

# ELM742x LOW VOLTAGE, LOW POWER CMOS VOLTAGE COMPARATOR

## ■ GENERAL DESCRIPTION

ELM742x is a low voltage and low power CMOS comparator developed for battery-operated devices. ELM742x makes it easy to design power circuits and contributes to extend battery life on account of the single power source, low voltage supply operating range ( $VDD \geq +1.0V$ ) and also low power consumption. ELM742x introduces depletion transistors into the differential input stage, and has a wide input voltage range ( $VSS+0.1V \sim VDD-0.2V$ ), and can drive the TTL and CMOS Logic IC on account of the N-ch opendrain output.

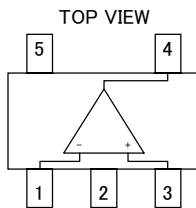
## ■ FEATURES

- Low voltage operation :  $VDD \geq +1.0V$
- Low power consumption :  $IDD (TYP.) = 0.6 \mu A (VDD = 1.5V)$
- Wide operation voltage range :  $1.0V \leq VDD \leq 7.0V$
- Wide input voltage range :  $VSS + 0.1V \sim VDD - 0.2V$
- Output stage is N-ch opendrain type
- Very small SOT-25 package

## ■ APPLICATION

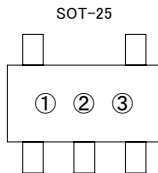
- Battery-operated devices
- Micropower signal processing
- Low voltage analog circuits

## ■ PIN CONFIGURATION



| Pin No. | Pin Name |
|---------|----------|
| 1       | IN-      |
| 2       | VDD      |
| 3       | IN+      |
| 4       | OUT      |
| 5       | VSS      |

## ■ MARKING



| No. | Mark | Contents |
|-----|------|----------|
| ①   | A    | ELM742x  |
| ②   | 0~9  | Lot No.  |
| ③   | 0~9  | Lot No.  |

## ■ SELECTION GUIDE

| Symbol | Product Version |  |
|--------|-----------------|--|
| x      |                 | A : Sn/Pb package<br>B : Pb - Free package |

**ELM742x**

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### ■ MAXIMUM ABSOLUTE RATINGS

(VSS=0V)

| Parameter             | Symbol | Limits          | Units |
|-----------------------|--------|-----------------|-------|
| Supply Voltage        | VDD    | 10              | V     |
| Input Voltage         | VIN    | VSS-0.3~VDD+0.3 | V     |
| Output Voltage        | VOUT   | 10              | V     |
| Output Current        | IOUT   | 30              | mA    |
| Power Dissipation     | Pd     | 300             | mW    |
| Operating Temp. Range | Top    | -20~+70         | °C    |
| Storage Temp. Range   | Tstg   | -40~+125        | °C    |

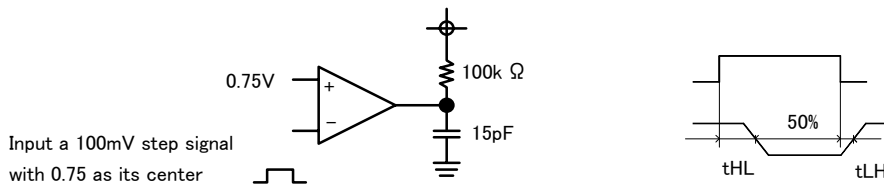
### ■ ELECTRICAL CHARACTERISTICS

(VSS=0V, Top=25°C, unless otherwise noted)

| Parameter                 | Symbol | Conditions                    | Min.    | Typ. | Max.    | Units | Remarks |
|---------------------------|--------|-------------------------------|---------|------|---------|-------|---------|
| Power Supply Voltage      | VDD    |                               | 1.0     |      | 7.0     | V     |         |
| Common Mode Input Voltage | VIC    | VDD=1.0~7.0V                  | VSS+0.1 |      | VDD-0.2 | V     |         |
| Input Offset Voltage      | VID-1  | VDD=1.0~3.6V                  |         |      | 8       | mV    |         |
|                           | VID-2  | VDD=1.0~7.0V                  |         |      | 12      | mV    |         |
| Input Current             | IIN    | VDD=1.0~7.0V                  |         |      | 100     | pA    |         |
| Output Current            | IOUT-1 | VDD=1.0V, VOL=0.4V            | 30      | 50   |         | μA    | 1       |
|                           | IOUT-2 | VDD=1.5V, VOL=0.4V            | 0.6     | 0.8  |         | mA    | 1       |
| Current Consumption       | IDD-1  | VDD=1.5V, VOUT : "L"          |         | 0.6  | 2.0     | μA    | 1       |
|                           | IDD-2  | VDD=3.6V, VOUT : "L"          |         | 4.5  | 8.0     | μA    | 1       |
|                           | IDD-3  | VDD=7.0V, VOUT : "L"          |         | 20   | 35      | μA    |         |
| Response Time             | tHL    | RL=100kΩ, CL=15pF<br>VDD=1.5V |         | 60   |         | μs    | 2       |
|                           | tLH    | RL=100kΩ, CL=15pF<br>VDD=1.5V |         | 40   |         | μs    | 2       |

Remarks ) 1 --- Refer to Typical Operating Characteristics.

Remarks ) 2 --- The relation between input and output is as follows.



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## ■ TYPICAL OPERATING CHARACTERISTICS

