Ordering number : ENA0303

SANYO Semiconductors
DATA SHEET

Monolithic Linear IC

LA6393JM — High-Performance Dual Comparator

Overview

The LA6393JM 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 multi-signal parallel comparator circuits that require high-density assembly.

Functions

- High-performance dual operational amplifier
- 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} – 1.8V).
- Open collector output enabling wired OR.
- Small current drain (0.6mA) and low power.
- Mini flat package enabling compactness of sets.

Specifications

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
Maximum input voltage	V_{IN} max		-0.3 to +36	V
Allowable power dissipation	Pd max	Ta≤25°C	300	mW
Operating temperature	Topr		-40 to +85	°C
Storage temperature	Tstg		-55 to +150	°C

Recommended Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			Min	typ	Max	
Supply voltage	V_{CC}		2		24	V

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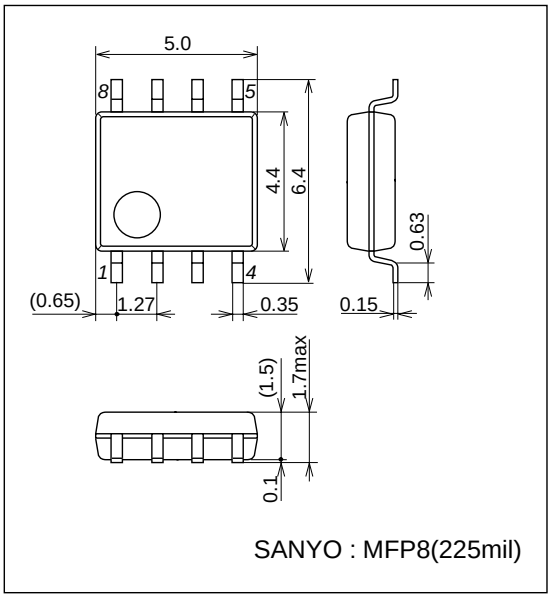
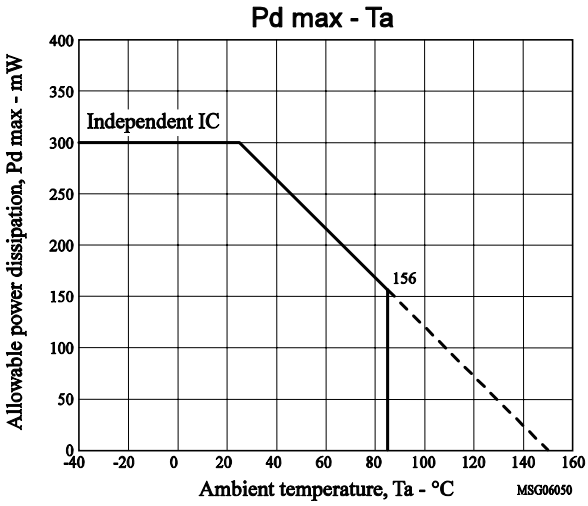
Electrical Characteristics at Ta = 25°C, V_{CC} = 5V

Parameter	Symbol	Conditions	Test Circuit	Ratings			Unit
				min	typ	max	
Input offset voltage	V_{IO}		1		±2	±7	mV
Input offset current	I_{IO}		2		±5	±50	nA
Input bias current	I_B		3		45	250	nA
Common-mode input voltage range	VICM			0		V_{CC}-1.8	V
Current drain	I_{CC}	R_L = ∞	4		0.5	1.2	mA
Voltage gain	VG	R_L = 15kΩ	5		200		V/mV
Response time	RT	V_{RL} = 5V, R_L = 5.1kΩ	6		1.3		µs
Output sink current	I_{SINK}	V_{IN}^- = 0.5V, V_{IN}^+ = 0V, V_O ≤ 1.5V	7	6	16		mA
Output saturation voltage	V_{OL}	V_{IN}^- = 0.5V, V_{IN}^+ = 0V, I_{SINK} ≤ 3mA	8		0.2	0.4	V
Output leakage current	I_{LEAK}	V_{IN}^- = 0V, V_{IN}^+ = 0.5V, V_O = 5V	9		0.1		nA

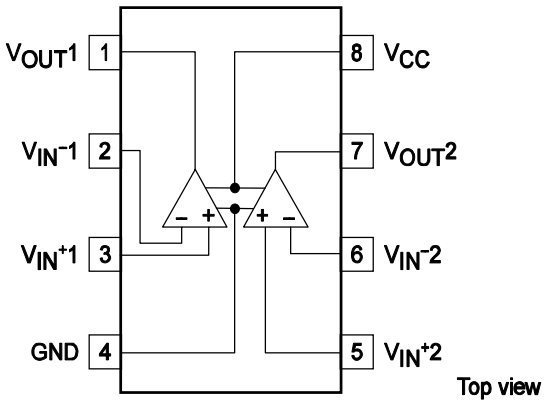
Package Dimensions

unit : mm
3032D





Pin Assignment



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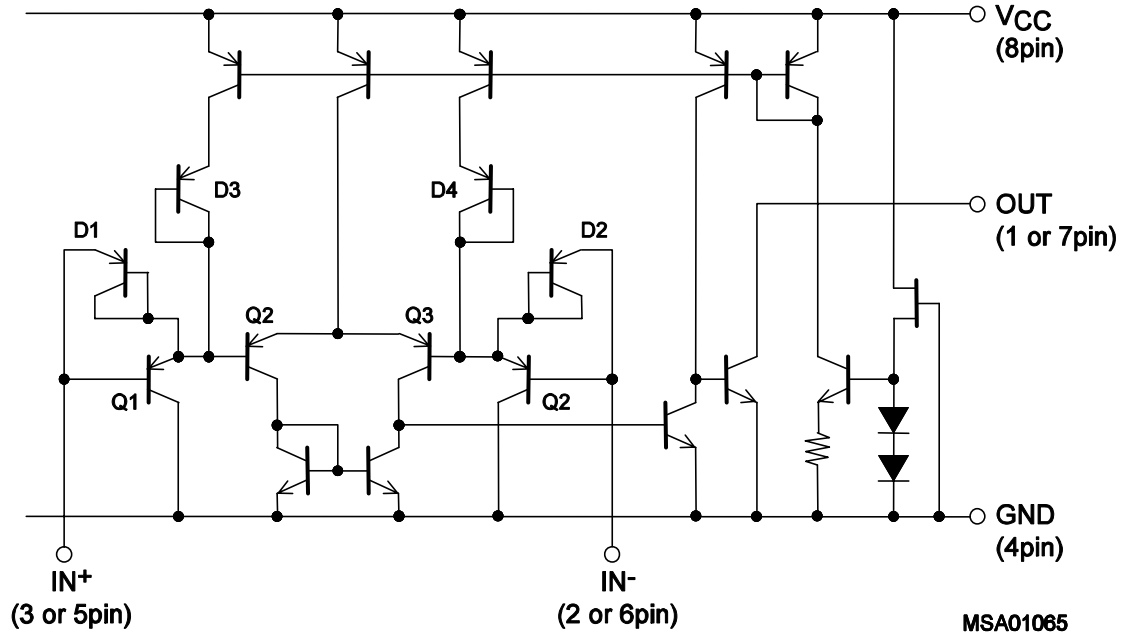
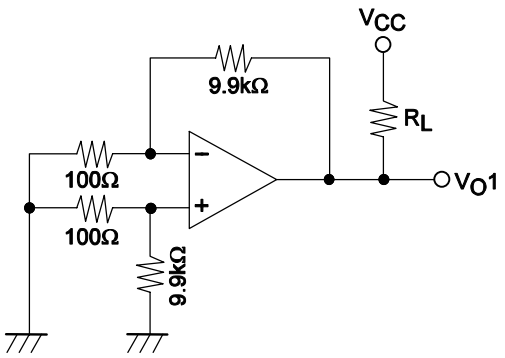
Equivalent Circuit

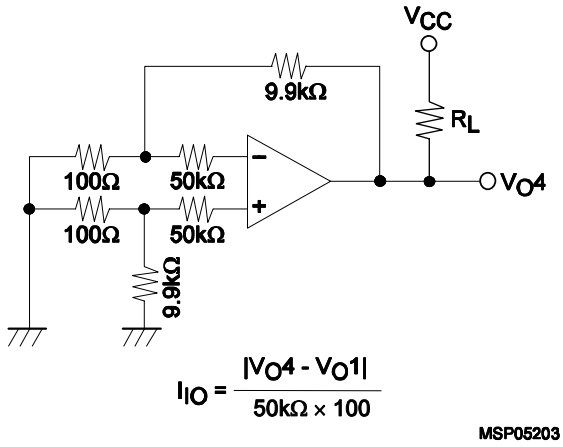


Test Circuits

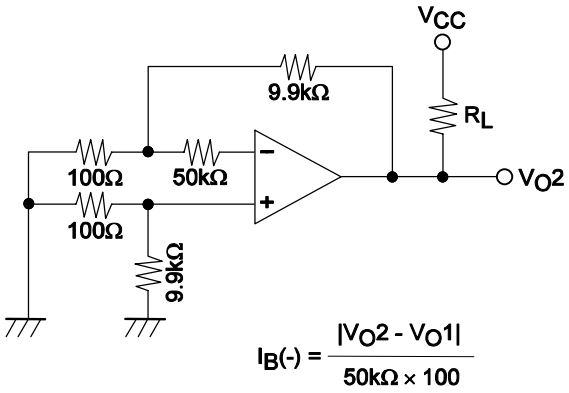
1. Input offset voltage V_{IO}



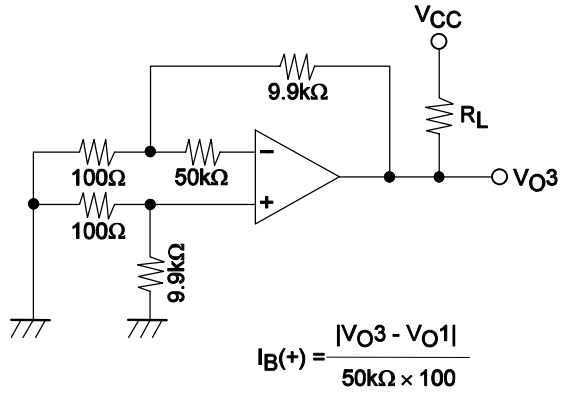
2. Input offset current I_{IO}



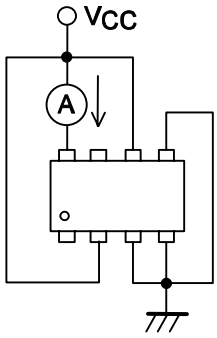
3. Input bias current I_B (–)



Input bias current I_B (+)



4. Current drain I_{CC}



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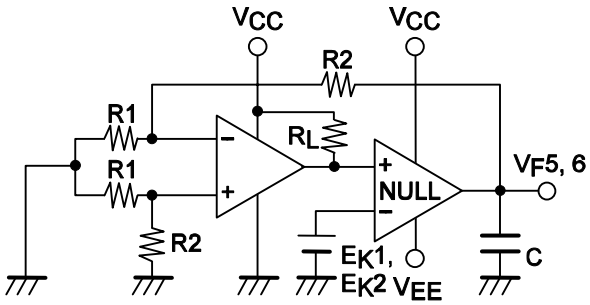
5. Voltage gain VG



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

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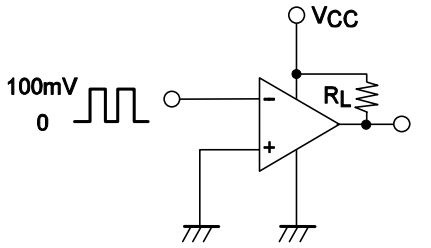
6. Response time RT



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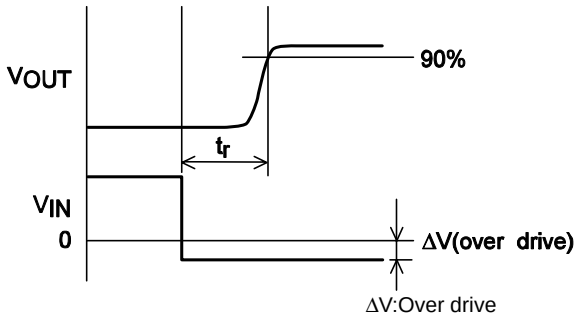

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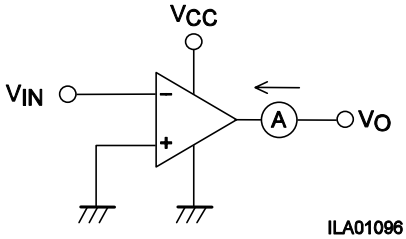
7. Output sink current I_{SINK}



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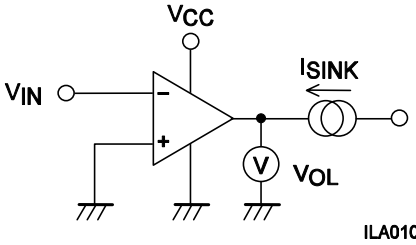
8. Output saturation voltage V_{OL}



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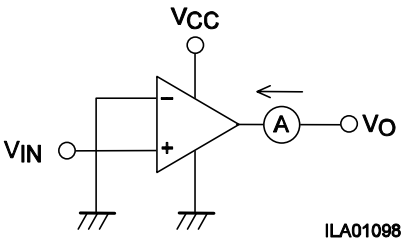
9. Output leakage current I_{LEAK}



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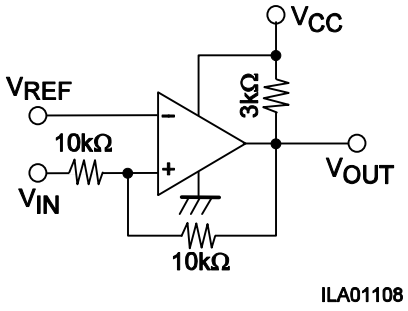
Application Circuit Examples

Voltage comparator
(with hysteresis)



Square wave generator