

SANYO

No.999C

LA6393D, 6393S**High-Performance Dual Comparator**

The LA6393D,6393S are high-performance dual comparators that are capable of operating from a single power supply voltage over a wide range 2 to 36V.

Because of their excellent input characteristics and low power, they can be very conveniently applied to multisignal parallel comparator circuits that require high-density assembly.

Features

- LA6393D : DIP-8 pin package, LA6393S : SEP-9 pin package
- Wide operating power-supply voltage range
(Single power supply : 2.0 to 36.0V, dual power supplies : ± 1.0 to ± 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 (0.6mA) and low power.

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

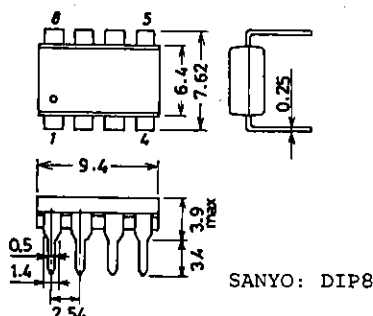
| | | | unit |
|---------------------------------|--------------|-------------|------------------|
| Maximum Supply Voltage | V_{CC} max | 36 | V |
| Differential Input Voltage | V_{ID} | 36 | V |
| Common-Mode Input Voltage Range | V_{ICM} | -0.3 to +36 | V |
| Allowable Power Dissipation | P_d max | 570 | mW |
| Operating Temperature | T_{opr} | -30 to +85 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -55 to +125 | $^\circ\text{C}$ |

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

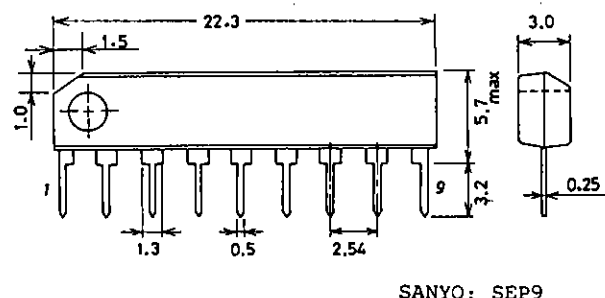
| | | | Test Circuit | min | typ | max | unit |
|---------------------------------|-----------|---|--------------|-----|--------------|----------|---------------|
| Input Offset Voltage | V_{IO} | | 1 | | ± 1 | ± 5 | mV |
| Input Offset Current | I_{IO} | | 2 | | ± 5 | ± 50 | nA |
| Input Bias Current | I_B | | 3 | | 25 | 250 | nA |
| Common-Mode Input Voltage Range | V_{ICM} | | | 0 | $V_{CC}-1.5$ | | V |
| Supply Current | I_{CC} | $R_L = \infty$ | 4 | | 0.6 | 1 | 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 | | μs |

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Package Dimensions 3001B
(unit: mm) [LA6393D]



Package Dimensions 3017B
(unit: mm) [LA6393S]



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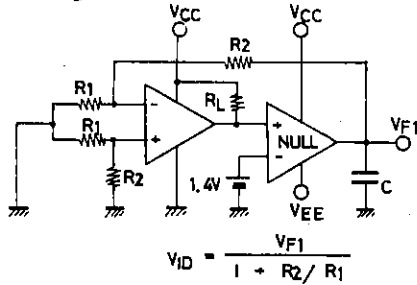
LA6393D, 6393S

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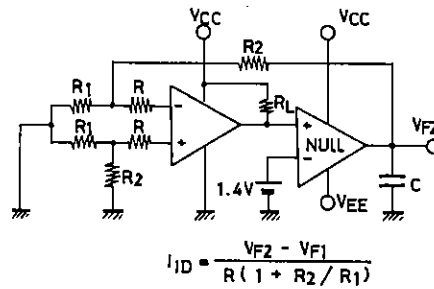
| | | | Test Circuit | min | typ | max | unit |
|---------------------------|------------|--|--------------|-----|-----|-----|------|
| Output Sink Current | I_{SINK} | $V_{IN-} = 1V, V_{IN+} = 0V,$ $V_O \leq 1.5V$ | 7 | 6 | 16 | | mA |
| Output Saturation Voltage | V_{OL} | $V_{IN-} = 1V, V_{IN+} = 0V,$ $I_{SINK} \leq 3mA$ | 8 | | 0.2 | 0.4 | V |
| Output Leakage Current | I_{LEAK} | $V_{IN-} = 0V, V_{IN+} = 1V,$ $V_O = 5V$ | 9 | | 0.1 | | nA |

Test Circuits

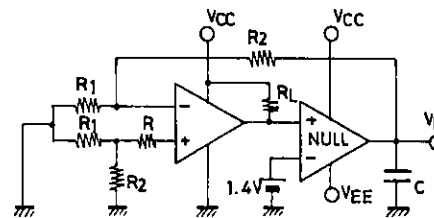
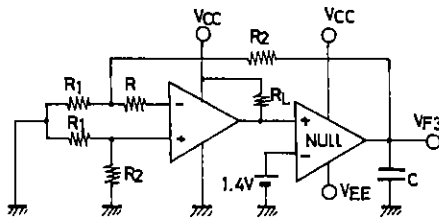
1. Input Offset Voltage



2. Input Offset Current

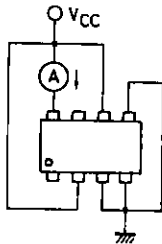


3. Input Bias Current

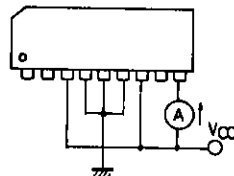


$$I_B = \frac{|VF3 - VF4|}{2R(1 + R2/R1)}$$

4. Supply Current

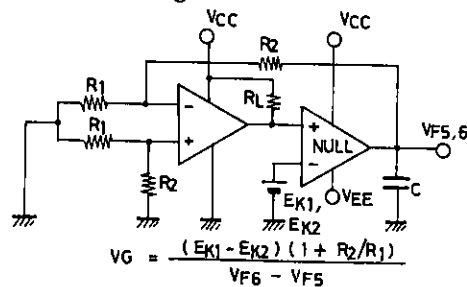


LA6393D

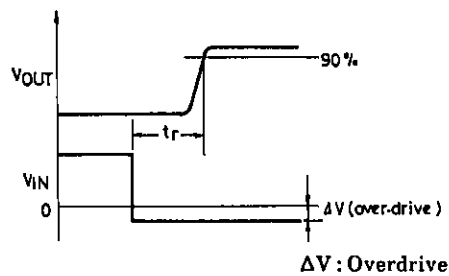
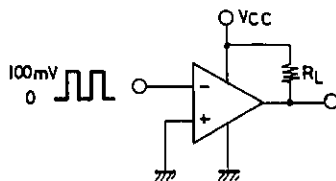


LA6393S

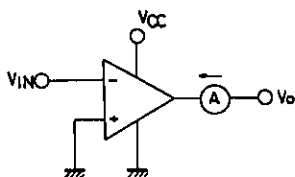
5. Voltage Gain



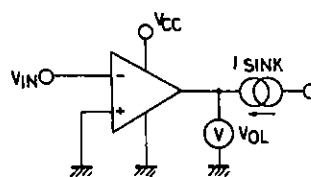
6. Response Time



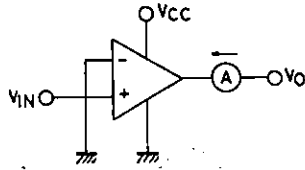
7. Output Sink Current



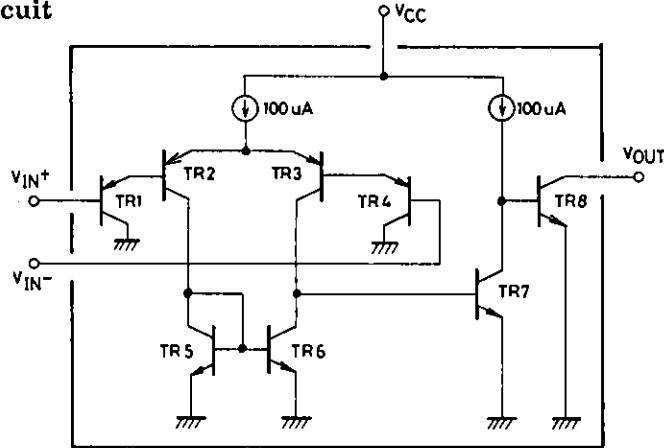
8. Output Saturation Voltage



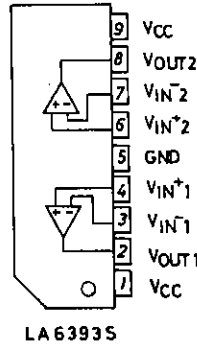
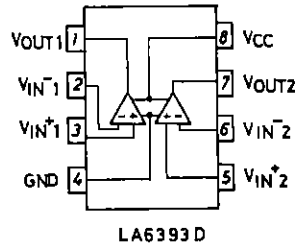
9. Output Leakage Current



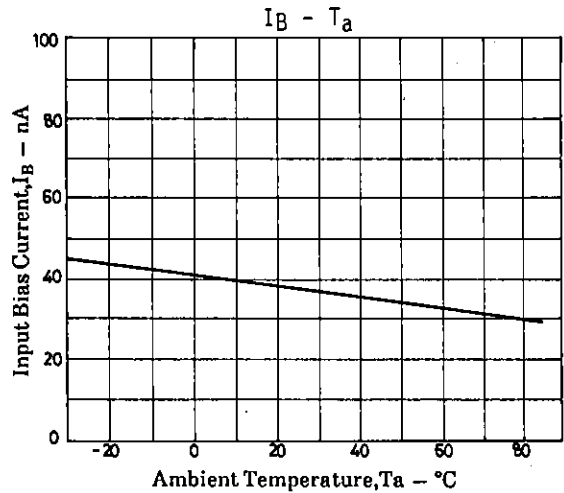
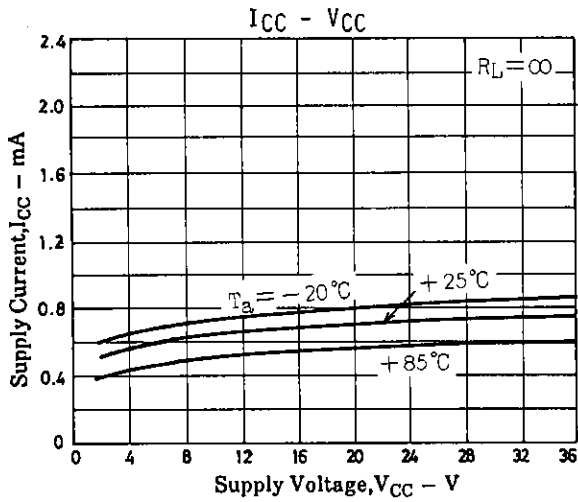
Equivalent Circuit

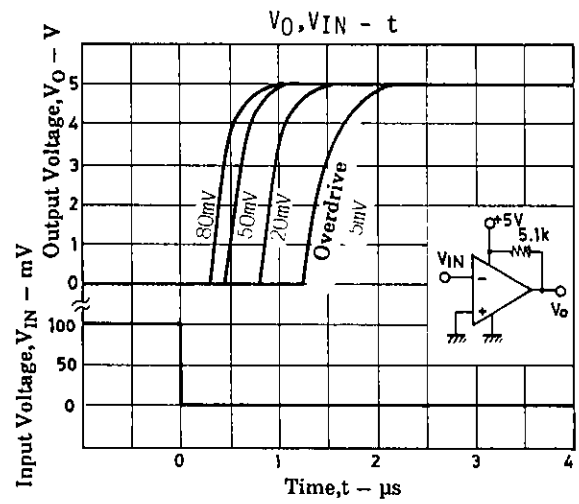
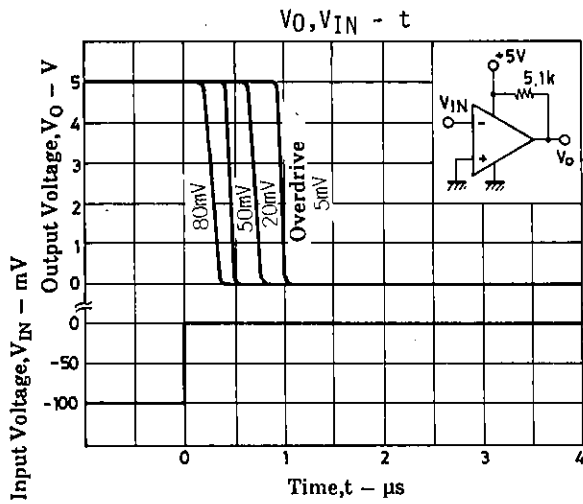
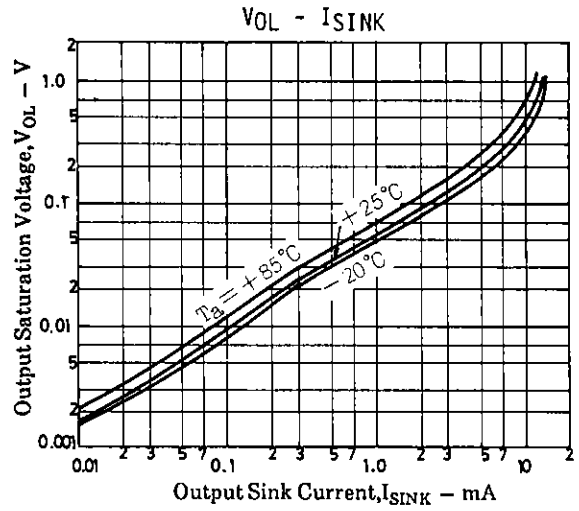
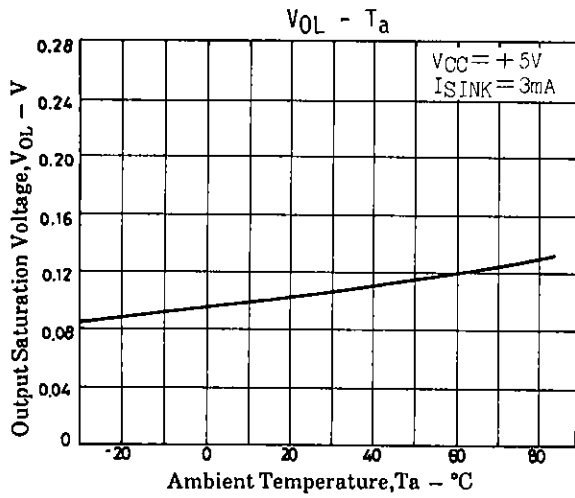


Pin Assignment

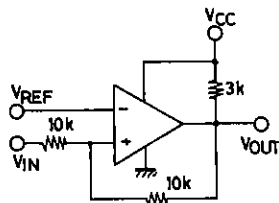


Main Characteristics

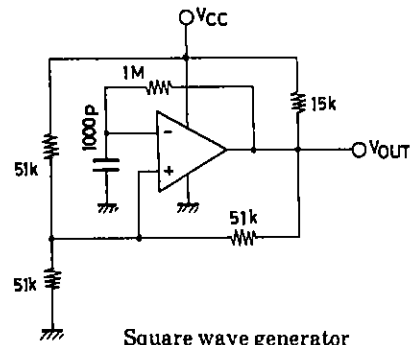




Sample Application Circuits



Voltage comparator
(with hysteresis)



Square wave generator

Unit (resistance: Ω , capacitance: F)

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