

**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:  $\pm 1.0$  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
- Mini flat package enabling compactness of sets

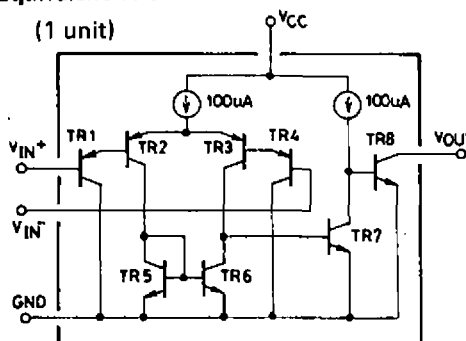
**Maximum Ratings/ $T_a=25^\circ\text{C}$**

			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	$T_{opr}$	-30~+85	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55~+125	$^\circ\text{C}$

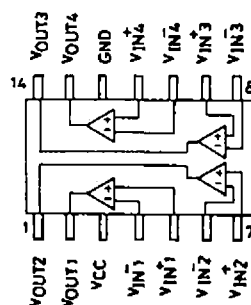
**Operating Characteristics/ $T_a=25^\circ\text{C}$ ,  $V_{CC}=5\text{V}$**

			Test circuit	min	typ	max	unit
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 range	$V_{ICM}$			0	$V_{CC}-1.5$		V
Current dissipation	$I_{CC}$	$R_L=\infty$	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 leak current	$I_{LEAK}$	$V_{IN-}=0\text{V}$ , $V_{IN+}=1\text{V}$ , $V_o=5\text{V}$	9		0.1		nA

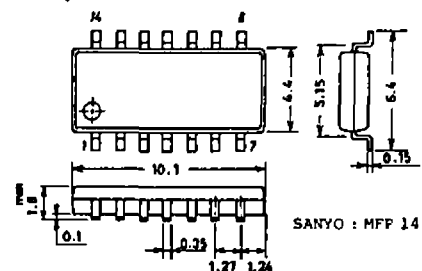
**Equivalent Circuit**



**Pin Assignment**

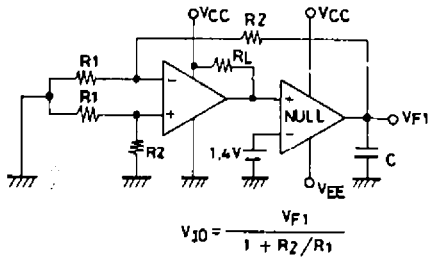


**Package Dimensions 3034A-M14IC (unit: mm)**

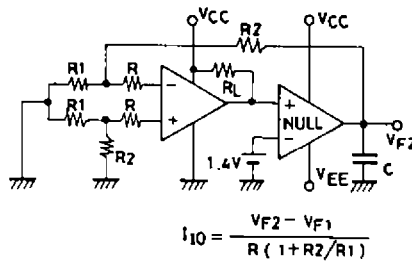


Test Circuits

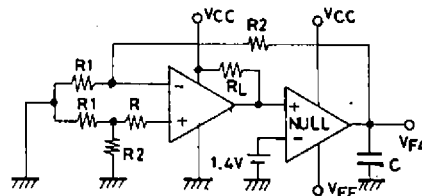
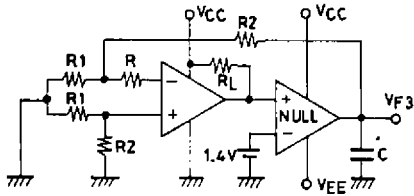
1. Input offset voltage



2. Input offset current

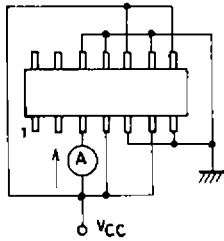


3. Input bias current

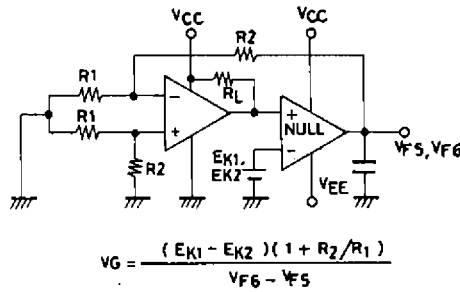


$$I_B = \frac{|VF3 - VF4|}{2R(1 + R2/R1)}$$

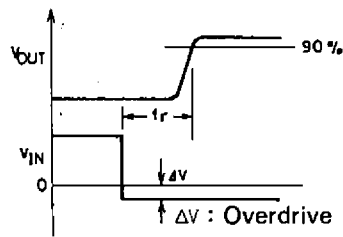
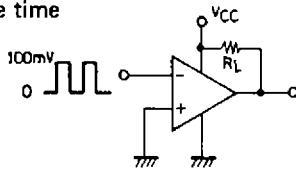
4. Current dissipation



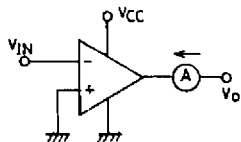
5. Voltage gain



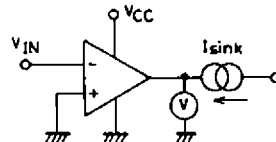
6. Response time



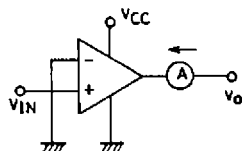
7. Output sink current

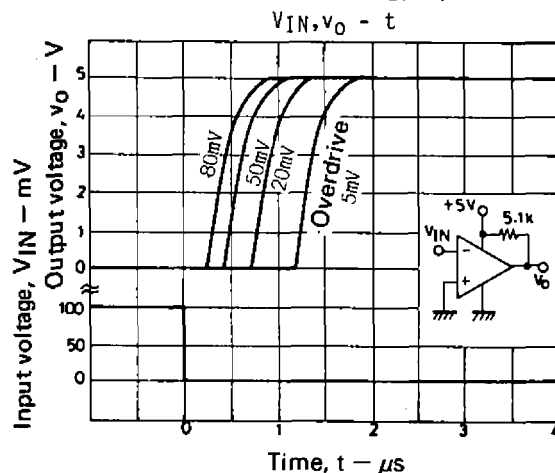
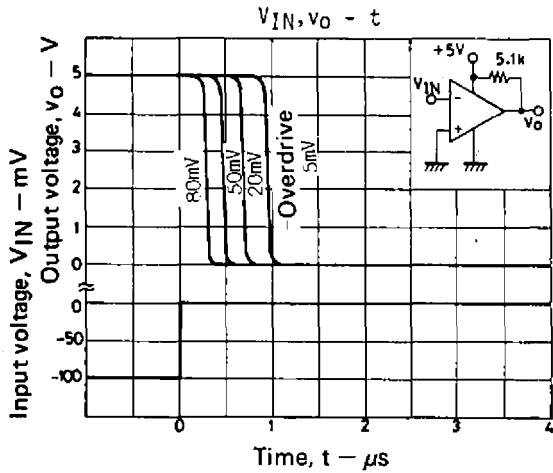
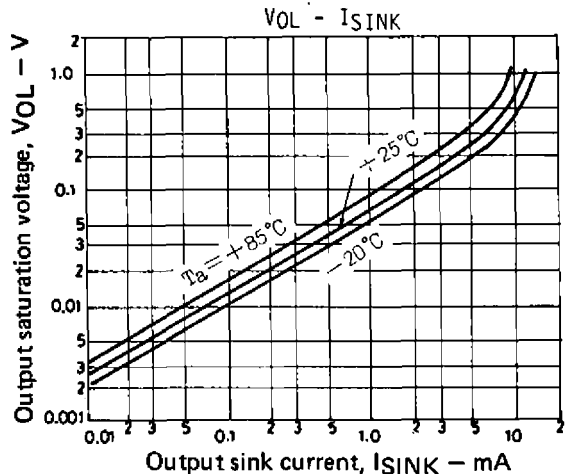
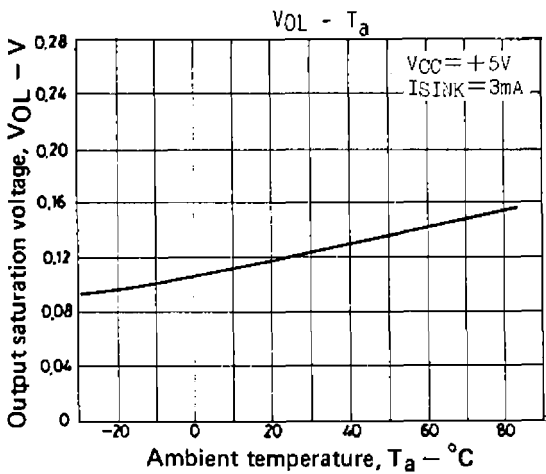
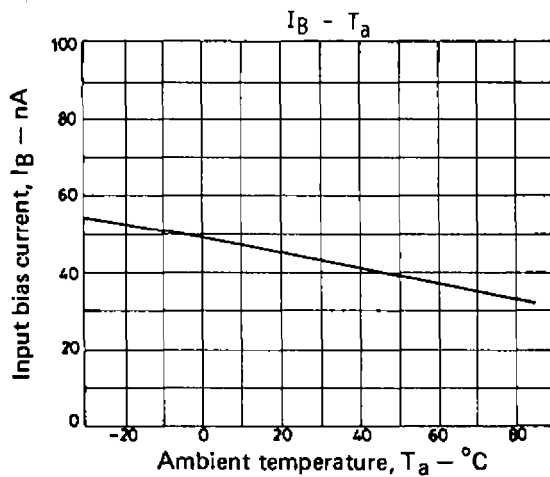
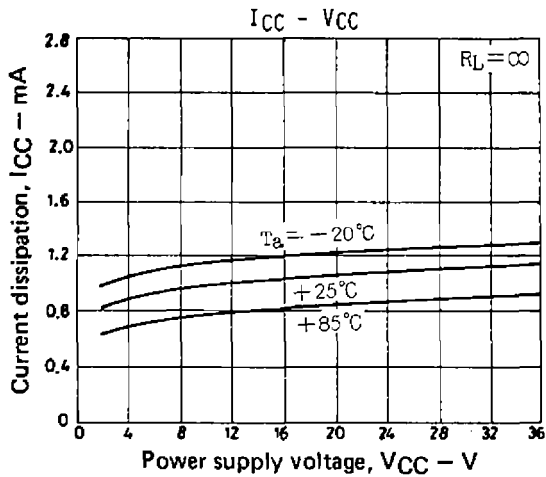


8. Output saturation voltage

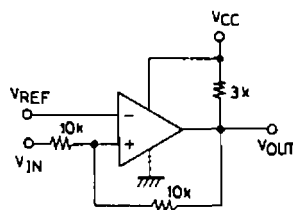


9. Output leak current

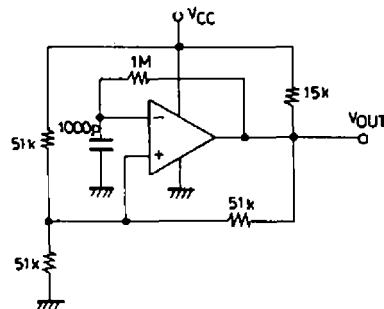




■ Sample Application Circuits



Voltage comparator  
(with hysteresis)



Square wave generator

Unit (resistance:  $\Omega$ , capacitance: F)

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