Ordering number:ENN1103B

Monolithic Linear IC

LA6393M

High-Performance Dual Comparator

Overview

The LA6393M is a high-performance dual 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.

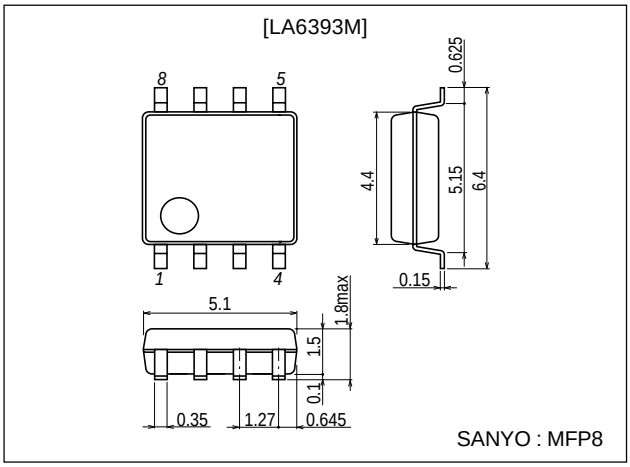
Features

- 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 (0.6mA) and low power.
- Mini flat package enabling compactness of sets.

Package Dimensions

unit:mm

3032B-MFP8



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	V_{ICM}		–0.3 to +36	V
Allowable power dissipation	Pd max		300	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		±1	±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 drain	I_{CC}	R_L=∞	4		0.6	1	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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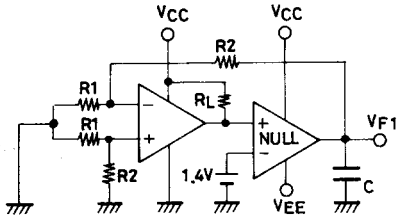
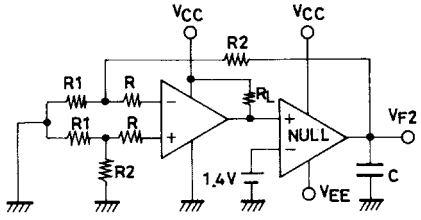
Test Circuits

1. Input offset voltage



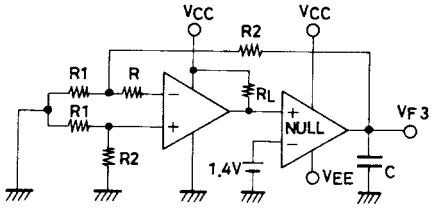
$$V_{IO} = \frac{V_{F1}}{1 + R2/R1}$$

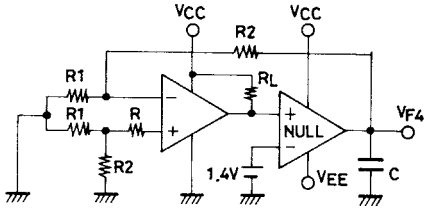
2. Input offset current



$$I_{IO} = \frac{V_{F2} - V_{F1}}{R\,(1 + R2/R1)}$$

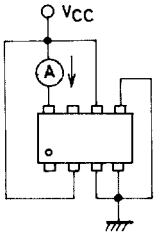
3. Input bias current



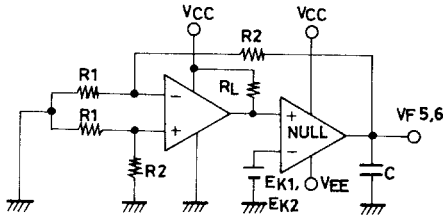


$$I_B = \frac{|V_{F3} - V_{F4}|}{2R\ (1 + R2/R1)}$$

4. Current drain

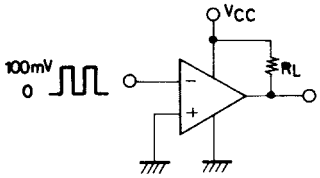


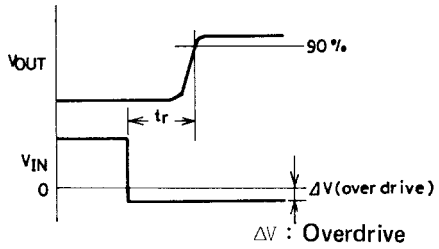
5. Voltage gain



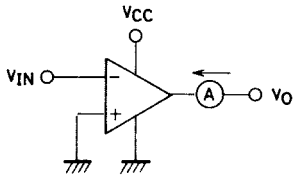
$$V_G = \frac{(E_{K1} - E_{K2})\,(1 + R2/R1)}{V_{F6} - V_{F5}}$$

6. Response time

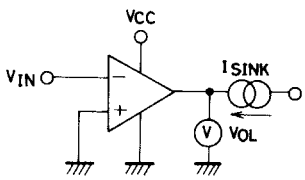




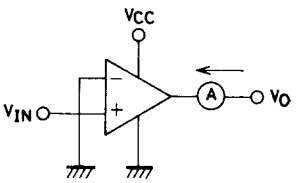
7. Output sink current



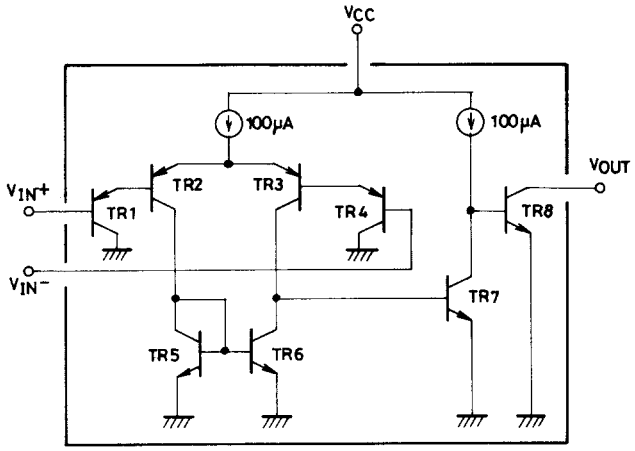
8. Output saturation voltage



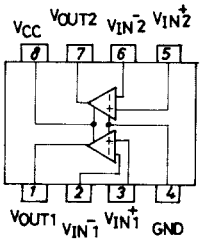
9. Output leakage current



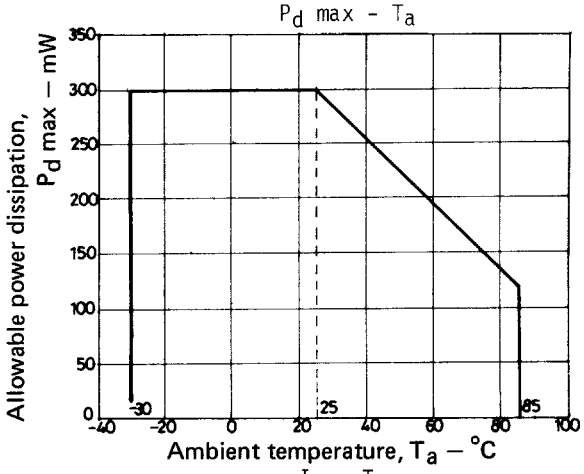
Equivalent Circuit

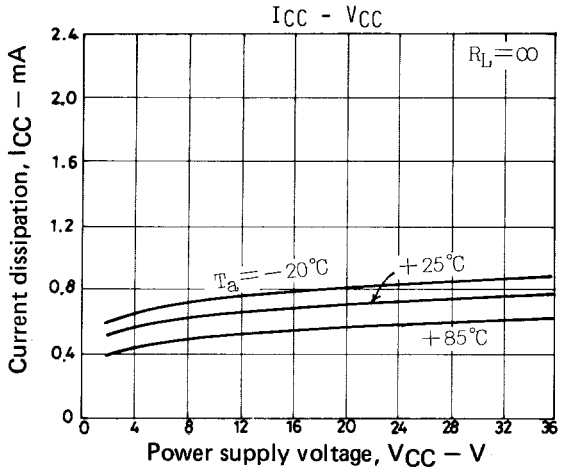


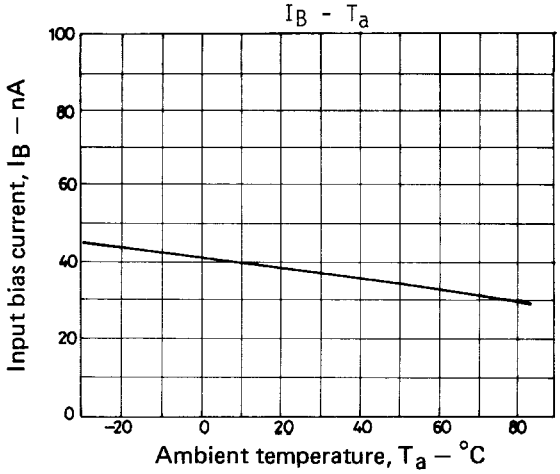
Pin Assignment

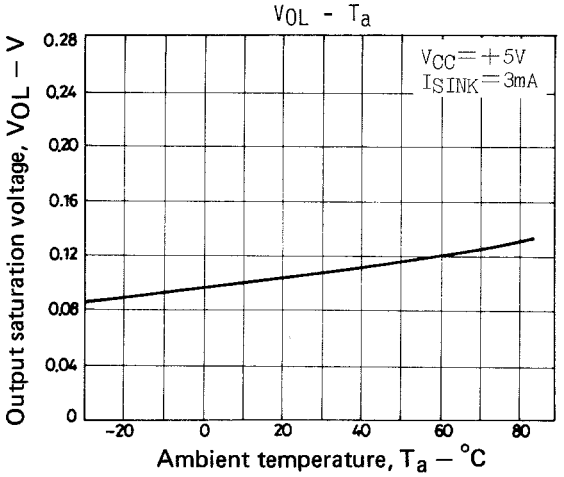


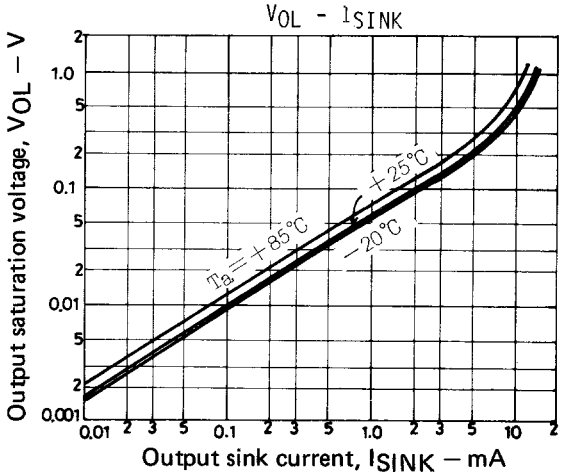
Main Characteristics

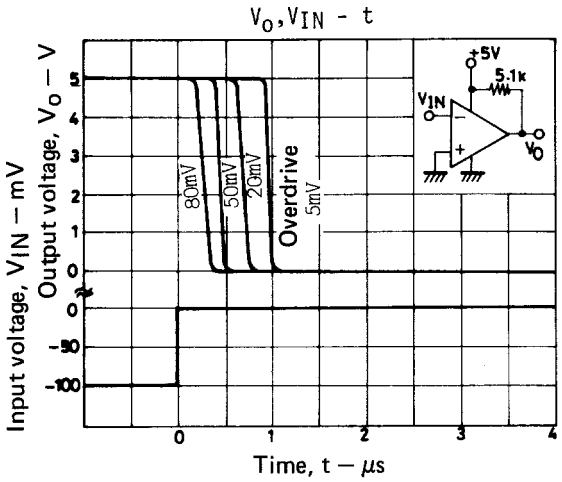


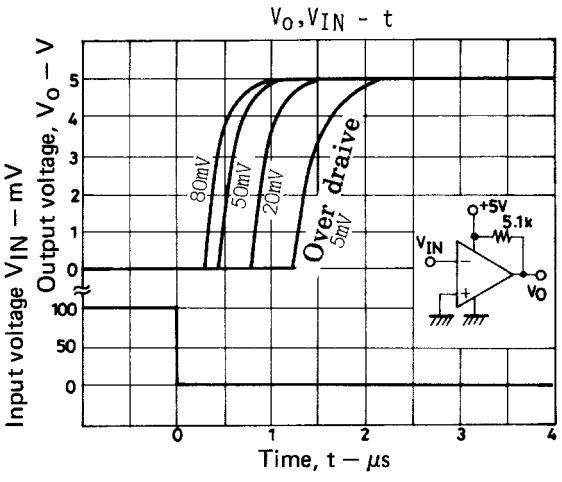




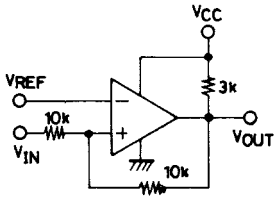




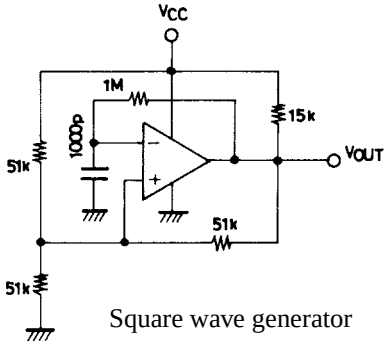




Sample Application Circuits



Voltage comparator
(with hysteresis)



Square wave generator

Unit (resistance: Ω, capacitance: F)