DIP14

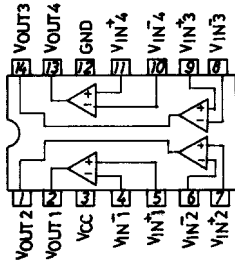


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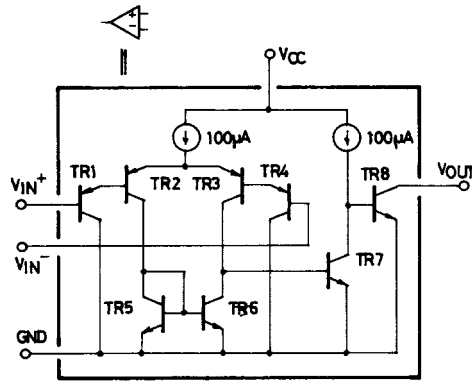
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## Pin Assignment

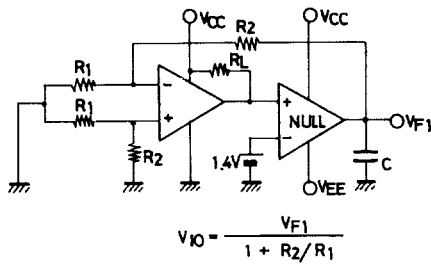


## Equivalent Circuit (1 unit)

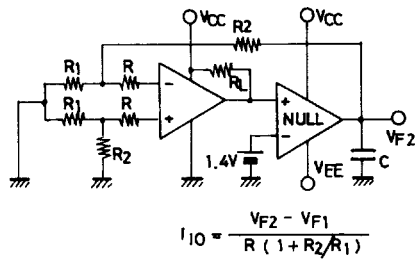


## Test Circuits

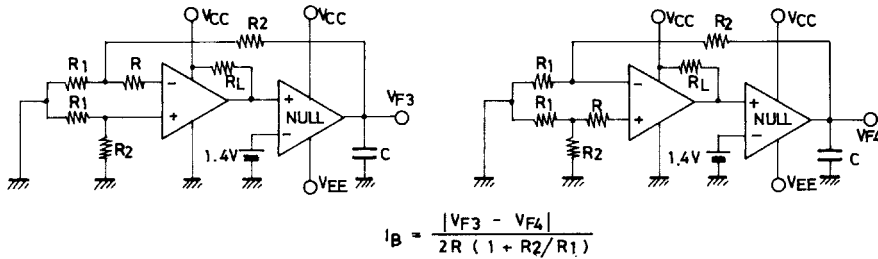
### 1. Input Offset Voltage



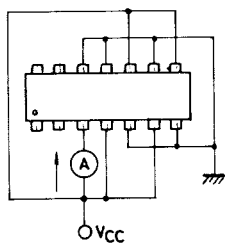
### 2. Input Offset Current



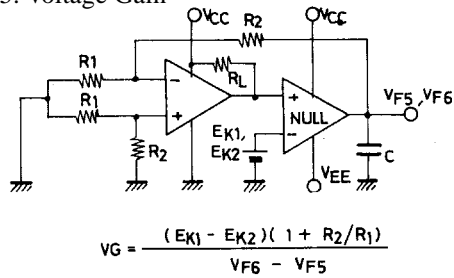
### 3. Input Bias Current



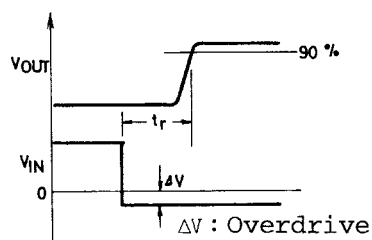
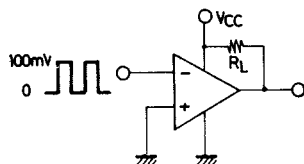
### 4. Current Drain



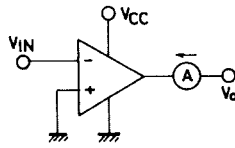
### 5. Voltage Gain



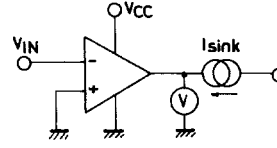
### 6. Response Time



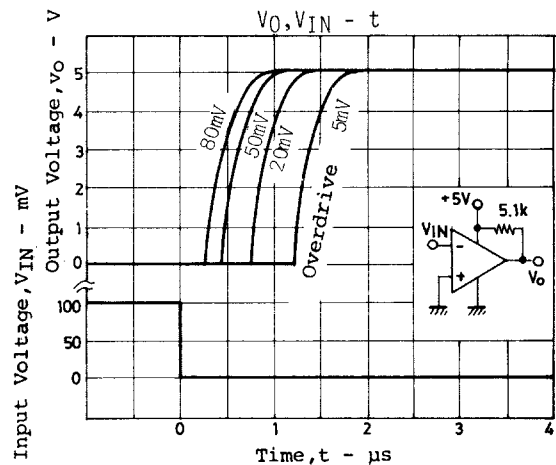
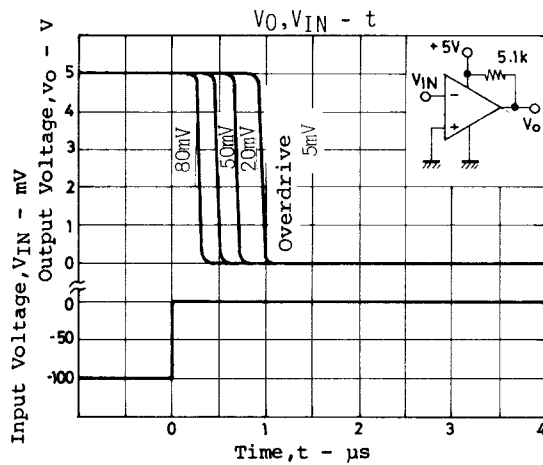
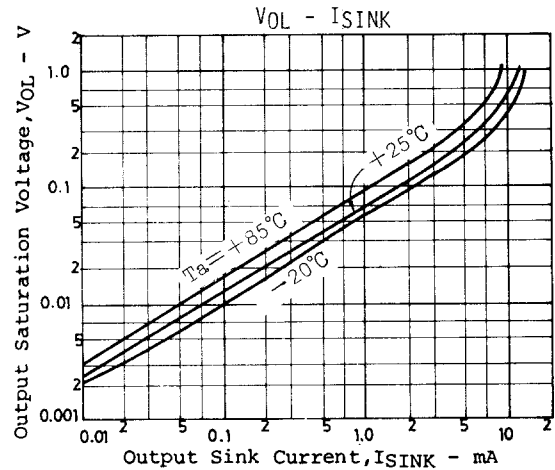
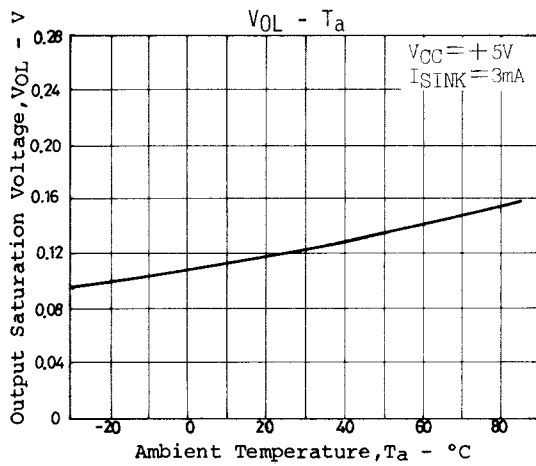
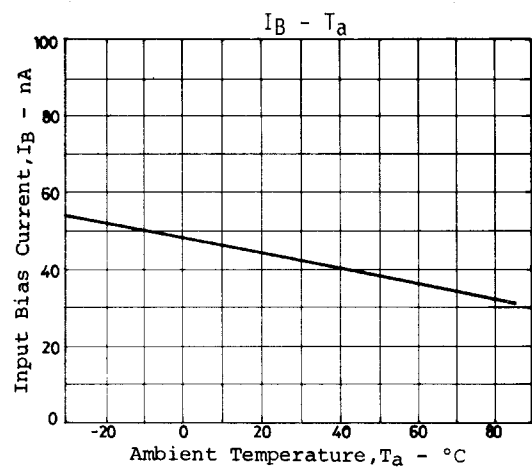
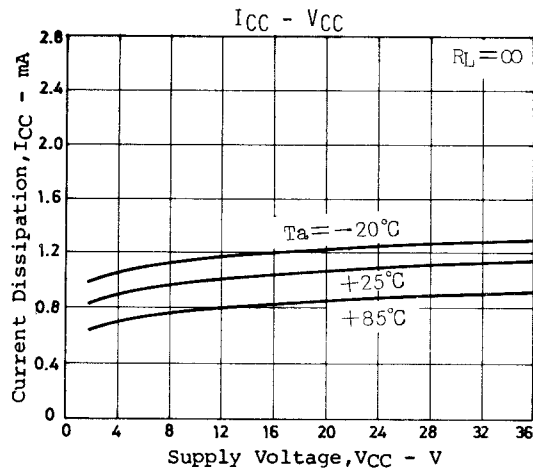
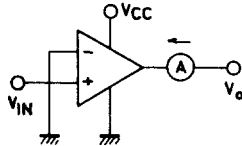
7. Output Sink Current



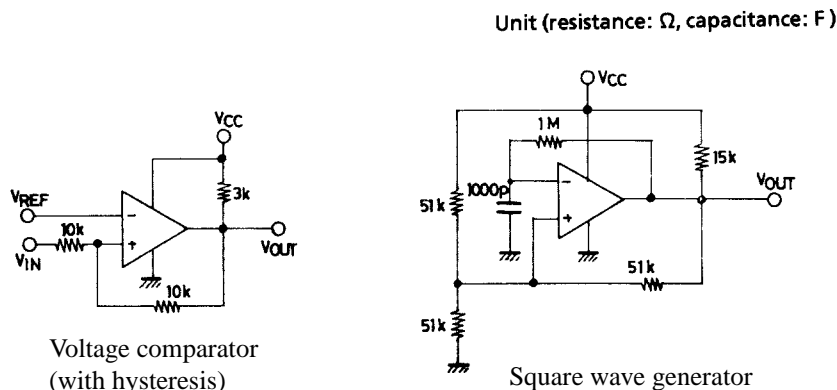
8. Output Saturation Voltage



9. Output Leakage Current



## Sample Application Circuits



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