Ordering number : EN8764A

SANYO Semiconductors
DATA SHEET

LA6393T — Monolithic Linear IC
High-Performance Dual Comparator

Overview

The LA6393T is a high-performance dual comparator that features the flexible operating characteristics of a wide supply voltage range (2.0 to 36.0V for single voltage operation) and a wide operating temperature range (–20 to +85°C).
It also features superlative input characteristics and low power, making it optimal for a wide range of applications including automotive and industrial applications.

Functions

- Wide operating supply voltage range: 2.0 to 36.0V (single voltage supply), ±1.0 to 18.0V (dual voltage supply)
- Wide common-mode input voltage range: 0 to V_{CC} –1.8 V
- Open collector outputs allow the use of wired OR circuits
- Low current drain for low-power operation (0.6mA)
- Miniature flat package supports product miniaturization

Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{CC}		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	160	mW
Operating temperature	Topr		-20 to +85	°C
Storage temperature	Tstg		-55 to +125	°C

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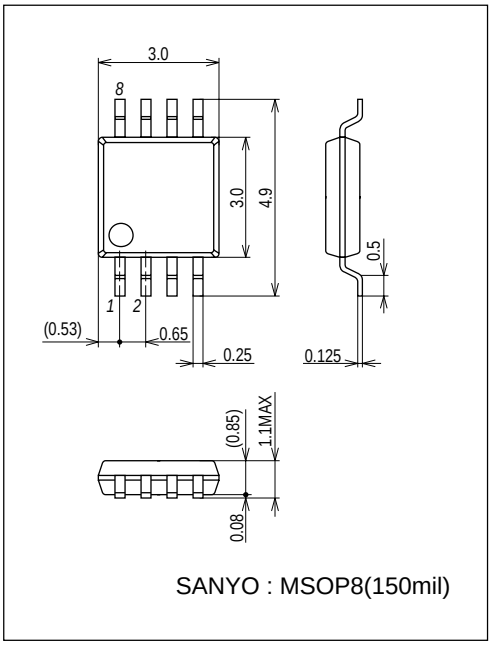
Electrical Characteristics at Ta = 25°C, V_{CC} = 5V

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input offset voltage	V_{IO}			±1	±5	mV
Input bias current	I_B			25	250	nA
Input offset current	I_{IO}			±5	±50	nA
Common-mode input voltage range	V_{ICM}		0		V_{CC}-1.5	V
Current drain	I_{CC}	R_L = ∞		0.6	1	mA
Voltage gain	VG	R_L = 15kΩ		200		V/mV
Response time	RT	R_L = 5.1kΩ, VRL = 5V		1.3		µs
Output sink current	I_{SINK}	V_{IN}^- = 1V, V_{IN}^+ = 0V, V_O ≤ 1.5V	6	16		mA
Output saturation voltage	V_{OL}	V_{IN}^- = 1V, V_{IN}^+ = 0V, I_{SINK} ≤ 3mA		0.2	0.4	V
Output leakage current	I_{LEAK}	V_{IN}^- = 0V, V_{IN}^+ = 1V, V_O = 5V		0.1		nA

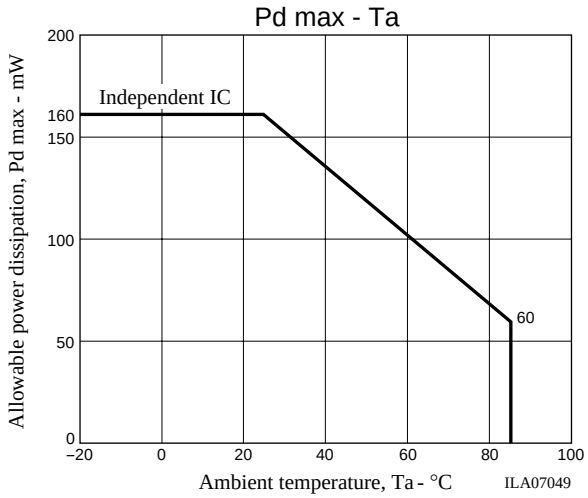
Package Dimensions

unit : mm (typ)

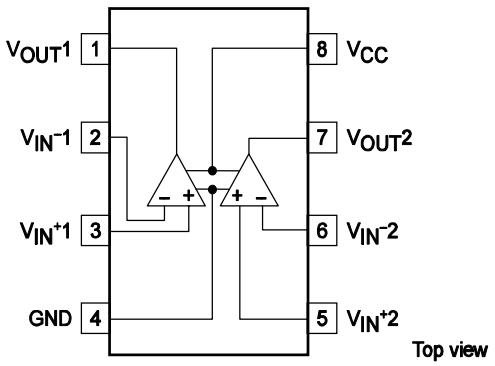
3245B



SANYO : MSOP8(150mil)



Pin Assignment



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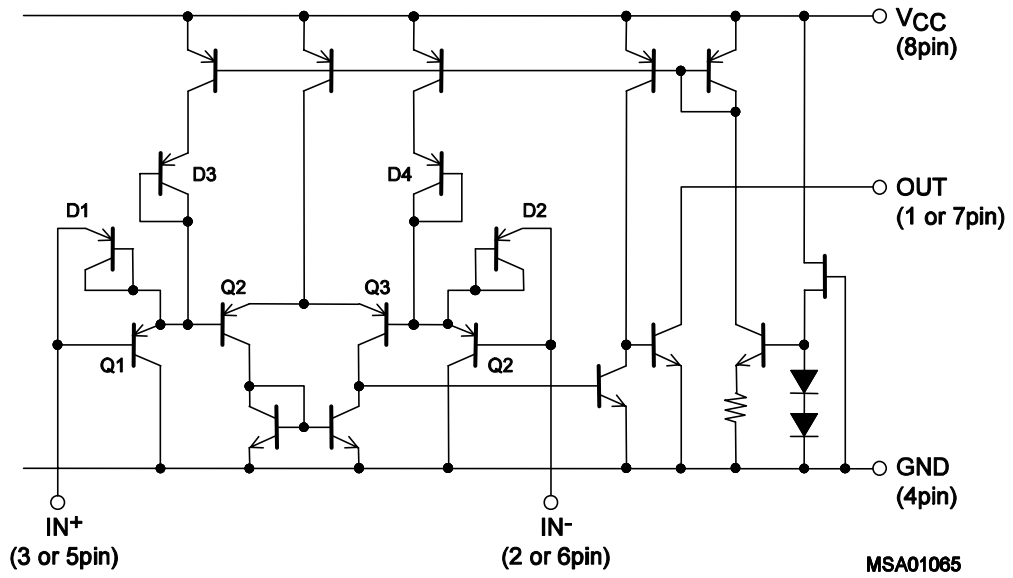
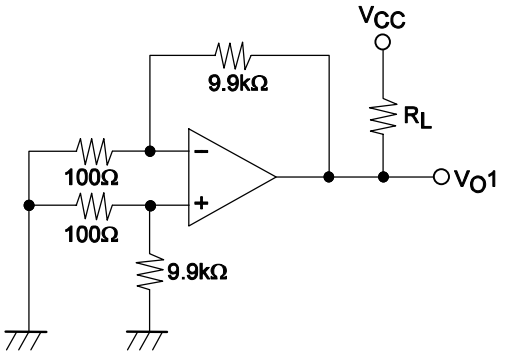
Equivalent Circuit

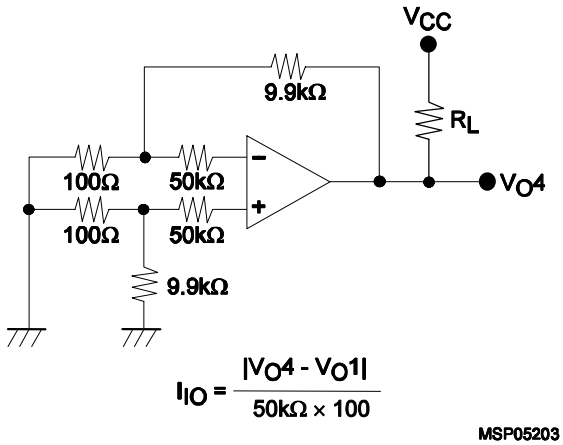


Test Circuits

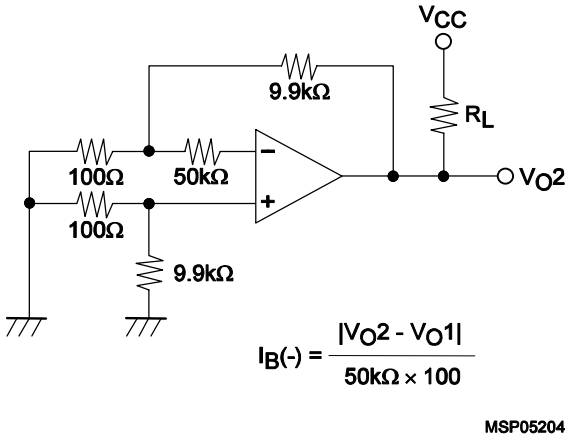
1. Input offset voltage V_{IO}



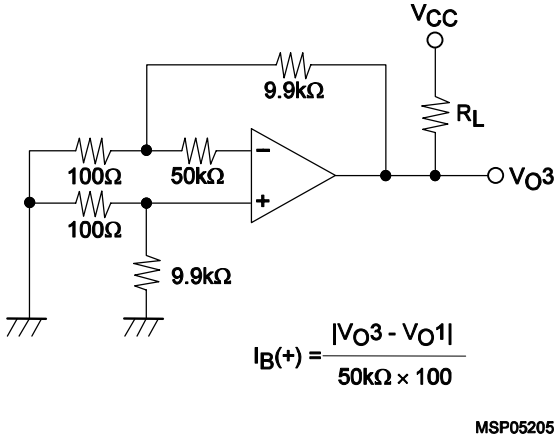
2. Input offset current I_{IO}



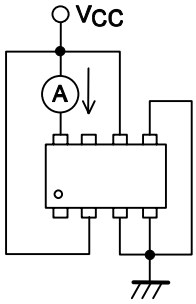
3. Input bias current I_B (–)



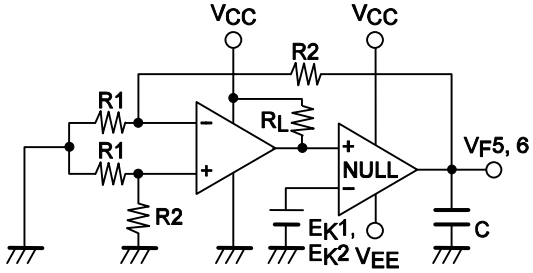
Input bias current I_B (+)



4. Current drain I_{CC}



5. Voltage gain VG



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

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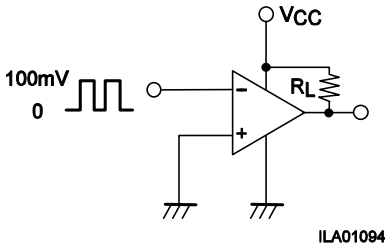
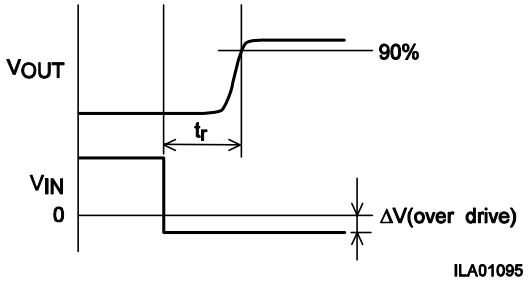
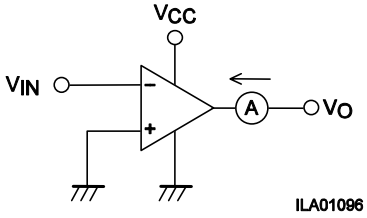
6. Response time RT

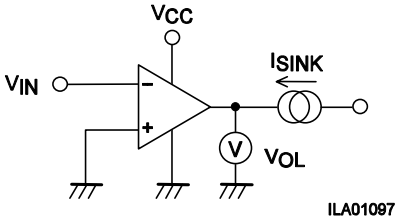




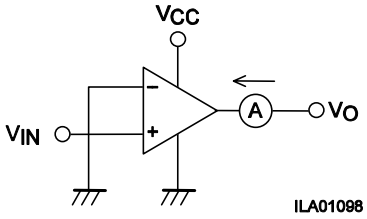
7. Output sink current I_{SINK}



8. Output saturation voltage V_{OL}

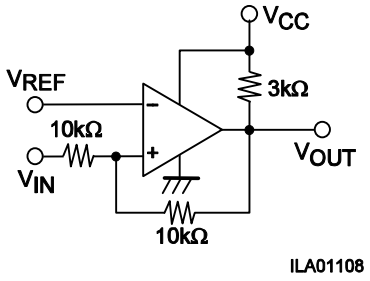


9. Output leakage current I_{LEAK}



Application Circuit Examples

Voltage comparator
(with hysteresis)



Square wave generator