



SANYO Semiconductors

DATA SHEET

LA6393D — Monolithic Linear IC LA6393S High-Performance Dual Comparator

Overview

The LA6393D and 6393S are high-performance dual comparators that are capable of operating from a single power supply voltage over a wide range of 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: SIP-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 drain (0.6mA) and low power.

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC\text{ max}}$		36	V
Differential input voltage	V_{ID}		36	V
Common-mode input voltage range	V_{ICM}		-0.3 to +36	V
Allowable power dissipation	$P_d\text{ max}$		570	mW
Operating temperature	T_{opr}		-30 to +85	$^\circ\text{C}$
Storage temperature	T_{stg}		-55 to +125	$^\circ\text{C}$

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LA6393D / LA6393S

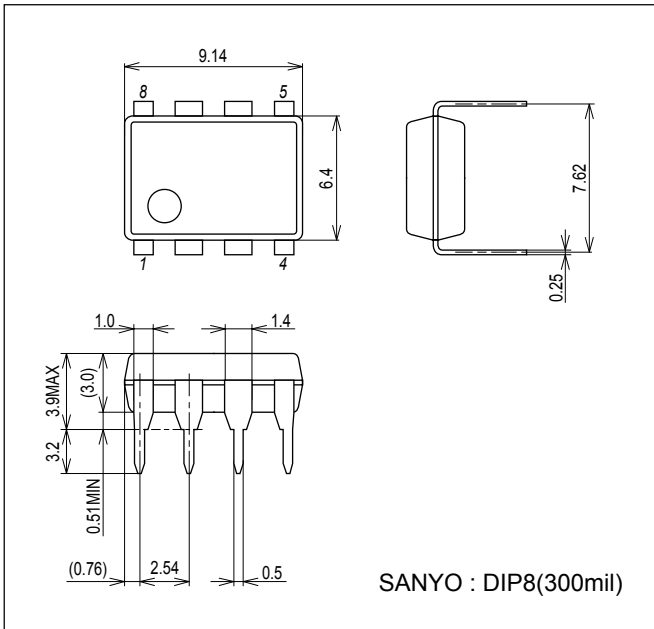
Operating Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC} = 5\text{V}$

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
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
Output sink current	I_{SINK}	$V_{IN^-} = 1\text{V}$, $V_{IN^+} = 0\text{V}$, $V_O \leq 1.5\text{V}$	7	6	16		mA
Output saturation current	V_{OL}	$V_{IN^-} = 1\text{V}$, $V_{IN^+} = 0\text{V}$, $I_{SINK} \leq 3\text{mA}$	8		0.2	0.4	V
Output leakage current	I_{LEAK}	$V_{IN^-} = 0\text{V}$, $V_{IN^+} = 1\text{V}$, $V_O = 5\text{V}$	9		0.1		nA

Package Dimensions

unit: mm (typ)

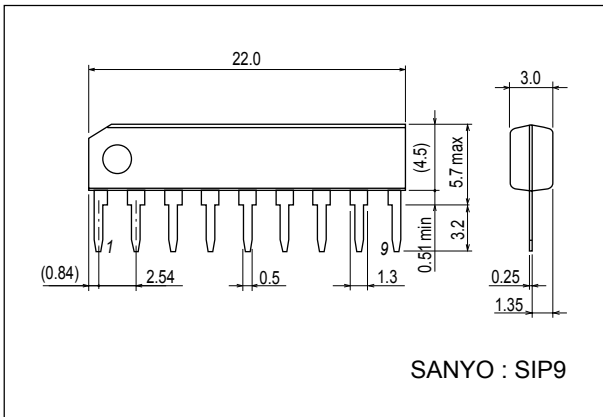
3001D [LA6393D]



Package Dimensions

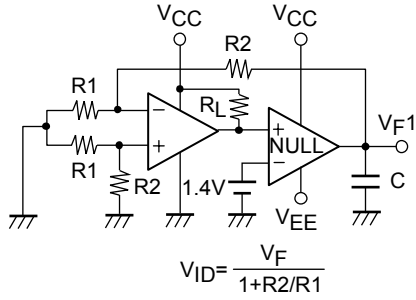
unit: mm (typ)

3017D [LA6393S]



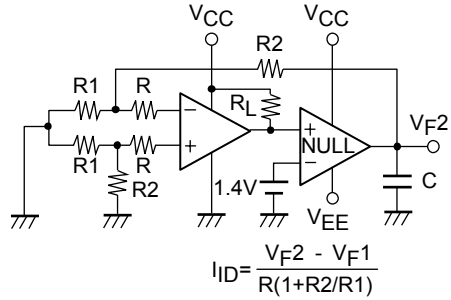
Test Circuits

1. Input Offset Voltage



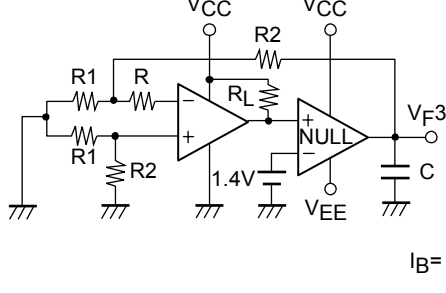
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2. Input Offset Current



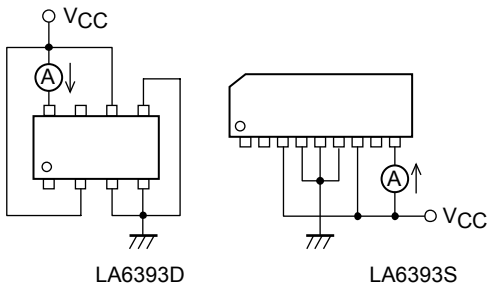
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3. Input Bias Current



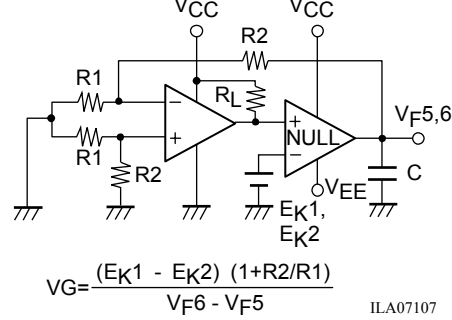
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4. Supply Current



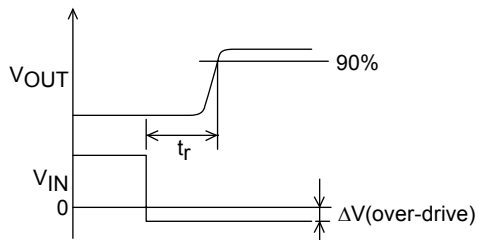
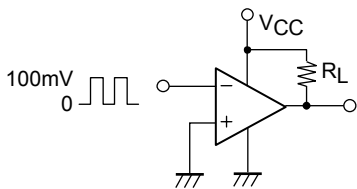
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5. Voltage Gain



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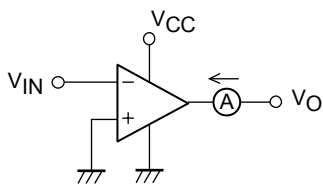
6. Response Time



ΔV: Overdrive

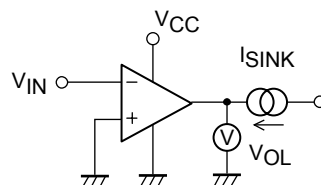
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7. Output Sink Current



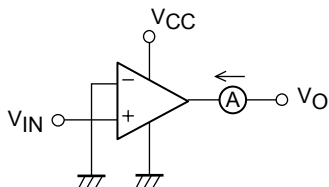
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8. Output Saturation Voltage



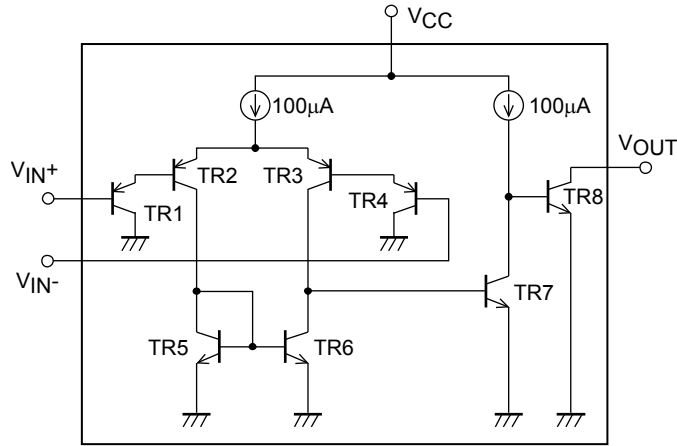
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9. Output Leakage Current



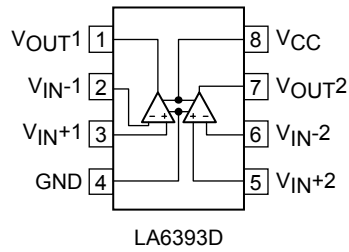
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Equivalent Circuit

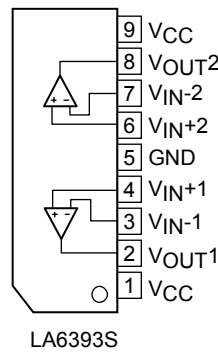


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Pin Assignment

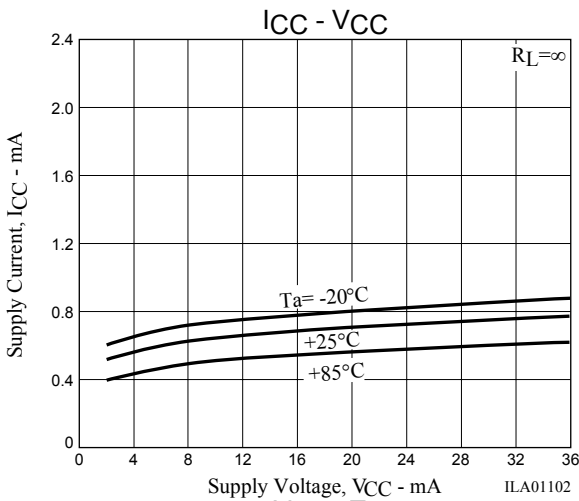


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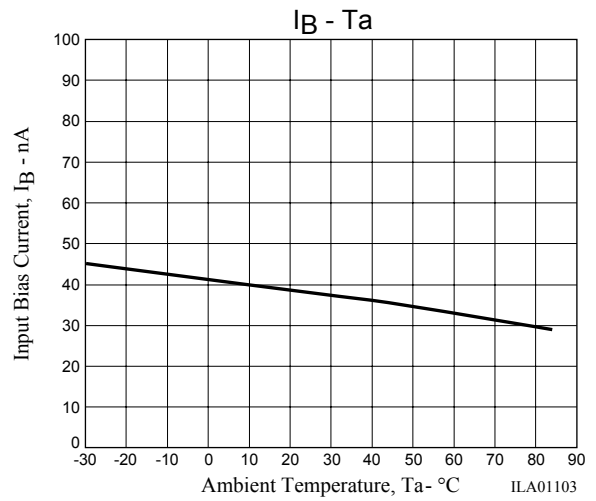


LA6393S

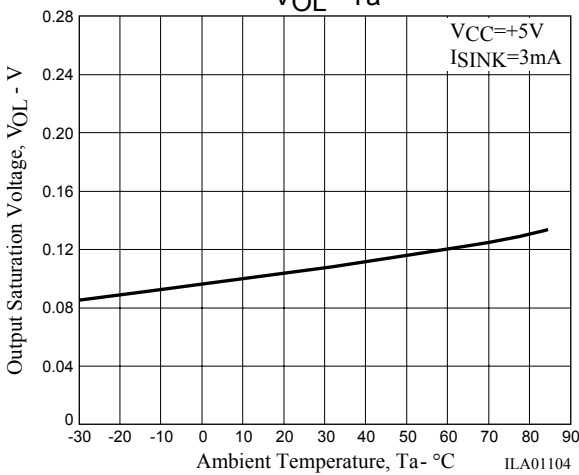
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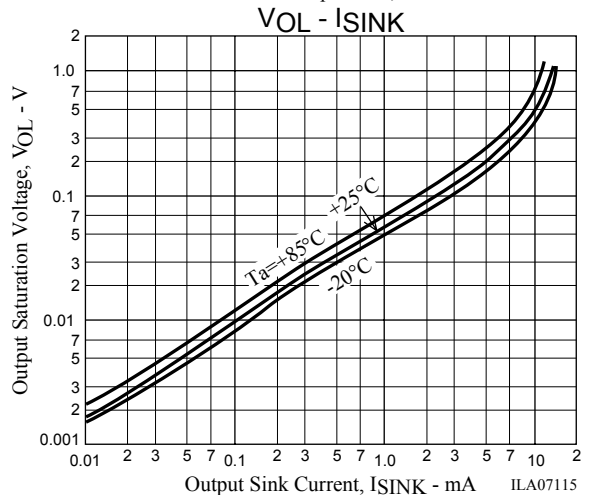
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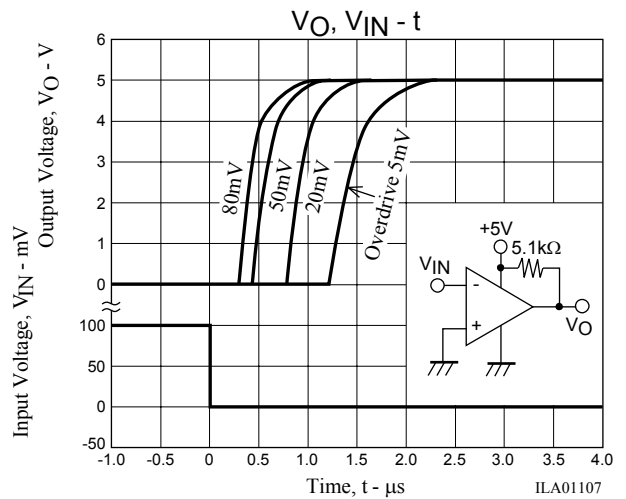
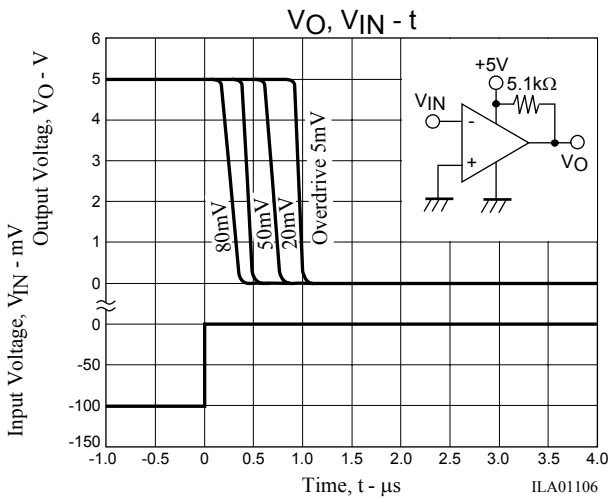
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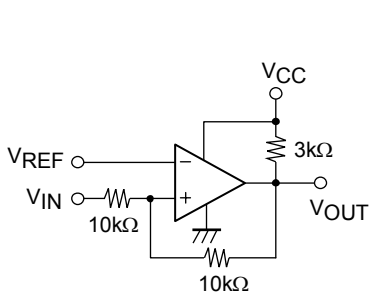
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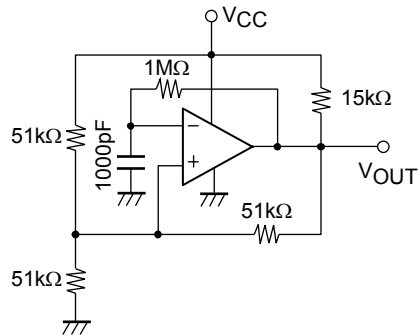
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Sample Application Circuits



Voltage comparator
(with hysteresis)



Square wave generator

ILA07114

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