

# TD62382AP, TD62382F, TD62382AF

## 8CH LOW INPUT ACTIVE SINK DRIVER

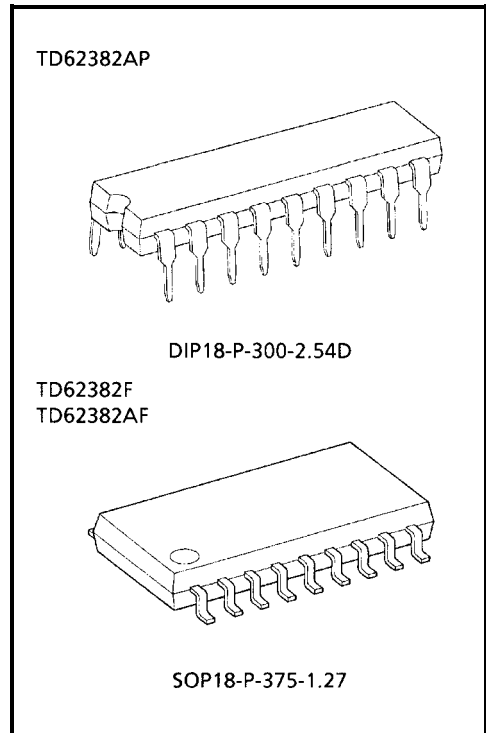
The TD62382AP / F / AF are non-inverting transistor array which are comprised of eight Low saturation output stages and PNP input stages.

This device is low level input active driver and is suitable for operation with TTL, 5 V CMOS and 5 V Microprocessor which have sink current output drivers.

Applications include relay, hammer, lamp and LED display drivers.

### FEATURES

- Low saturation output 0.23 V MAX. @ $I_{OUT} = 40$  mA MAX.
- Output rating 35 V MIN. / 50 mA MAX. (TD62382F)  
50 V MIN. / 50 mA MAX. (TD62382AP, TD62382AF)
- Input compatible with TTL and 5 V CMOS
- Low level active inputs
- Standard supply voltage
- Package type-AP : DIP-18 pin
- Package type-F, AF: SOP-18 pin

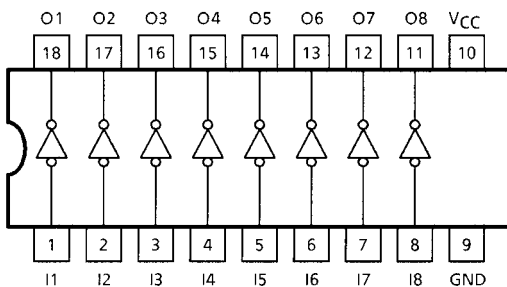


Weight

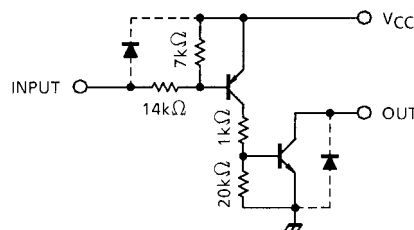
DIP18-P-300-2.54D : 1.47 g (Typ.)

SOP18-P-375-1.27 : 0.41 g (Typ.)

### PIN CONNECTION (TOP VIEW)



### SCHEMATICS (EACH DRIVER)



Note: The input and output parasitic diodes cannot be used as clamp diodes.

## MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTICS           |        | SYMBOL                | RATING                    | UNIT    |
|---------------------------|--------|-----------------------|---------------------------|---------|
| Supply Voltage            |        | V <sub>CC</sub>       | -0.5~7.0                  | V       |
| Output Sustaining Voltage | AP, AF | V <sub>CE (SUS)</sub> | -0.5~50                   | V       |
|                           | F      |                       | -0.5~35                   |         |
| Output Current            |        | I <sub>OUT</sub>      | 50                        | mA / ch |
| Input Voltage             |        | V <sub>IN</sub>       | -22~V <sub>CC</sub> + 0.5 | V       |
| Input Current             |        | I <sub>IN</sub>       | 10                        | mA      |
| Power Dissipation         | AP     | P <sub>D (Note)</sub> | 1.47                      | W       |
|                           | F, AF  |                       | 0.96                      |         |
| Operating Temperature     |        | T <sub>opr</sub>      | -40~85                    | °C      |
| Storage Temperature       |        | T <sub>stg</sub>      | -55~150                   | °C      |

Note: Delated above 25°C in the proportion of 11.7 mW / °C (AP-Type), 7.7 mW / °C (F, AF-Type).

## RECOMMENDED OPERATING CONDITIONS (Ta = -40~85°C)

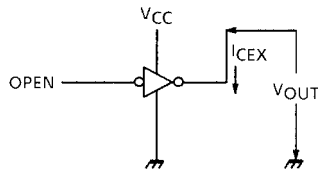
| CHARACTERISTIC            |                 | SYMBOL                | CONDITION    | MIN                   | TYP. | MAX                   | UNIT    |
|---------------------------|-----------------|-----------------------|--------------|-----------------------|------|-----------------------|---------|
| Supply Voltage            |                 | V <sub>CC</sub>       | —            | 4.5                   | 5.0  | 5.5                   | V       |
| Output Sustaining Voltage | AP, AF          | V <sub>CE (SUS)</sub> | —            | 0                     | —    | 50                    | V       |
|                           | F               |                       | —            | 0                     | —    | 35                    |         |
| Output Current            | AP              | I <sub>OUT</sub>      | DC 1 Circuit | 0                     | —    | 40                    | mA / ch |
|                           |                 |                       | 8 Circuits   | 0                     | —    | 40                    |         |
|                           |                 |                       | 8 Circuits   | 0                     | —    | 40                    |         |
| Input Voltage             | V <sub>IN</sub> |                       | —            | -20                   | —    | V <sub>CC</sub>       | V       |
|                           | Output On       | V <sub>IN (ON)</sub>  | —            | -20                   | —    | V <sub>CC</sub> - 3.5 | V       |
|                           | Output Off      | V <sub>IN (OFF)</sub> | —            | V <sub>CC</sub> - 0.3 | —    | V <sub>CC</sub> + 0.5 |         |
| Power Dissipation         | AP              | P <sub>D</sub>        | —            | —                     | —    | 0.52                  | W       |
|                           | F, AF           |                       | —            | —                     | —    | 0.35                  |         |

## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

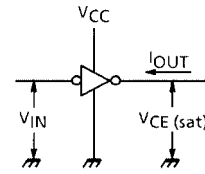
| CHARACTERISTIC            |            | SYMBOL        | TEST CIR-CUIT | TEST CONDITION   | MIN   | TYP.   | MAX            | UNIT          |         |
|---------------------------|------------|---------------|---------------|--|---|--|----------------|---------------|---------|
| Output Leakage Current    |            | $I_{CEX}$     | 1             | $V_{CC} = 5.5\text{ V}$ , $I_{IN} = 0$<br>$V_{OUT} = 35\text{ V}$ , $T_a = 75^\circ\text{C}$ | —   | —  | 100            | $\mu\text{A}$ |         |
| Output Saturation Voltage |            | $V_{CE(sat)}$ | 2             | $V_{CC} = 4.5\text{ V}$ , $V_{IN} = 0.8\text{ V}$<br>$I_{OUT} = 40\text{ mA}$                | —   | —  | 0.23           | V             |         |
| Input Current             | Output On  | $I_{IN(ON)}$  | 3             | $V_{CC} = 5.5\text{ V}$ , $V_{IN} = 0.4\text{ V}$  | —   | -0.32  | -0.45          | mA            |         |
|                           | Output Off | $I_{IN(OFF)}$ |               | $V_{CC} = 5.5\text{ V}$ , $V_{IN} = -20\text{ V}$  | —   | —  | -2.6           |               |         |
| Input Voltage             | Output on  | $V_{IN(ON)}$  | 4             | —  | —   | —  | -40            | $\mu\text{A}$ |         |
| Supply Current            | Output on  | $I_{CC(ON)}$  | 5             | —  | -20   | —  | $V_{CC} - 3.5$ | V             |         |
|                           | Output Off | $I_{CC(OFF)}$ |               | 6  | $V_{CC} = 5.5\text{ V}$ , $V_{IN} = 0\text{ V}$ | —  | —              | 6             | mA / ch |
| Turn-On Delay             | AP, AF     | $t_{ON}$      | 7             | $V_{CC} = 5\text{ V}$<br>$C_L = 15\text{ pF}$  |   | $V_{OUT} = 35\text{ V}$<br>$R_L = 82\text{ k}\Omega$ | —              | 0.1           | —       |
|                           | F          |               |               |  |   | $V_{OUT} = 50\text{ V}$<br>$R_L = 1\text{ k}\Omega$  | —              | 0.1           | —       |
| Turn-Off Delay            | AP, AF     | $t_{OFF}$     |               |  |   | $V_{OUT} = 35\text{ V}$<br>$R_L = 82\text{ k}\Omega$ | —              | 3.0           | —       |
|                           | F          |               |               |  |   | $V_{OUT} = 50\text{ V}$<br>$R_L = 1\text{ k}\Omega$  | —              | 3.0           | —       |

## TEST CIRCUIT

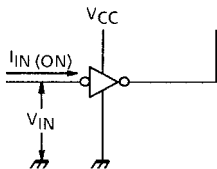
### 1. $I_{CEX}$



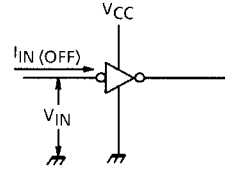
### 2. $V_{CE(sat)}$



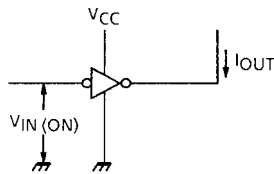
### 3. $I_{IN(ON)}$



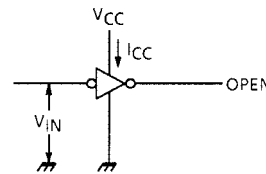
### 4. $I_{IN(OFF)}$



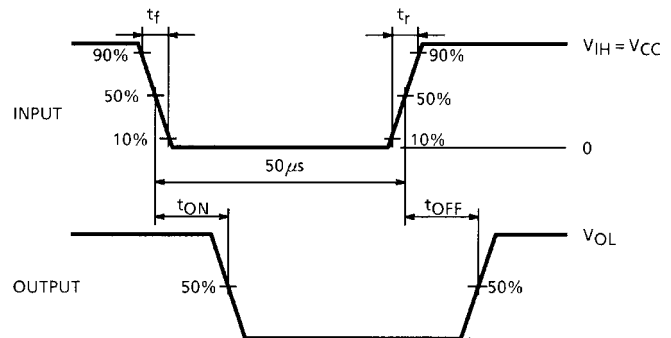
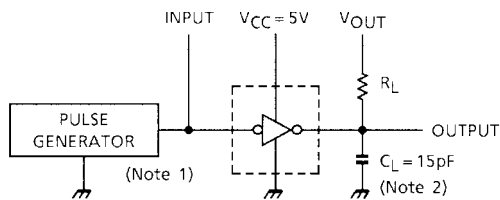
### 5. $V_{IN(ON)}$



### 6. $I_{CC}$



### 7. $t_{ON}, t_{OFF}$

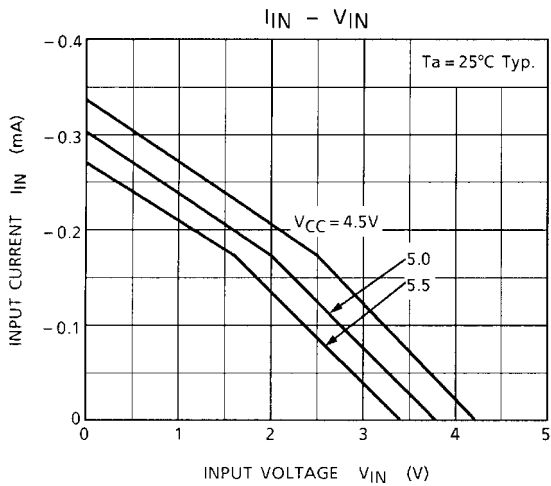
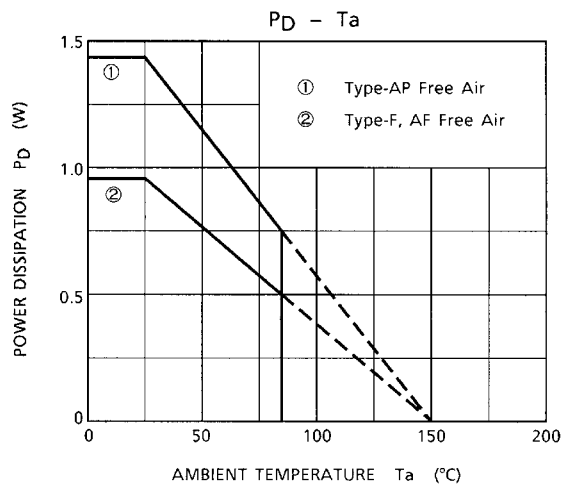
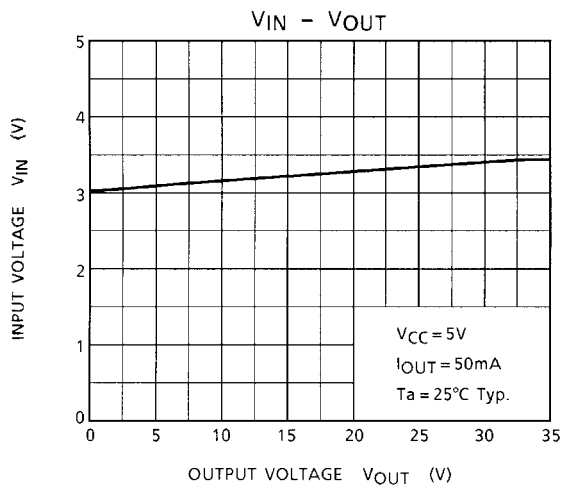
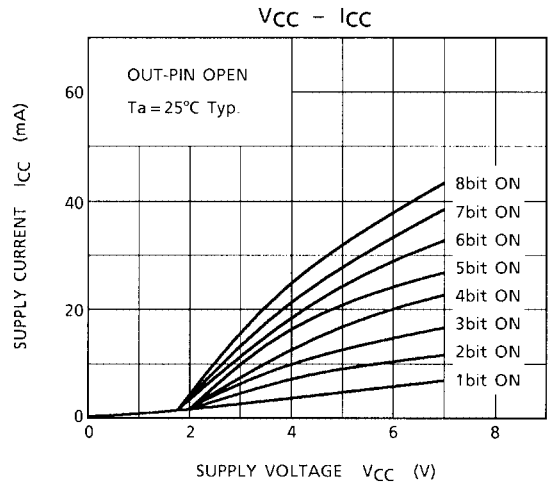
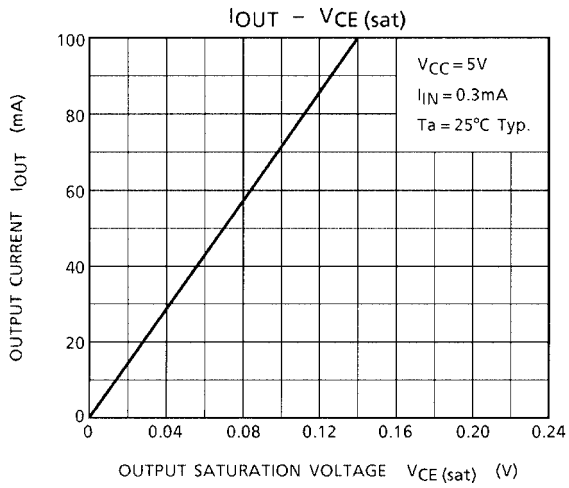


- Note 1: Pulse Width 50  $\mu$ s, Duty Cycle 10%  
Output Impedance 50  $\Omega$ ,  $t_r \leq 10$  ns,  $t_f \leq 5$  ns
- Note 2:  $C_L$  includes probe and jig capacitance.

## PRECAUTIONS for USING

This IC does not integrate protection circuits such as overcurrent and overvoltage protectors. Thus, if excess current or voltage is applied to the IC, the IC may be damaged. Please design the IC so that excess current or voltage will not be applied to the IC.

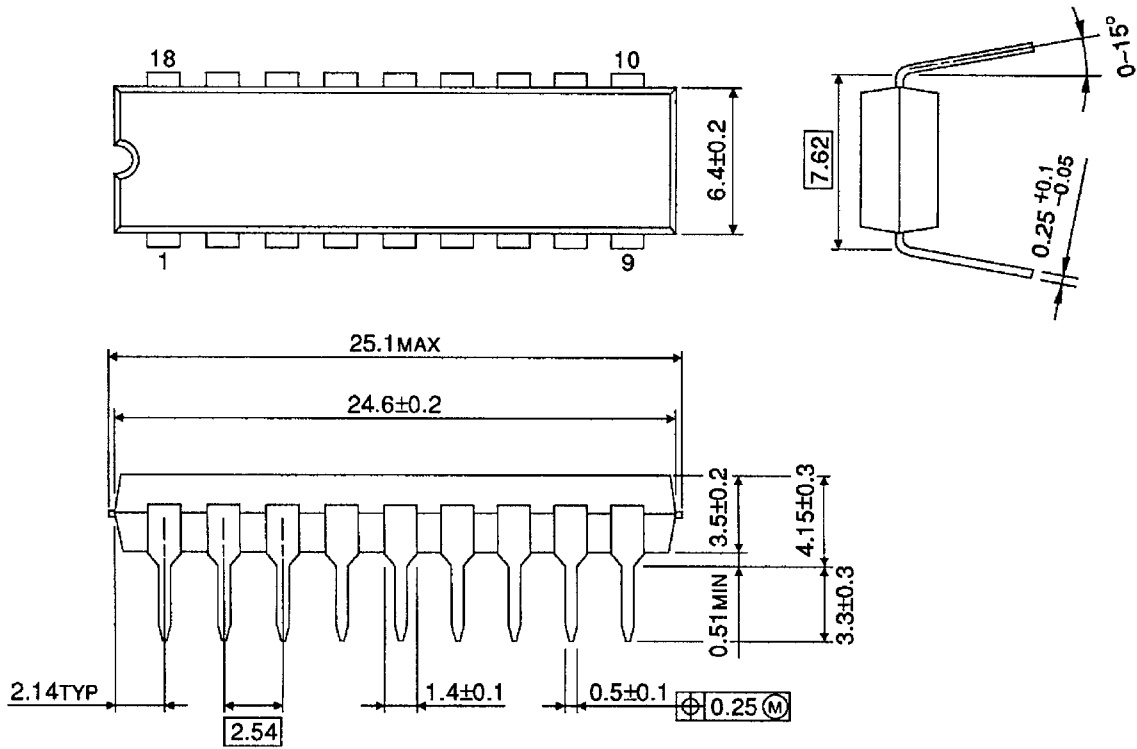
Utmost care is necessary in the design of the output line, VCC and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.



## PACKAGE DIMENSIONS

DIP18-P-300-2.54D

Unit: mm

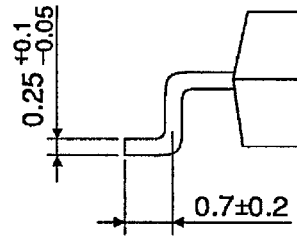
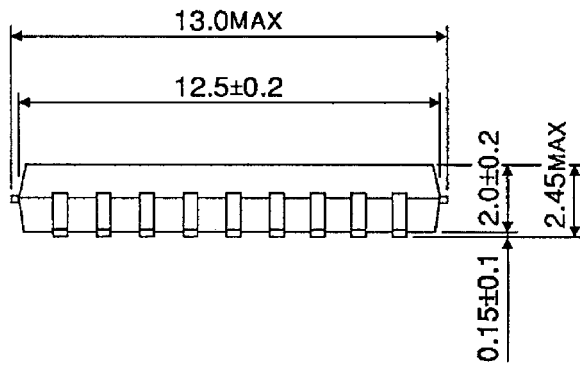
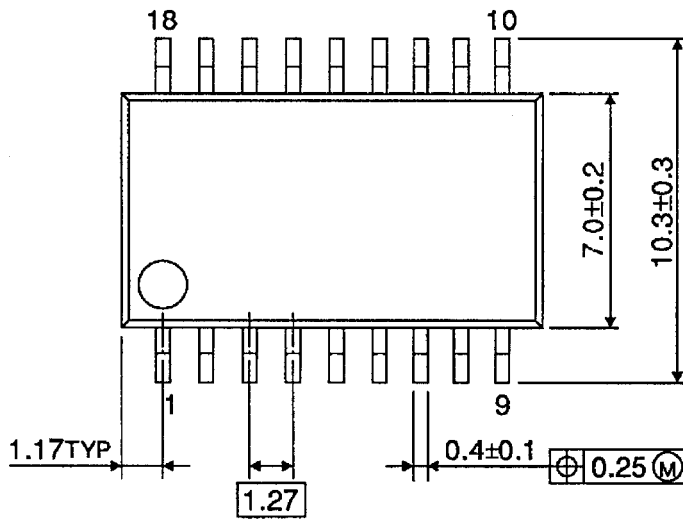


Weight: 1.47 g (Typ.)

**PACKAGE DIMENSIONS**

SOP18-P-375-1.27

Unit: mm



Weight: 0.41 g (Typ.)

**RESTRICTIONS ON PRODUCT USE**

000707EBA

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