



High-Performance Quad Comparator

Overview

The LA6339M 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.

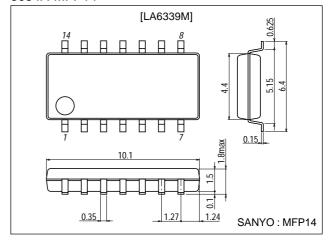
Features

- 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 drain (0.8mA/ V_{CC} =5V, R_L = ∞) and low power.
- Mini flat package enabling compactness of sets.

Package Dimensions

unit:mm

3034A-MFP14



Specifications

Absolute Maximum Ratings at Ta = 25°C

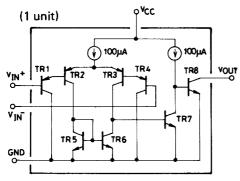
Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V _{CC} max		36	V
Differential input voltage	V _{ID}		36	V
Common-mode input voltage range	VICM		-0.3 to +36	V
Allowable power dissipation	Pd max		330	mW
Operating temperature	Topr		-30 to +85	°C
Storage temperature	Tstg		-55 to +125	°C

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

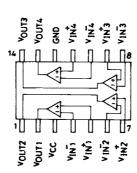
Parameter	Symbol	Conditions	Test Circuit	Ratings			Unit
				min	typ	max	Unit
Input offset voltage	VIO		1		±2	±5	mV
Input offset current	IIO		2		±5	±50	nA
Input bias current	ΙB		3		25	250	nA
Common-mode input voltage range	VICM			0		V _{CC} -1.5	V
Current drain	Icc	R _L =∞	4		0.8	2	mA
Voltage gain	VG	$R_L=15k\Omega$	5		200		V/mV
Response time		V_{RL} =5V, R_L =5.1k Ω	6		1.3		μs
Output sink current	ISINK	V _{IN} ⁻ =1V, V _{IN} ⁺ =0V, V _O ≤1.5V	7	6	16		mA
Output saturation voltage	VOL	V _{IN} ⁻ =1V, V _{IN} ⁺ =0V, I _{SINK} ≤3mA	8		0.2	0.4	V
Output leakage current	ILEAK	V _{IN} ⁻ =0V, V _{IN} ⁺ =1V, V _O =5V	9		0.1		nA

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Equivalent Circuit

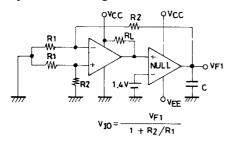


Pin Assignment

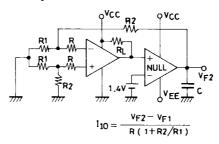


Test Circuits

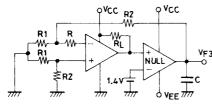
1. Input Offset Voltage

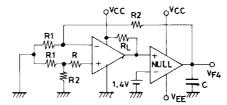


2. Input Offset Current



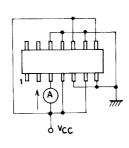
3. Input Bias Current



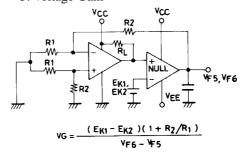


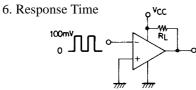
$$I_B = \frac{|V_{F3} - V_{F4}|}{2R(1+R2/R1)}$$

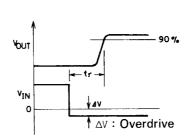
4. Current Drain



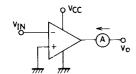




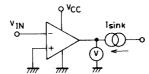




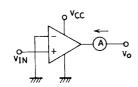
7. Output Sink Current

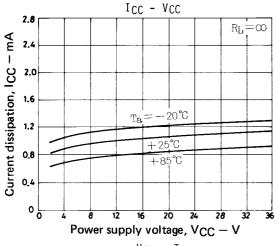


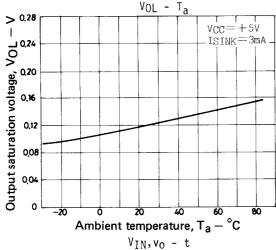
8. Output Saturation Voltage

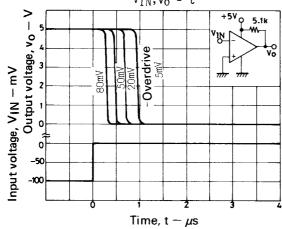


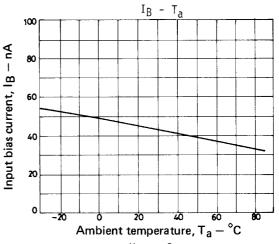
9. Output Leakage Current

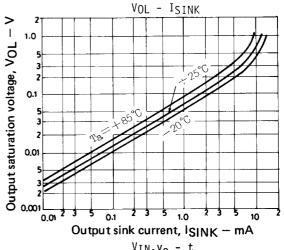


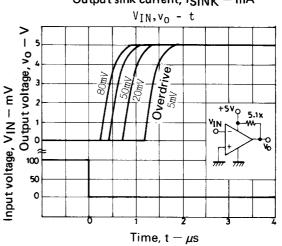




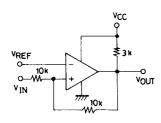




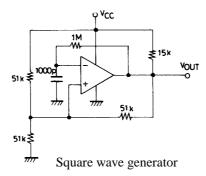




Sample Application Circuits



Voltage comparator (with hysteresis)



Unit (resistance: Ω, capacitance: F)

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