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Monolithic Linear IC

SANYO No.1156B

LA6339M

High-Performance Quad Comparator

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

Maximum Ratings/T_a=25°C

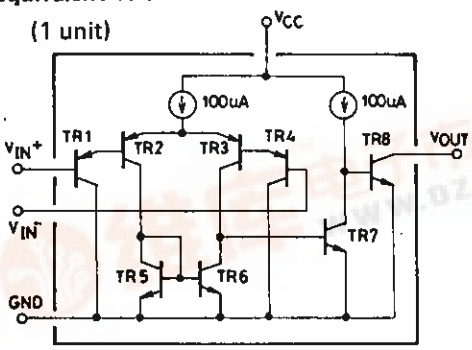
			unit
Maximum power supply voltage	V_{CC} max	36	V
Differential input voltage	V_{ID}	36	V
Common-Mode input voltage range	V_{ICM}	−0.3~+36	V
Allowable power dissipation	P_d max	330	mW
Operating temperature	Topr	−30~+85	°C
Storage temperature	T_{stg}	−55~+125	°C

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

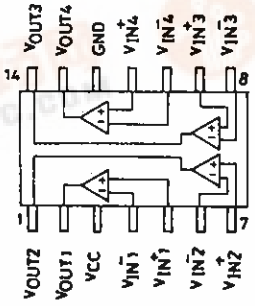
			Test circuit	min	typ	max	unit
Input offset voltage	V_{IO}		1		±2	±5	mV
Input offset current	I_{IO}		2		±5	±50	nA
Input bias current	I_B		3		25	250	nA
Common-mode input voltage range	V_{ICM}			0	V_{CC}−1.5		V
Current dissipation	I_{CC}	R_L=∞	4		0.8	2	mA
Voltage gain	V_G	R_L=15kΩ	5		200		V/mV
Response 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 leak current	I_{LEAK}	V_{IN}−=0V, V_{IN}+=1V, V_o=5V	9		0.1		nA

Equivalent Circuit

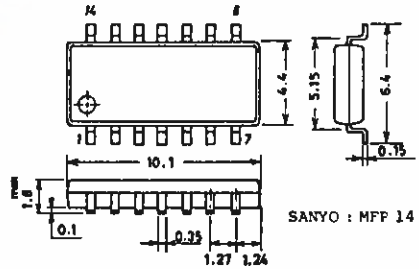
(1 unit)



Pin Assignment



Package Dimensions 3034A-M14IC (unit: mm)



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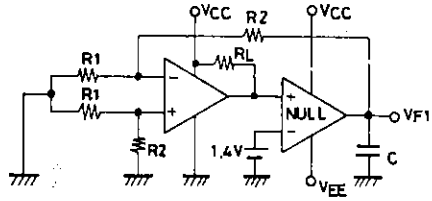
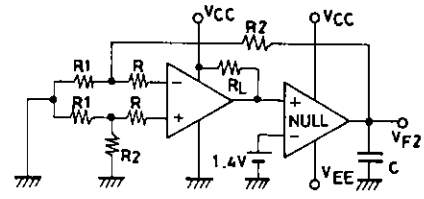
Test Circuits

1. Input offset voltage



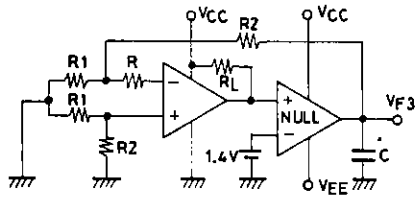
$$V_{IO} = \frac{V_{F1}}{1 + R_2/R_1}$$

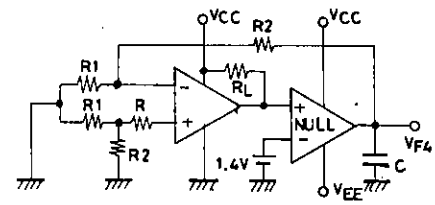
2. Input offset current



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

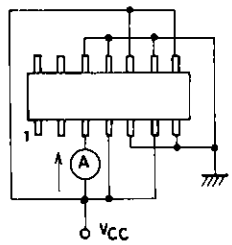
3. Input bias current



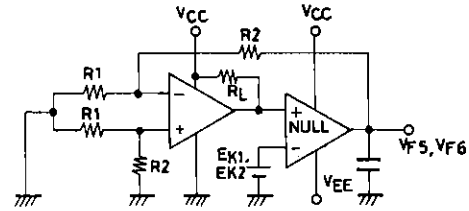


$$I_B = \frac{|V_{F3} - V_{F4}|}{2R\,(1 + R_2/R_1)}$$

4. Current dissipation

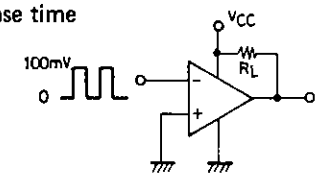


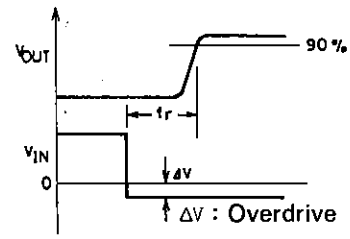
5. Voltage gain



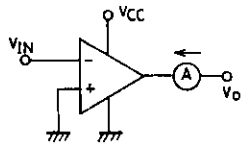
$$V_G = \frac{(E_{K1} - E_{K2})(1 + R_2/R_1)}{V_{F6} - V_{F5}}$$

6. Response time

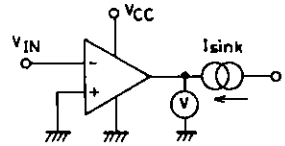




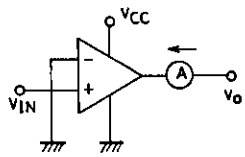
7. Output sink current

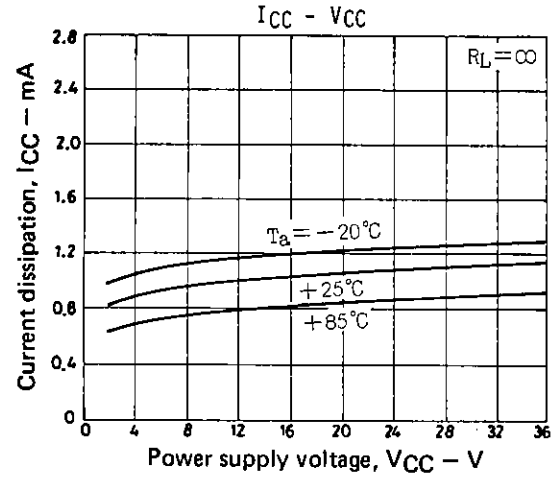


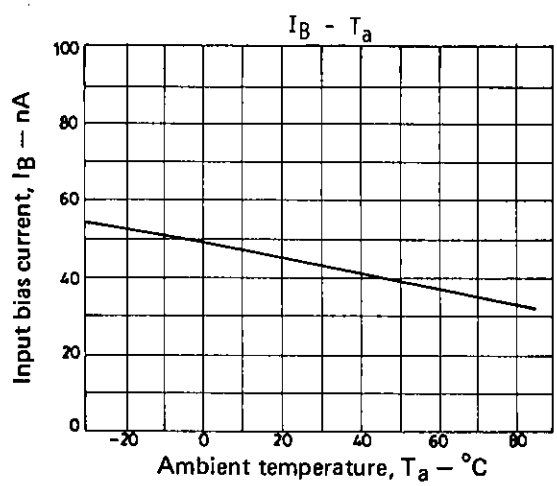
8. Output saturation voltage

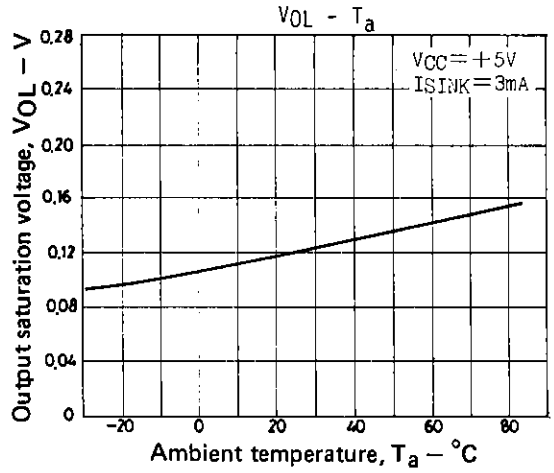


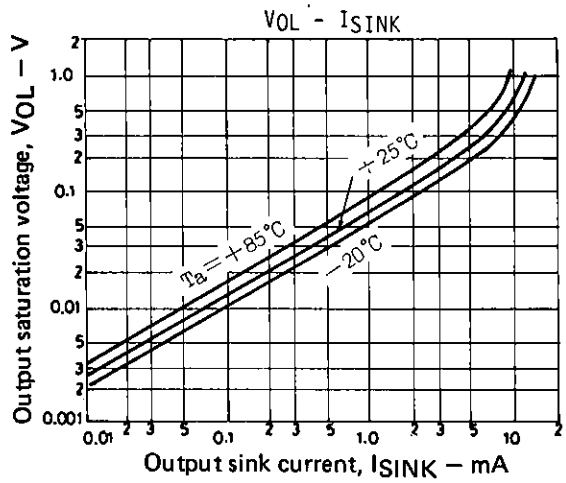
9. Output leak current

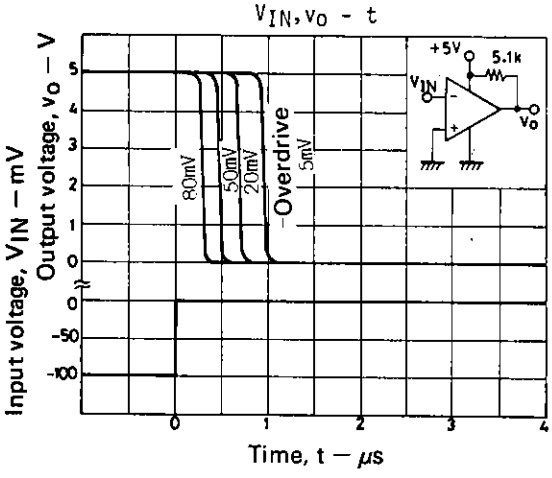


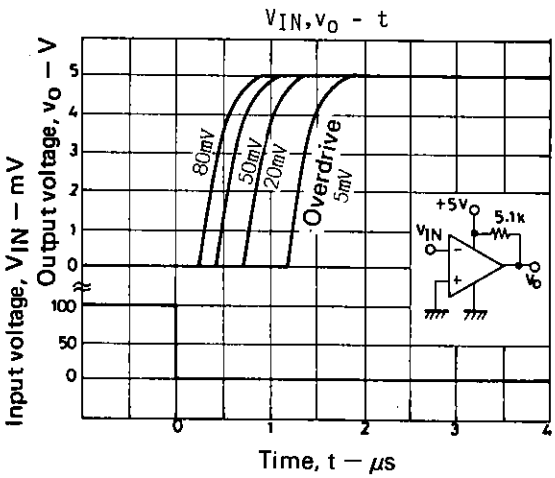




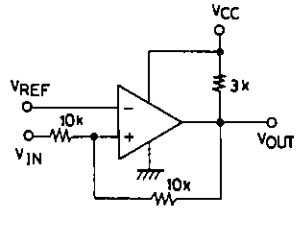




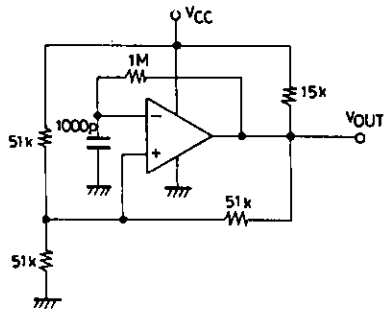




■ Sample Application Circuits



Voltage comparator
(with hysteresis)



Square wave generator

Unit (resistance: Ω, capacitance: F)

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