Ordering number:ENN994D

Monolithic Linear IC

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.

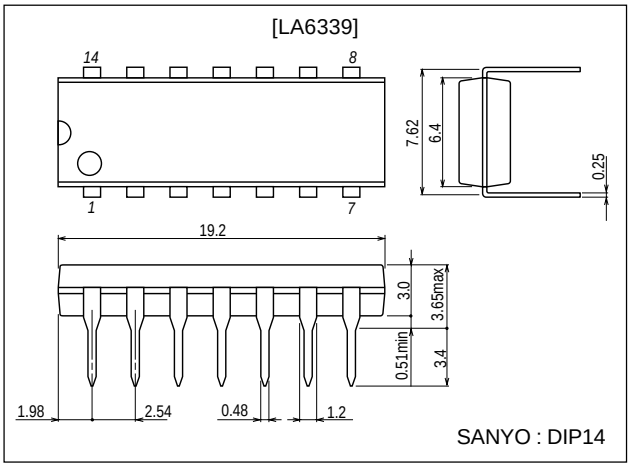
Features

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

Package Dimensions

unit:mm

3003A-DIP14



Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max		36	V
Differential input voltage	V_{ID}		36	V
Common-mode input voltage	V_{ICM}		–0.3 to +36	V
Allowable power dissipation	Pd max		700	mW
Operating temperature	Topr		–30 to +85	˚C
Storage temperature	Tstg		–55 to +125	˚C

Operating Characteristics at Ta = 25˚C, V_{CC}=5V

Parameter	Symbol	Conditions	Test Circuit	Ratings			Unit
				min	typ	max	
Input offset voltage	V_{IO}		1		±2	±5	mV
Input offset current	I_{IO}		2		±5	±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=∞	4		0.8	2	mA
Voltage gain	VG	R_L=15kΩ	5		200		V/mV
Response time		V_{RL}=5V, R_L=5.1kΩ	6		1.3		µs
Output sink current	I_{SINK}	V_{IN}^-=1V, V_{IN}^+=0V, V_O≤1.5V	7	6	16		mA
Output saturation voltage	V_{OL}	V_{IN}^-=1V, V_{IN}^+=0V, I_{SINK}≤3mA	8		0.2	0.4	V
Output leakage current	I_{LEAK}	V_{IN}^-=0V, V_{IN}^+=1V, V_O=5V	9		0.1		nA

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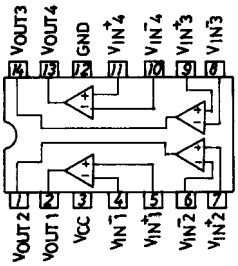
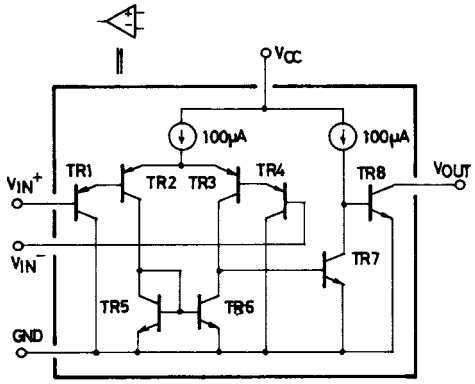
Pin Assignment

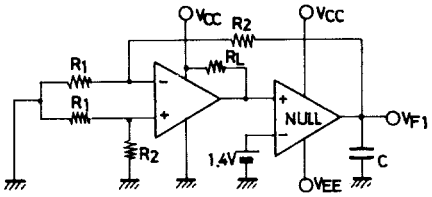


Equivalent Circuit (1 unit)



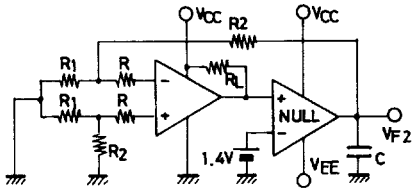
Test Circuits

1. Input Offset Voltage



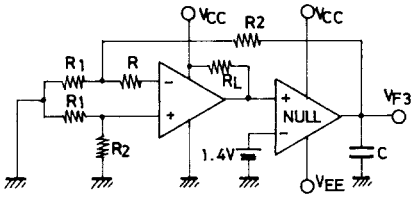
$$V_{IO} = \frac{V_{F1}}{1 + R_2/R_1}$$

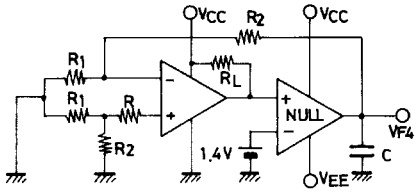
2. Input Offset Current



$$I_{IO} = \frac{V_{F2} - V_{F1}}{R\,(1 + R_2/R_1)}$$

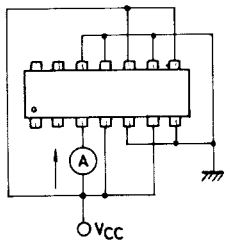
3. Input Bias Current



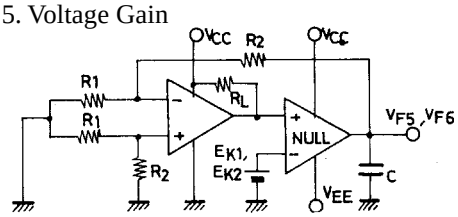


$$I_B = \frac{|V_{F3} - V_{F4}|}{2R\,(1 + R_2/R_1)}$$

4. Current Drain

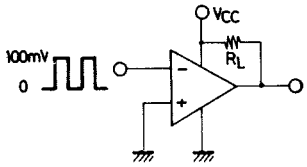


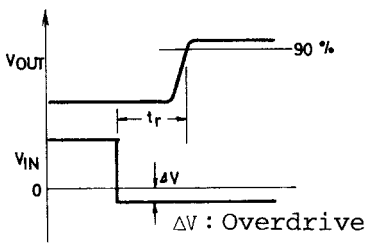
5. Voltage Gain



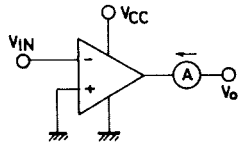
$$V_G = \frac{(E_{K1} - E_{K2})(1 + R_2/R_1)}{V_{F6} - V_{F5}}$$

6. Response Time

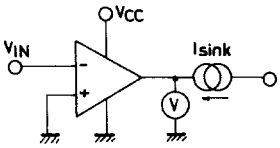




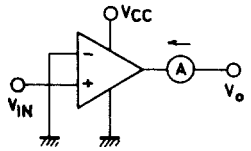
7. Output Sink Current

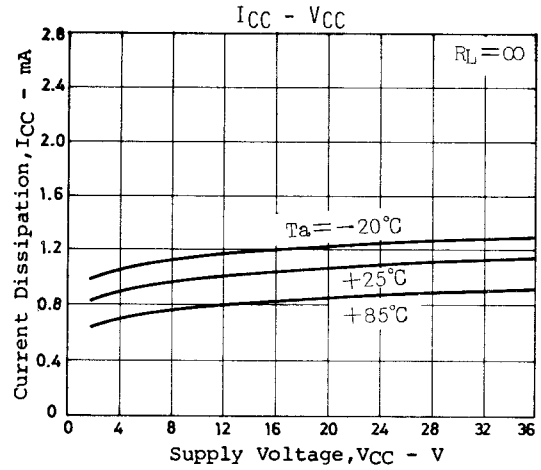


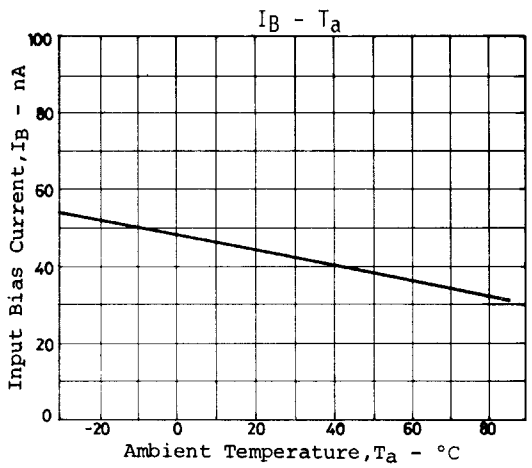
8. Output Saturation Voltage

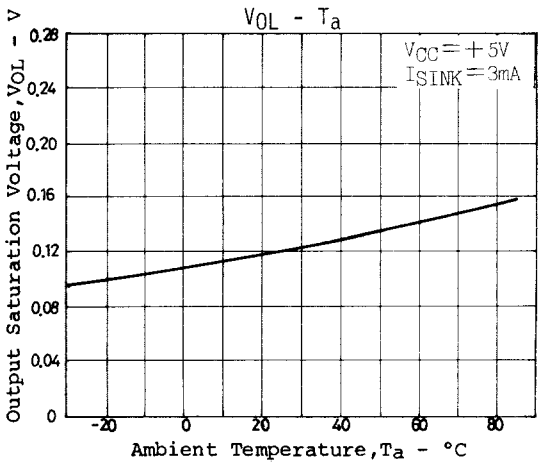


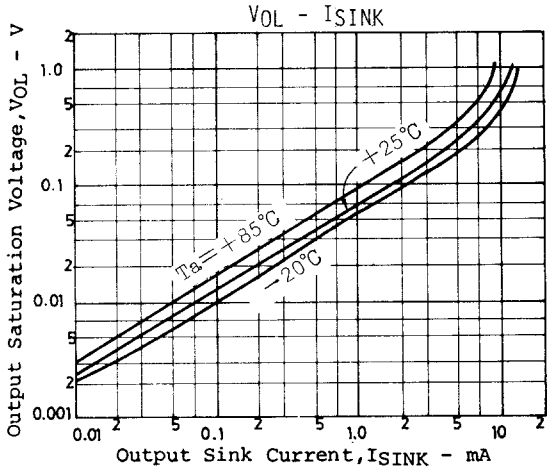
9. Output Leakage Current

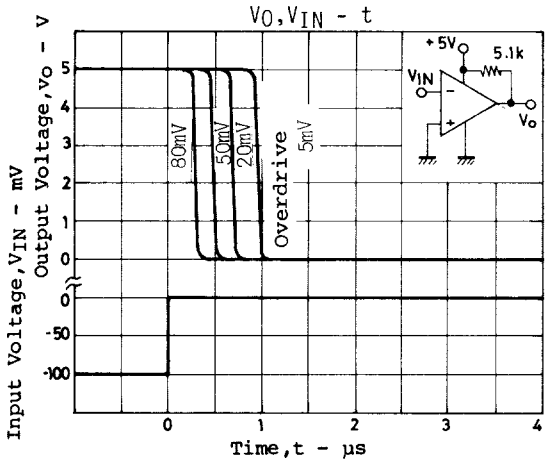


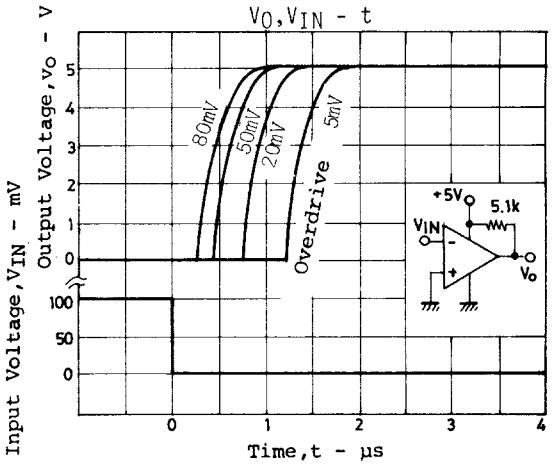






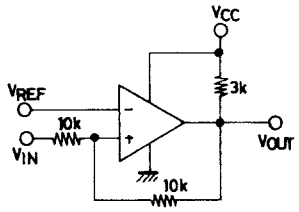




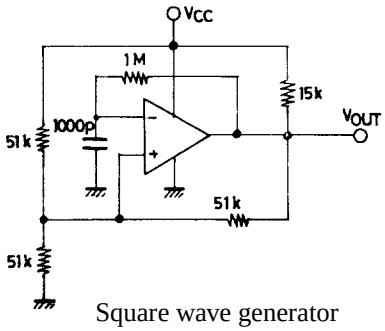


Sample Application Circuits

Unit (resistance: Ω, capacitance: F)



Voltage comparator
(with hysteresis)



Square wave generator