Ordering number : EN7234B

SANYO Semiconductors
DATA SHEET

LA6393AT — Monolithic Linear IC For Parallel Comparator Circuits High-Performance Dual Comparator

Overview

The LA6393AT is a high-performance dual comparator that features the flexible operating characteristics of a wide supply voltage range (2 to 24V for single voltage operation) and a wide operating temperature range (–40 to +125°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 24.0V (single voltage supply), ±1.0 to 12.0V (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

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max		36	V
Maximum differential input voltage	V_{ID} max		36	V
Maximum common-mode input voltage range	V_{ICM} max		-0.3 to +36	V
Allowable power dissipation	Pd max		160	mW
Operating temperature	Topr		-40 to +125	°C
Storage temperature	Tstg		-55 to +150	°C

SANYO Semiconductor Co., Ltd.
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Allowable Operating Ranges at Ta = -40°C to +125°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Supply voltage	V_{CC}		2		24	V

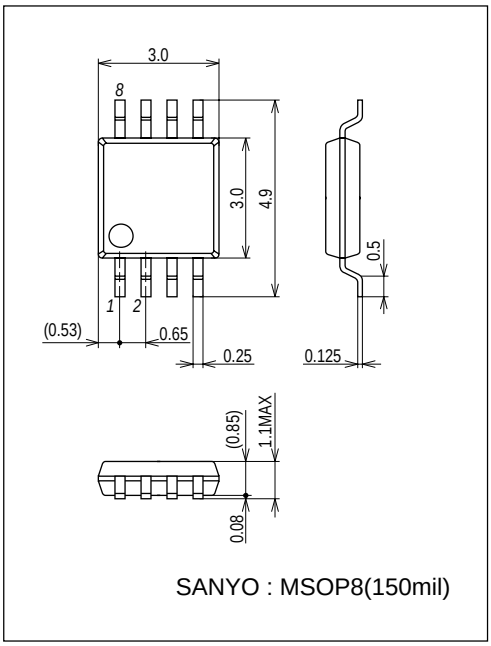
Electrical Characteristics at Ta = -40°C to +125°C, V_{CC} = 5V

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input offset voltage	V_{IO}			±1	±5	mV
Input offset current	I_{IO}			±5	±50	nA
Input bias current	I_B			25	250	nA
Common-mode input voltage range	V_{ICM}		0		V_{CC}-1.8	V
Current drain	I_{CC}	R_L = ∞		0.6	1	mA
Voltage gain	VG	R_L = 15kΩ		200		V/mV
Response time	SR	R_L = 5.1kΩ, VRL = 5V		1.3		µs
Output sink current	I_{SINK}	V_{IN}- = 0.5V, V_{IN}+ = 0V, V_O ≤ 1.5V	6	16		mA
Output saturation voltage	V_{OL}	V_{IN}- = 0.5V, V_{IN}+ = 0V, I_{SINK} ≤ 3mA		0.2	0.4	V
Output leakage current	I_{LEAK}	V_{IN}- = 0V, V_{IN}- = 0.5V, V_O = 5V		0.1		nA

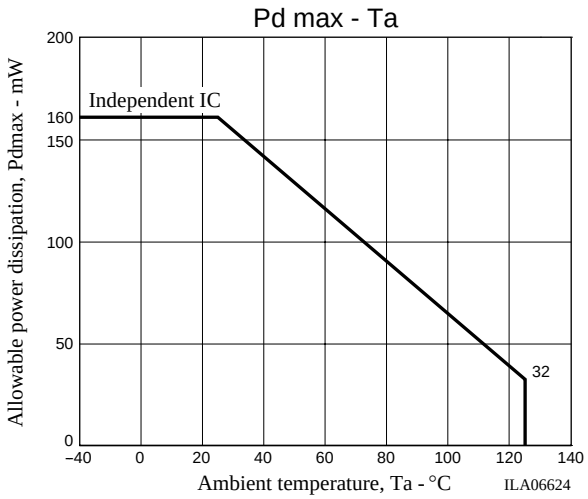
Package Dimensions

unit : mm (typ)

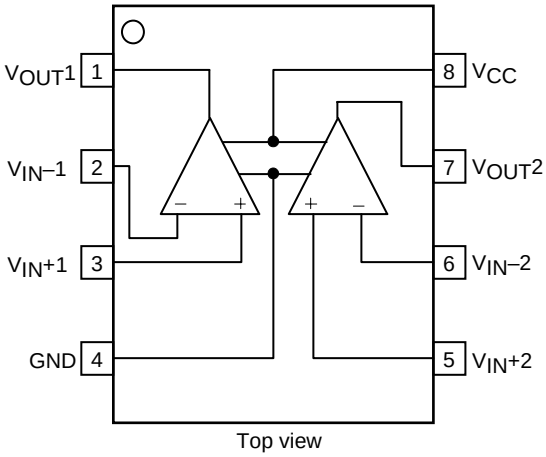
3245B



SANYO : MSOP8(150mil)

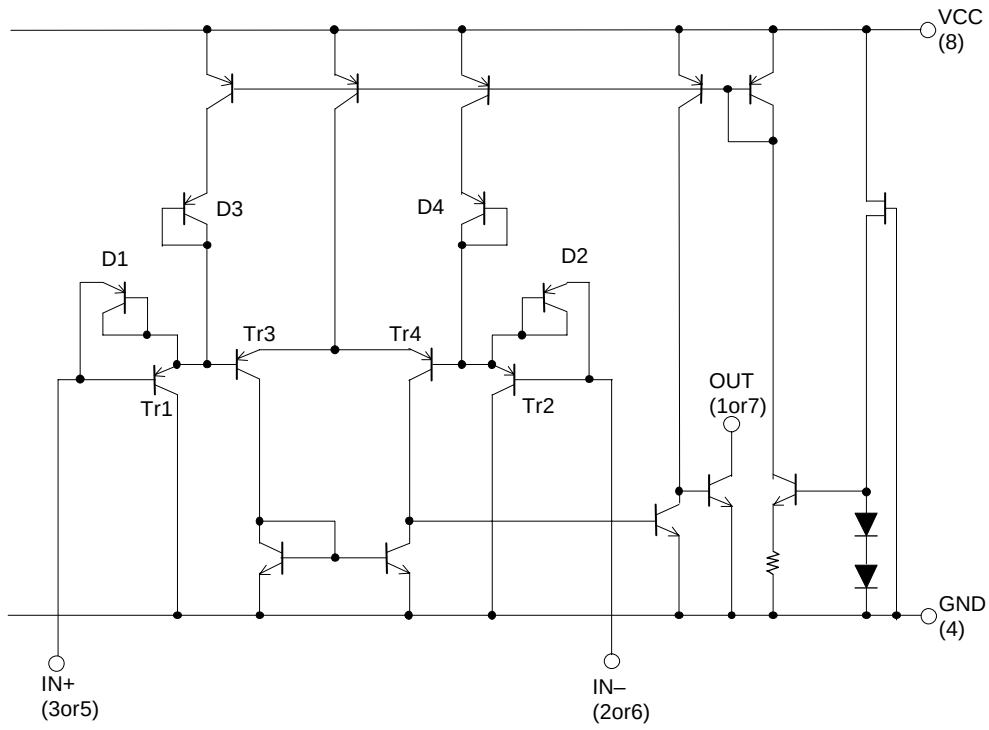


Pin Assignment



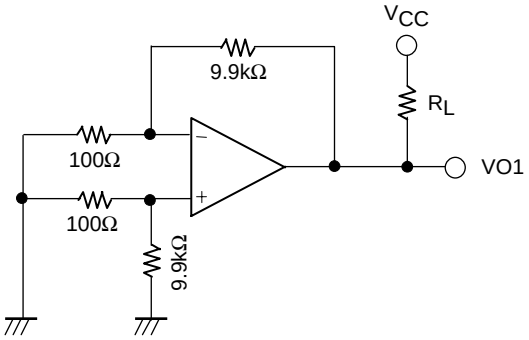
Top view

Equivalent Circuit Block Diagram



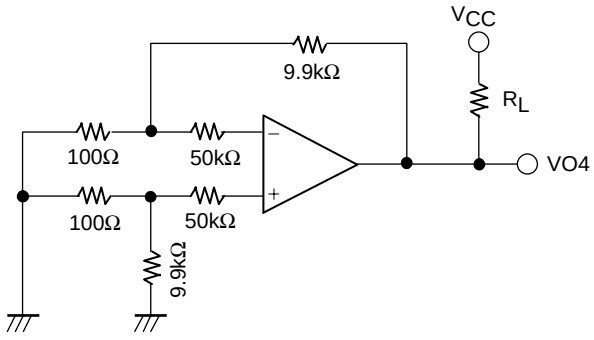
Test Circuits

1. Input offset voltage



VIO V_{CC}/V_{EE} = ±15V
VIO = VO1/100

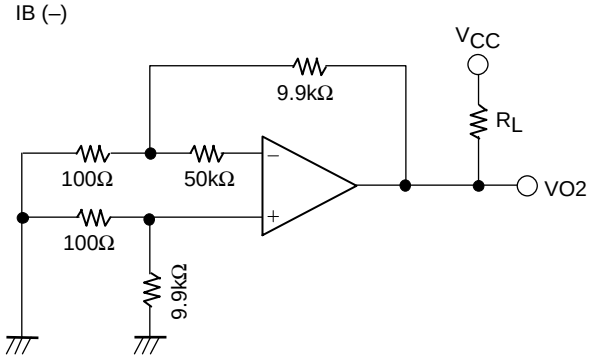
2. Input offset current



$$IIO = \frac{|VO4 - VO1|}{50k\Omega \times 100}$$

3. Input bias current

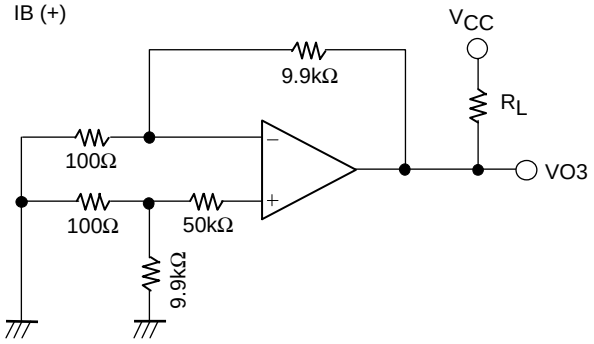
IB (–)



$$IB(-) = \frac{|VO2 - VO1|}{50k\Omega \times 100}$$

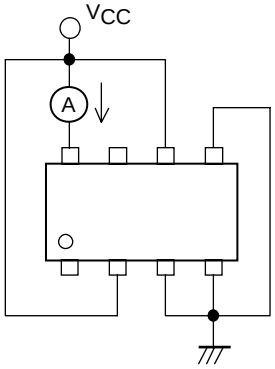
Input bias current

IB (+)

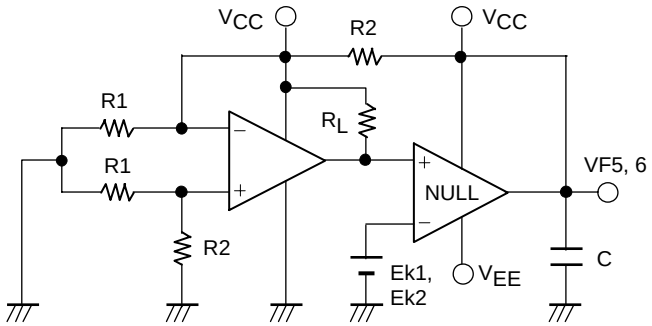


$$IB(+) = \frac{|VO3 - VO1|}{50k\Omega \times 100}$$

4. Current drain

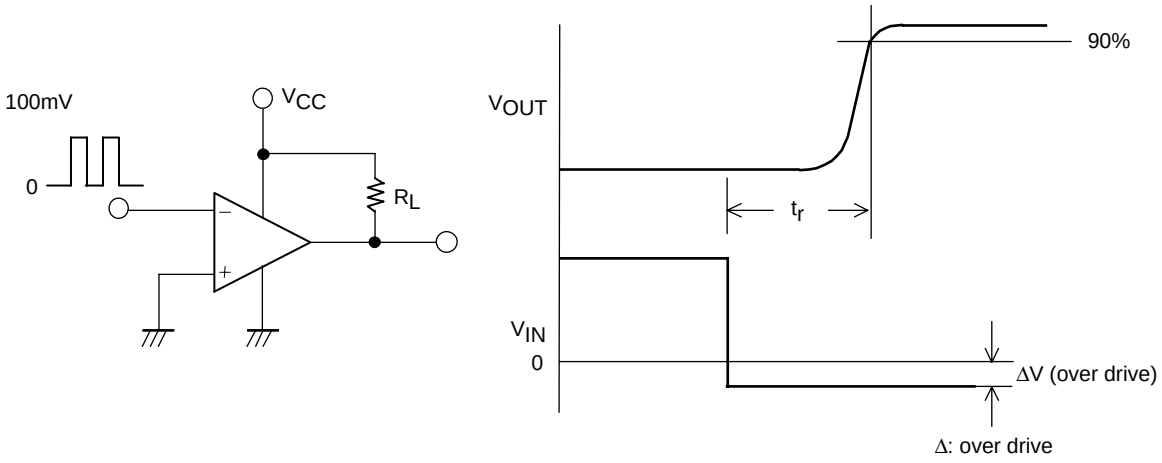


5. Voltage gain

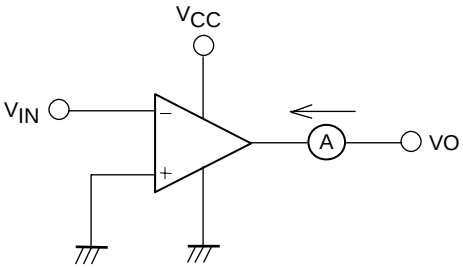


$$VG = \frac{(EK1 - EK2)\,(1 + R2/R1)}{(VF6 - VF5)}$$

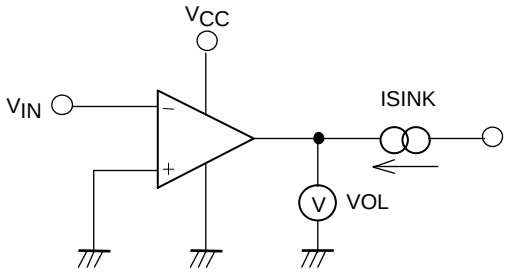
6. Response time



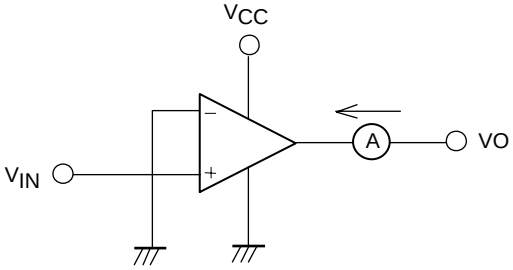
7. Output sink current

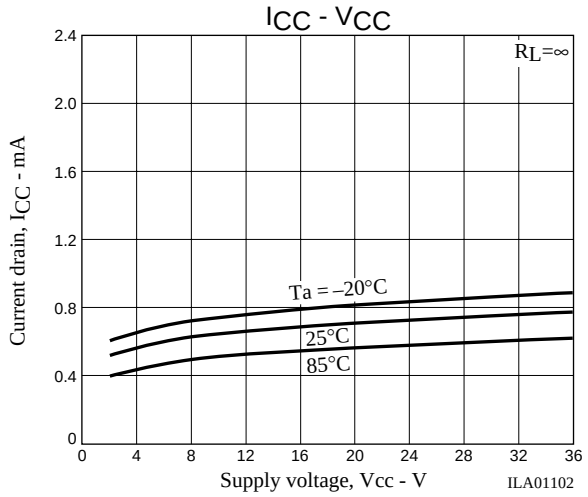


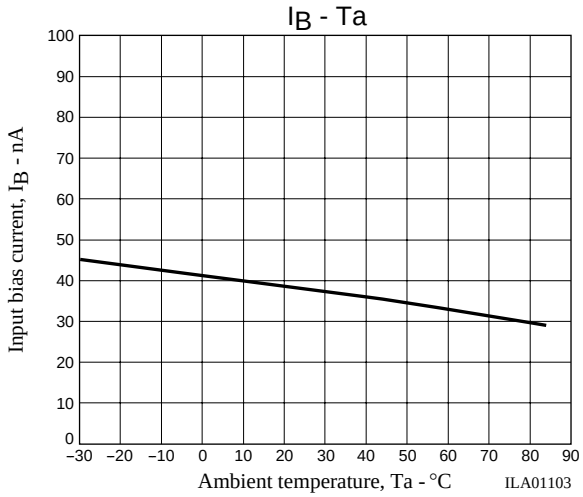
8. Output saturation voltage

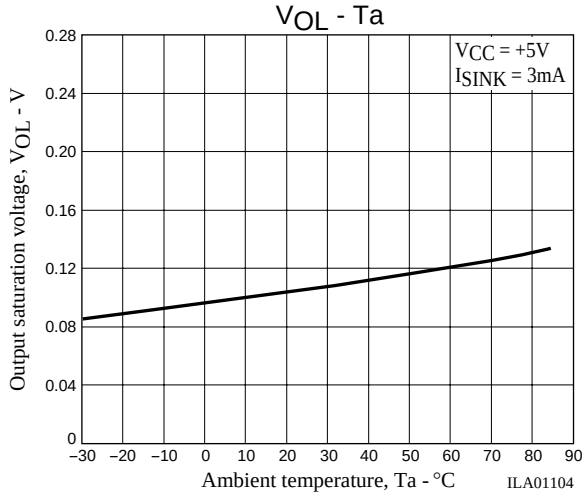


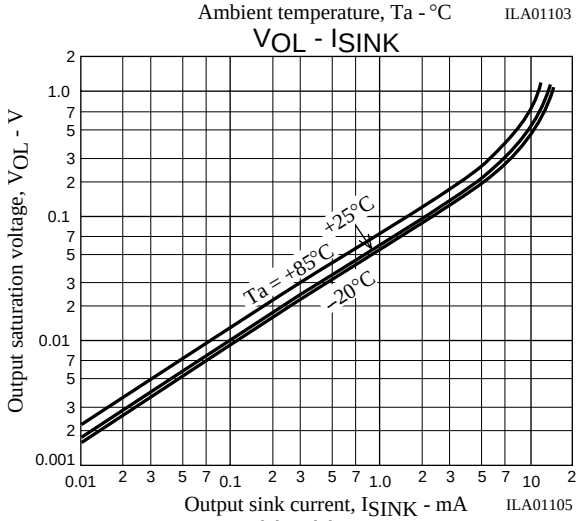
9. Output leakage current

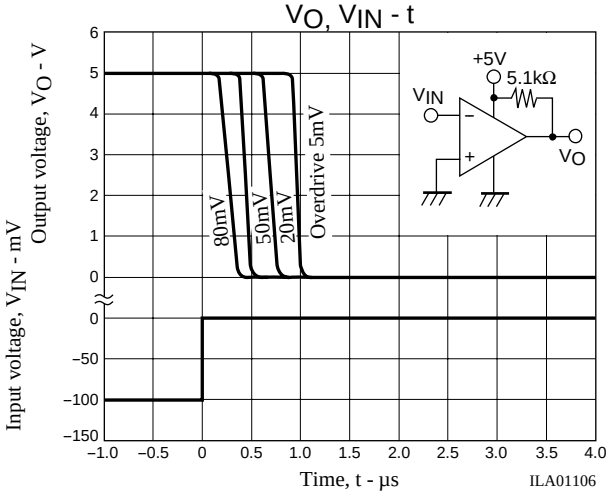


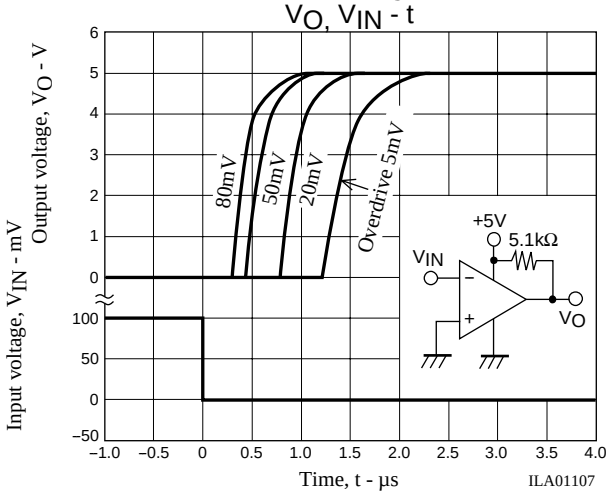

ICC - VCC
RL=∞
Ta = –20°C
25°C
85°C
Current drain, ICC - mA
Supply voltage, Vcc - V
ILA01102


IB - Ta
Input bias current, IB - nA
Ambient temperature, Ta - °C
ILA01103


VOL - Ta
VCC = +5V
ISINK = 3mA
Output saturation voltage, VOL - V
Ambient temperature, Ta - °C
ILA01104


VOL - ISINK
Ta = +85°C
+25°C
–20°C
Output saturation voltage, VOL - V
Output sink current, ISINK - mA
ILA01105


VO, VIN - t
+5V
5.1kΩ
VIN
VO
80mV
50mV
20mV
Overdrive 5mV
Output voltage, VO - V
Input voltage, VIN - mV
Time, t - µs
ILA01106


VO, VIN - t
+5V
5.1kΩ
VIN
VO
80mV
50mV
20mV
Overdrive 5mV
Output voltage, VO - V
Input voltage, VIN - mV
Time, t - µs
ILA01107