Ordering number: EN 994D

Monolithic Linear IC

No.994D

LA6339

High-Performance Quad Comparator

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

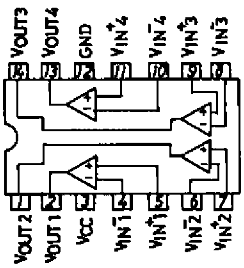
Maximum Ratings at T_a=25°C

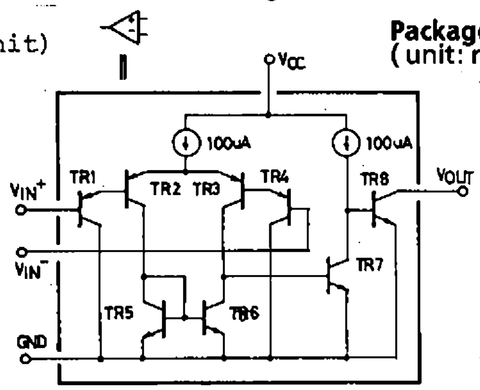
			unit
Maximum Supply Voltage	V_{CC}max	36	V
Differential Input Voltage	V_{ID}	36	V
Common-mode Input Voltage	V_{ICM}	-0.3 to +36	V
Allowable Power Dissipation	$P_d$max	700	mW
Operating Temperature	Topr	-30 to +85	°C
Storage Temperature	Tstg	-55 to +125	°C

Operating Characteristics at T_a=25°C,V_{CC}=5V

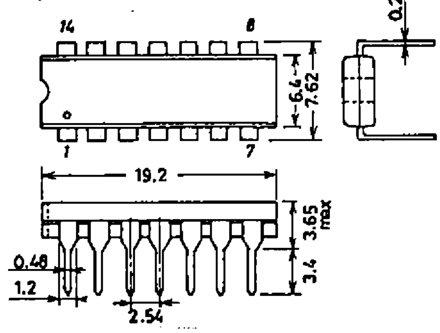
			Test circuit	min	typ	min	unit
Input Offset Voltage	V_{IO}		1		±2	±5	mV
Input Offset Current	I_{IO}		2		±5	±50	nA
Input Bias Current	I_B		3		25	250	nA
Common-mode Input Voltage	V_{ICM}			0		V_{CC}-1.5	V
Current Dissipation	I_{CC}	R_L=∞	4		0.8	2	mA
Voltage Gain	VG	R_L=15kohms	5		200		V/mV
Response Time		V_{RL}=5V,R_L=5.1kohms	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 Leak Current	I_{LEAK}	V_{IN}-=0V,V_{IN}+=1V, V_O=5V	9		0.1		nA

Pin Assignment and Equivalent Circuit(1 unit)



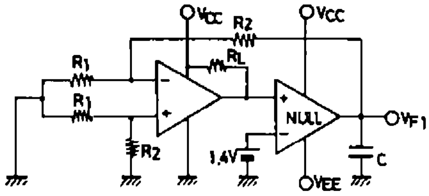


Package Dimensions 3003A-D14IC (unit: mm)



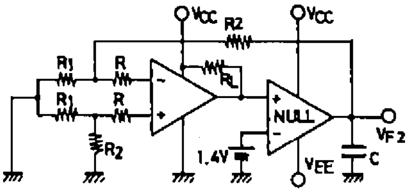
Test Circuits

1. Input offset voltage



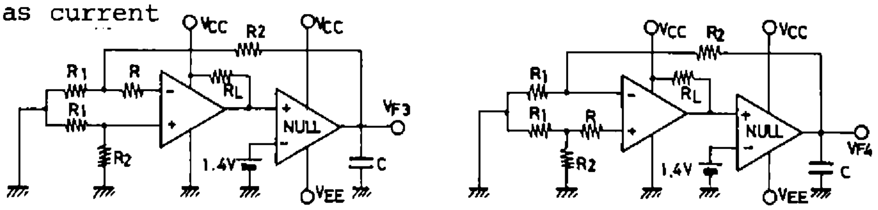
$$V_{IO} = \frac{V_{F1}}{1 + R_2/R_1}$$

2. Input offset current



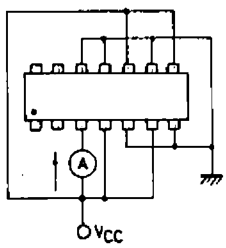
$$I_{IO} = \frac{V_{F2} - V_{F1}}{R\,(1 + R_2/R_1)}$$

3. Input bias current

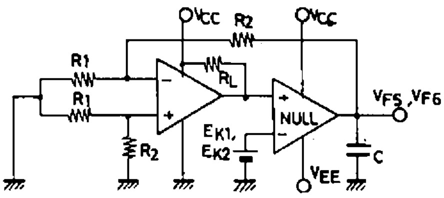


$$I_B = \frac{|V_{F3} - V_{F4}|}{2R\,(1 + R_2/R_1)}$$

4. Current dissipation

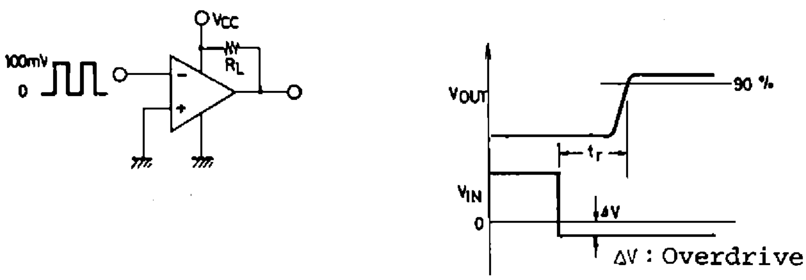


5. Voltage gain

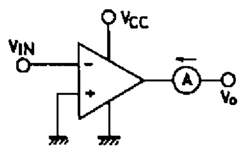


$$VG = \frac{(E_{K1} - E_{K2})(1 + R_2/R_1)}{V_{F6} - V_{F5}}$$

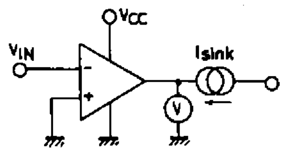
6. Response time



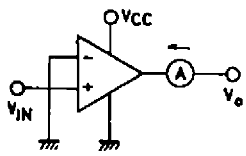
7. Output sink current

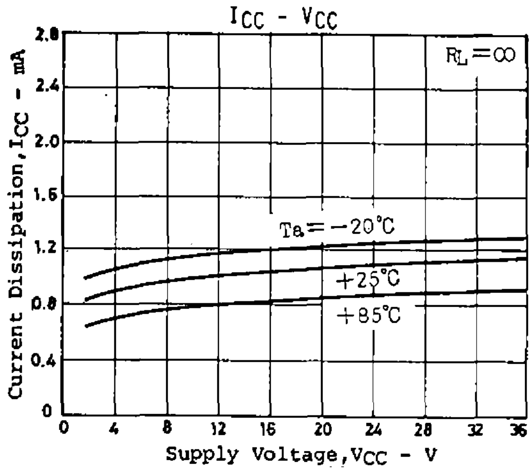


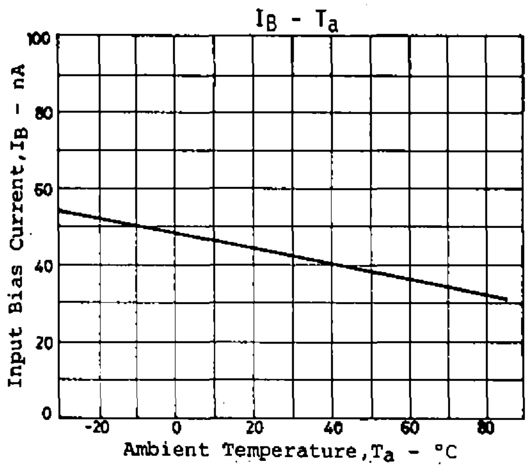
8. Output saturation voltage

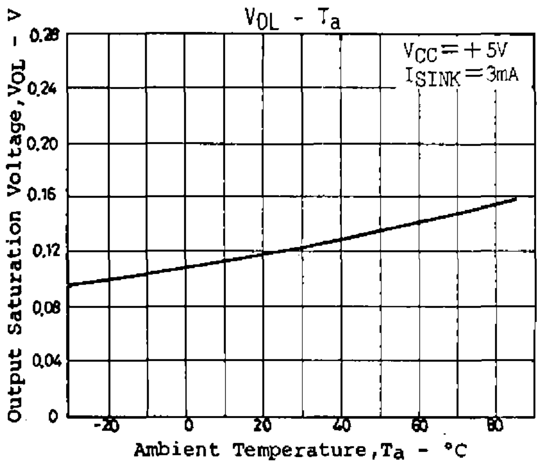


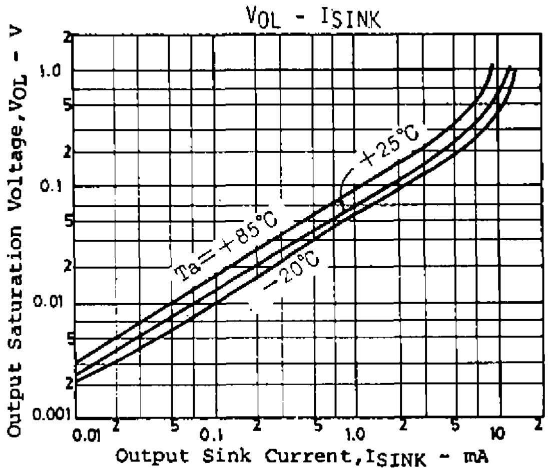
9. Output leak current

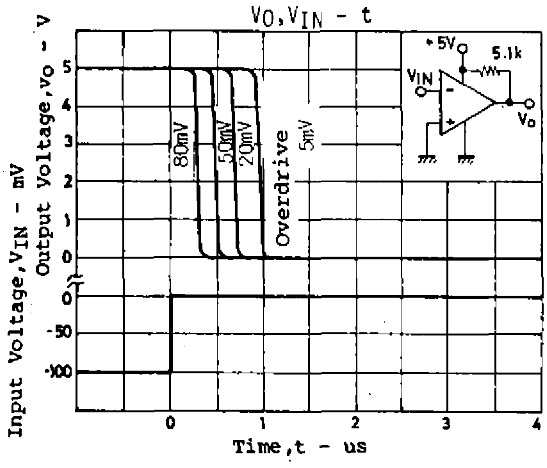


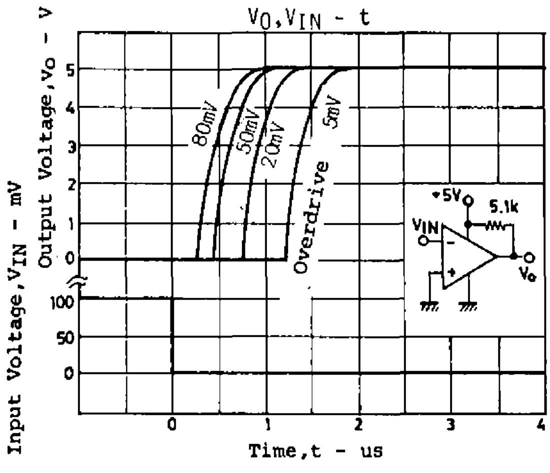






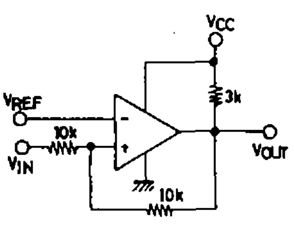




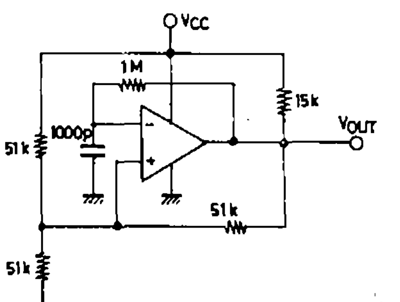


Sample Application Circuits

Unit (resistance: Ω, capacitance: F)



Voltage comparator
(with hysteresis)



Square wave generator