

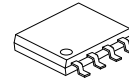
# DUAL DIFFERENTIAL COMPARATOR

## DESCRIPTION

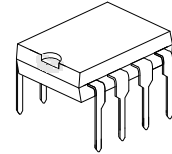
The **ASOP393** consists of two independent voltage comparators, designed specifically to operate from a single power supply over a wide voltage range.

## FEATURES

- \* Single or dual supply operation.
- \* Wide operating supply range ( $V_{CC}=2V \sim 36V$  or  $\pm 1 \sim \pm 18V$ )
- \* Input common-mode voltage includes ground.
- \* Low supply current drain  $I_{CC}=0.8mA$  (Typical).
- \* Low input bias current  $I_{BIAS}=25nA$  (Typical).
- \* Output compatible with TTL, DTL, and CMOS logic system.

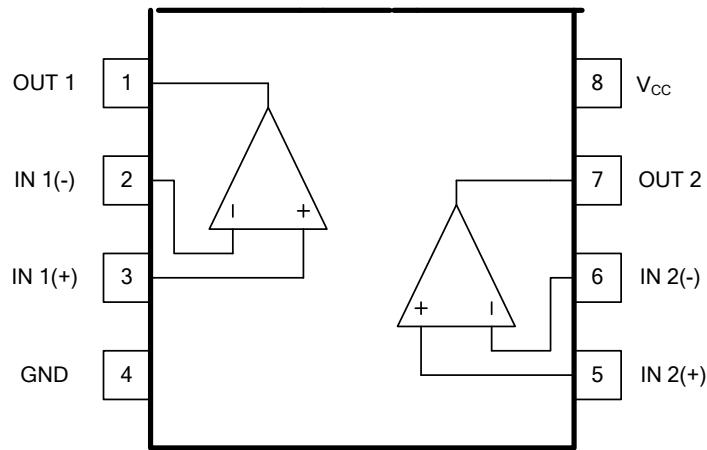


SOP-8



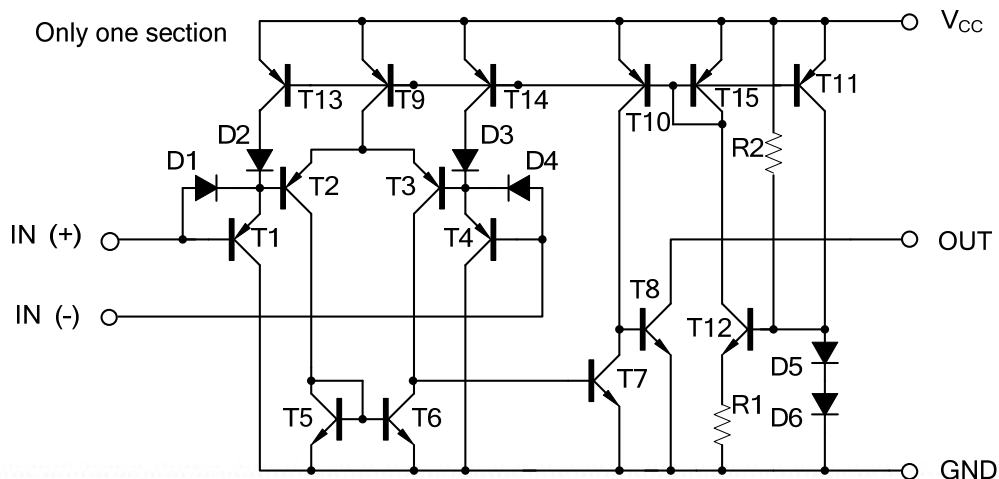
DIP-8

## PIN DESCRIPTION



DIP-8 / SOP-8 / MSOP-8 / TSSOP-8

## BLOCK DIAGRAM



**■ ABSOLUTE MAXIMUM RATINGS**

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		$V_{CC}$	$\pm 18$ or 36	V
Differential Input Voltage		$V_{I(DIFF)}$	$\pm 36$	V
Input Voltage		$V_{IN}$	-0.3 ~ +36	V
Power Dissipation	DIP-8	$P_D$	600	mW
	SOP-8		420	mW
Operating Temperature Range (Note 2)		$T_{OPR}$	0 ~ 75	°C
Storage Temperature Range		$T_{STG}$	-65 ~ +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

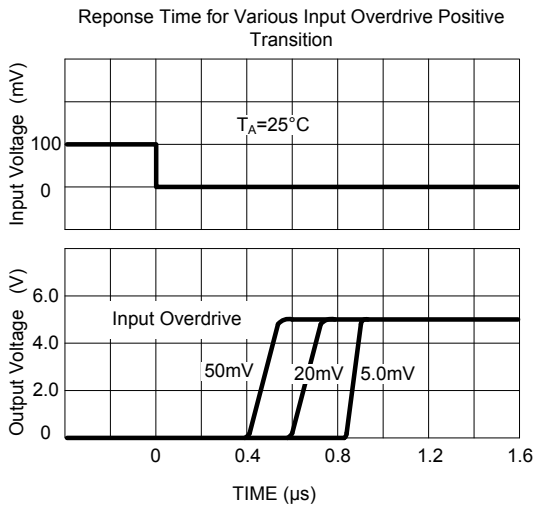
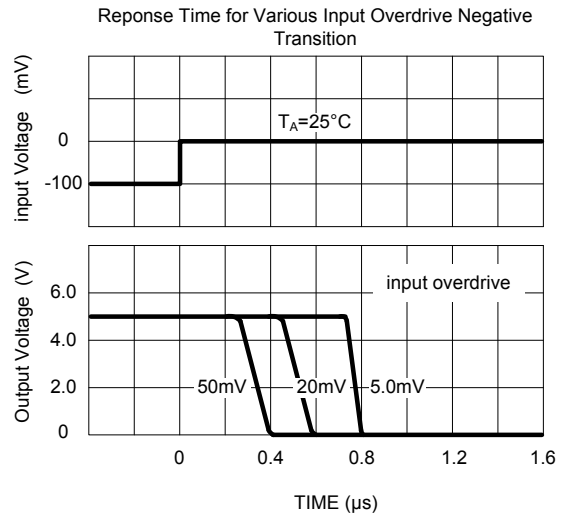
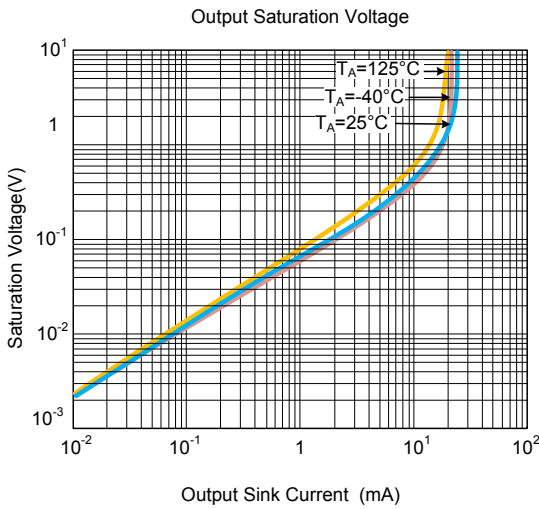
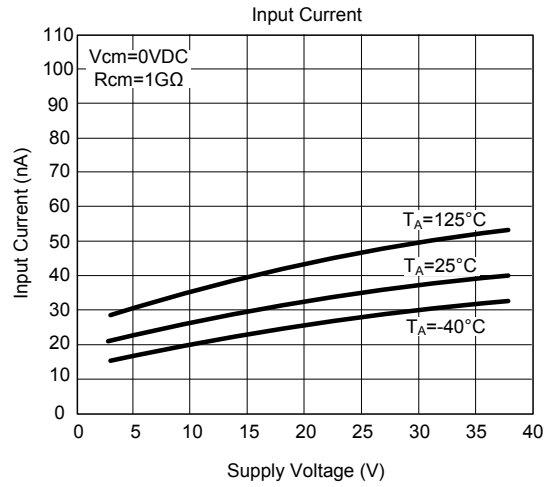
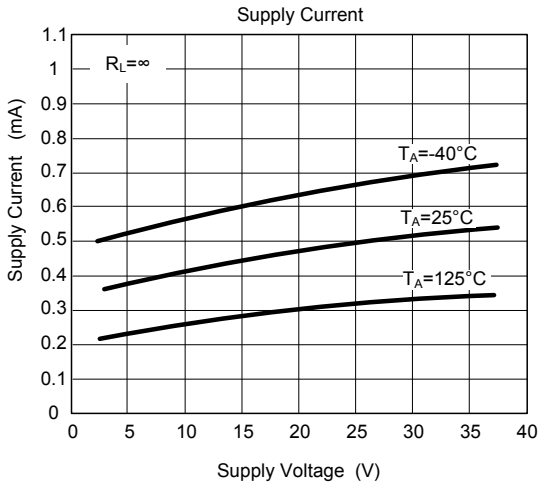
2. It is guarantee y design, not 100% be tested.

**■ ELECTRICAL CHARACTERISTICS**

( $V_{CC}=5.0V$ ,  $T_A=25^\circ C$ , All voltage referenced to GND unless otherwise specified)

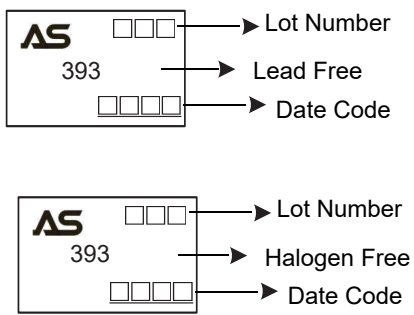
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Offset Voltage	$V_{I(OFF)}$	$V_{CM}=0V$ to $V_{CC}-1.5V$ $V_{O(P)}=1.4V$ , $R_S=0\Omega$		1.0	5.0	mV
Output Saturation Voltage	$V_{SAT}$	$V_{I(-)}>1V$ , $V_{I(+)}=0V$ , $I_{SINK}=4mA$		160	400	mV
Input Common Mode Voltage	$V_{I(CM)}$	$V_{CC}=30V$			$V_{CC}-1.5$	V
Large Signal Voltage Gain	$G_V$	$V_{CC}=15V$ , $R_L \geq 15K\Omega$	50	20		V/mV
Power Supply Current	$I_{CC}$	$R_L=\infty$ , $V_{CC}=30V$		0.8	2.5	mA
		$R_L=\infty$		0.6	1.0	mA
Input Offset Current	$I_{I(OFF)}$			5	50	nA
Input Bias Current	$I_{I(BIAS)}$			65	250	nA
Output Sink Current	$I_{O(SINK)}$	$V_{I(-)}>1V$ , $V_{I(+)}=0V$ , $V_{O(P)}<1.5V$	6	18		mA
Output Leakage Current	$I_{O(LEAK)}$	$V_{I(+)}=1V$ , $V_{I(-)}=0$		0.1		nA
			$V_{O(P)}=30V$			1.0
Large Signal Response Time	$t_R$	$V_{IN}=TTL$ logic wing $V_{REF}=1.4V$ , $V_{RL}=5V$ , $R_L=5.1k\Omega$		350		ns
Response Time	$t_R$	$V_{RL}=5V$ , $R_L=5.1k\Omega$		1400		ns

■ TYPICAL CHARACTERISTICS

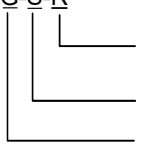


## Ordering and Marking Information

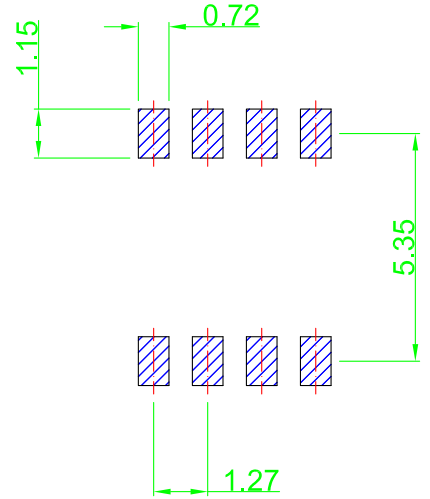
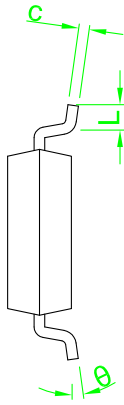
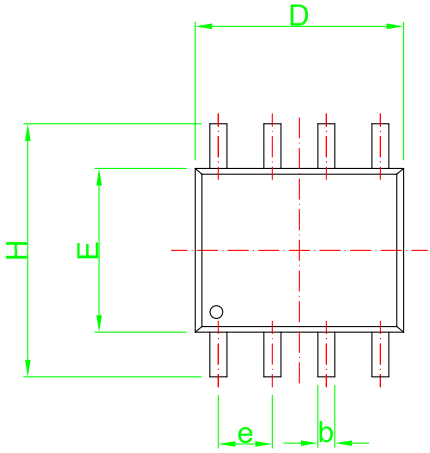
Device	Marking	Package	Packaging	Quantity
ASOPH93S	593	SOP-8	Tape&Reel	2500/Reel
ASOPH93N	593	DIP-8	Tube	50/Tube

PACKAGE	MARKING
SOP-8 DIP-8	 <p>ASOP393 marking details:</p> <ul style="list-style-type: none"> <li>ASOP393S (Lead Free): AS logo, 393, Lot Number (3 boxes), Lead Free, Date Code (4 boxes).</li> <li>ASOP393N (Halogen Free): AS logo, 393, Lot Number (3 boxes), Halogen Free, Date Code (4 boxes).</li> </ul>

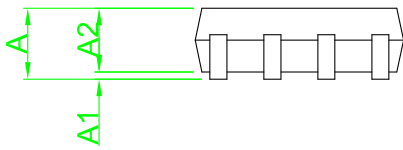
Ordering Number		Package
Lead Free	Halogen Free	
ASOP393-S-R	ASOP393G-S-R	SOP-8
ASOP393-N-T	ASOP393G-N-R	DIP-8

<p>ASOP393G-S-R</p>  <ul style="list-style-type: none"> <li>1 Packing Type</li> <li>2 Package Type</li> <li>3 Green Package</li> </ul>	<ul style="list-style-type: none"> <li>1 T:Tube,R:Tape Reel</li> <li>2 S: SOP-8 N:DIP-8</li> <li>3 blank : Lead Free G : Halogen Free</li> </ul>
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■ Package Dimension

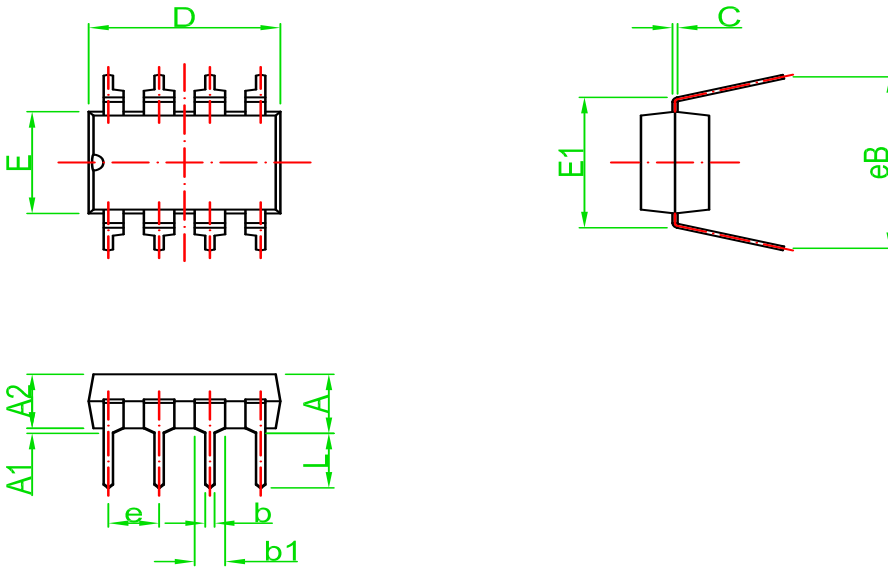


Recommended Land Pattern



SOP-8

Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	---	1.75	---	0.069
A1	0.00	0.26	0.000	0.010
A2	1.30	1.70	0.051	0.067
b	0.30	0.55	0.012	0.022
C	0.15	0.35	0.006	0.014
D	4.80	5.00	0.189	0.197
E	3.80	4.00	0.150	0.157
e	1.27 TYP		0.050 TYP	
H	5.70	6.30	0.224	0.248
L	0.45	0.85	0.018	0.033
$\theta$	0°	8°	0°	8°



DIP-8

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.60	4.80	0.142	0.210
A1	0.38	---	0.015	---
A2	3.05	3.65	0.120	0.210
b	0.36	0.51	0.014	0.020
b1	1.14	1.78	0.045	0.070
C	0.20	0.36	0.008	0.014
D	9.02	10.16	0.355	0.400
E	6.10	7.11	0.240	0.280
E1	7.45	8.26	0.300	0.325
e	2.54 BSC		0.100 BSC	
eB	7.62	10.92	0.300	0.430
L	2.92	3.81	0.115	0.150

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