

Description

The S393 consists of two independent voltage comparators designed to operate from a single power supply over a wide voltage range.

Features

- Single Supply Operation: 2V to 36V.
- Dual Supply Operation: $\pm 1V$ to $\pm 18V$.
- Allow Comparison of Voltages Near Ground Potential.
- Low Current Drain 800uA Typ.
- Compatible with all Forms of Logic.
- Low Input Bias Current: 25nA Typ.
- Low Input Offset Current: $\pm 5nA$ Typ.
- Low Offset Voltage: $\pm 1mV$ Typ.

Applications

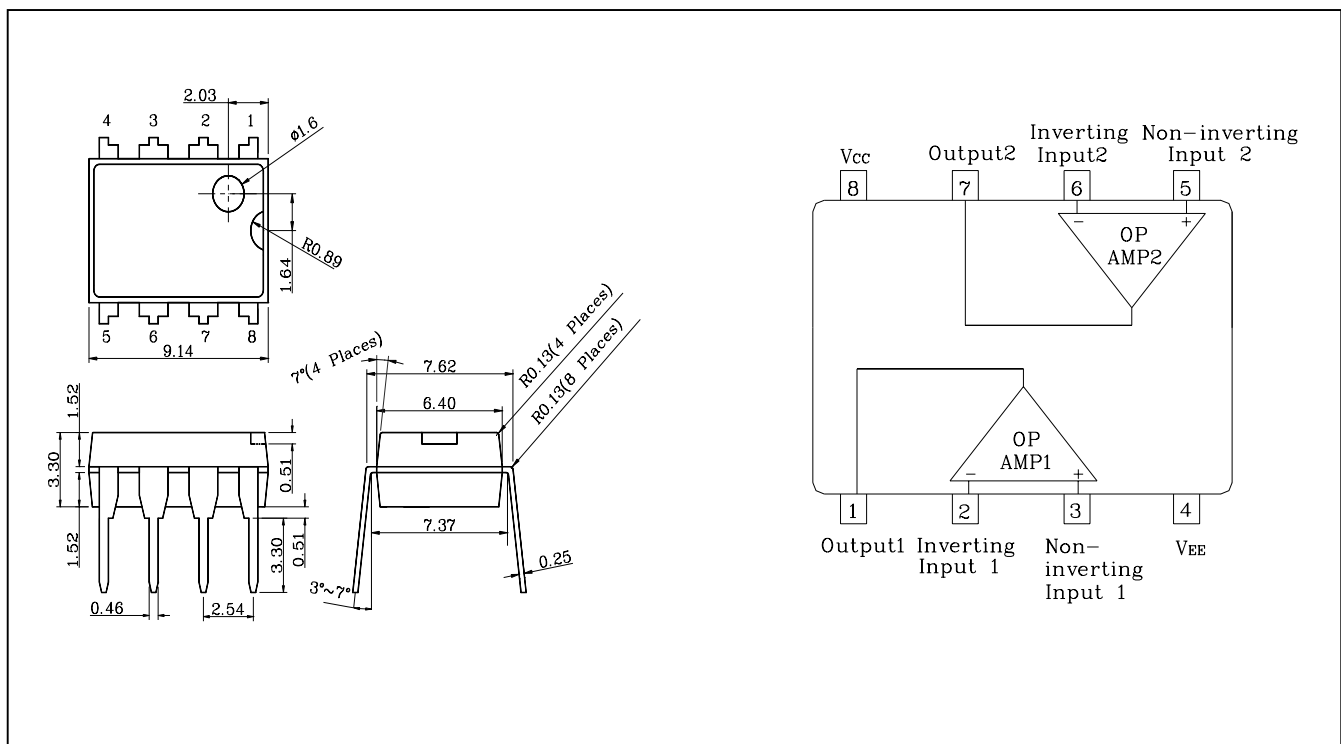
- Transducer amplifier
- DC gain blocks
- Conventional operational amplifiers

Ordering Information

| Type NO. | Marking | Package Code |
|----------|---------|--------------|
| S393P | S393P | DIP-8 |

Outline Dimensions

unit : mm



Absolute maximum ratings

| Characteristic | Symbol | Ratings | Unit |
|----------------------------|-----------|----------------|------|
| Supply voltage | V_{CC} | 36 or ± 18 | V |
| Differential input voltage | V_{IND} | 36 | V |
| Input voltage | V_{IN} | -0.3 ~ +36 | V |
| Power Dissipation | P_D | 570 | mW |
| Operating temperature | T_{opr} | -40 ~ +85 | °C |
| Storage temperature | T_{stg} | -55 ~ 150 | °C |

Electrical Characteristics

(Unless otherwise specified. $V_{CC} = 5V$ and $-40\text{ °C} \leq T_a \leq +85\text{ °C}$)

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---------------------------------|------------|---|------|---------|------------------|---------------|
| Input Offset Voltage | V_{IOS} | $V_O = 1.4V$ $R_S = 0\Omega$ | - | ± 1 | ± 5 | mV |
| Input Offset Current | I_{IOS} | - | - | ± 5 | ± 50 | nA |
| Input Bias Current | I_{IB} | - | - | 25 | 250 | nA |
| Input Common Mode Voltage Range | V_{ICR} | - | 0 | - | V_{CC} -1.5 | V |
| Supply Current | I_{CC} | $V_{CC} = 30V, R_L = \infty, \text{ All Channel}$ | - | - | 2.5 | mA |
| Large Signal Voltage Gain | A_V | $V_{CC} = 15V$ $R_L = 15\text{ K}\Omega$ | 50 | 200 | - | V/mV |
| Output Voltage ('L' Level) | V_{SAT} | $V_{IN+} = 0V, V_{IN-} = 1V$ $I_{SINK} \leq 4mA$ | - | 150 | 400 | mV |
| Response Time | t_{RES} | $R_L = 5.1\text{ K}\Omega, C_L = 15\text{ pF}$ | - | 1.3 | - | μS |
| Output Sink Current | I_{SINK} | $V_O \leq 1.5V$ $V_{IN+} = 0V, V_{IN-} = 1V$ | 6 | 16 | - | mA |
| Output Leakage Current | I_{Leak} | $V_O = 5V$ $V_{IN+} = 1V, V_{IN-} = 0V$ | - | 0.1 | - | nA |

Electrical Characteristic Curves

Fig. 1 $V_{CC}-I_{CC}$

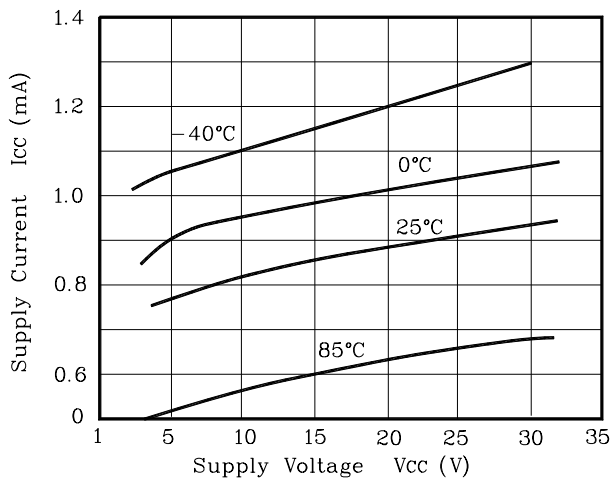


Fig. 2 $V_{CC}-I_{IB}$

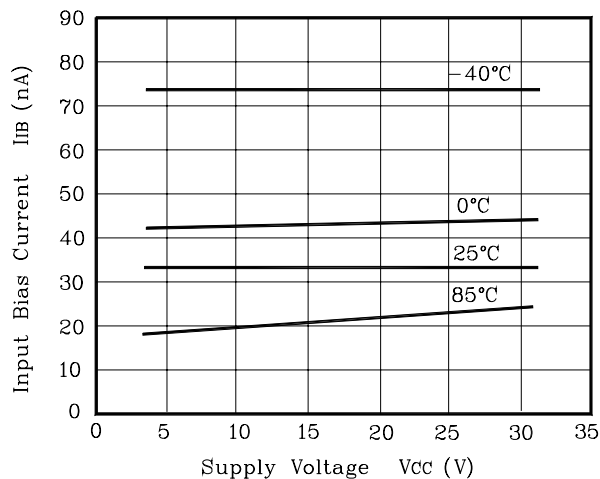


Fig. 3 $V_{OL}-I_{SINK}$

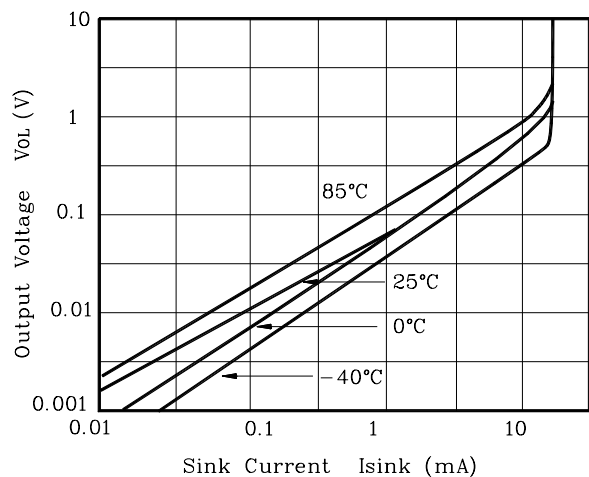


Fig. 4 P_D-T_a

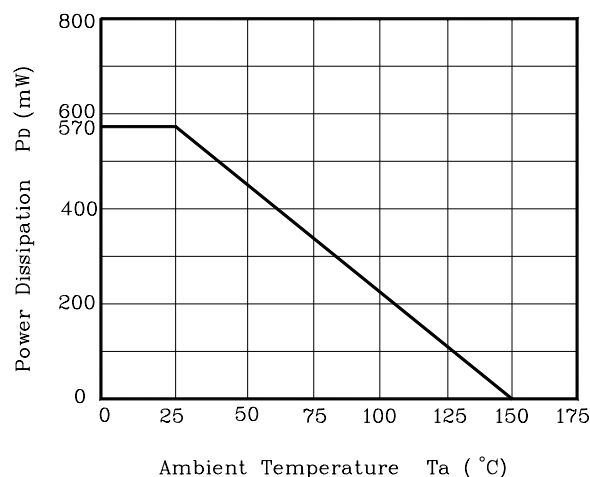


Fig. 5 $V_{IN}, V_{OUT}-t_{rsp}$

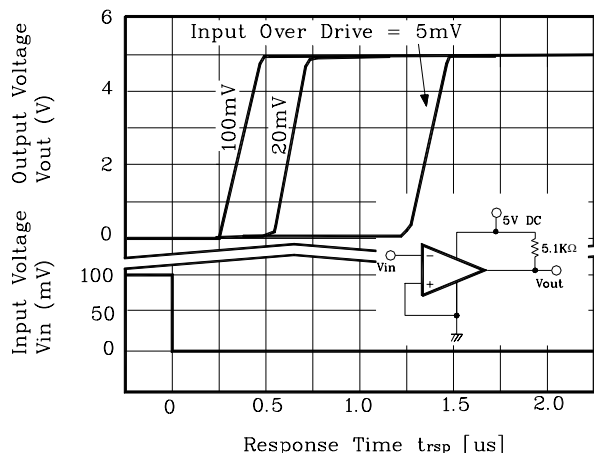


Fig. 6 $V_{IN}, V_{OUT}-t_{rsp}$

