

# TD62583AP, TD62583F, TD62583AF

## 8CH SINGLE DRIVER

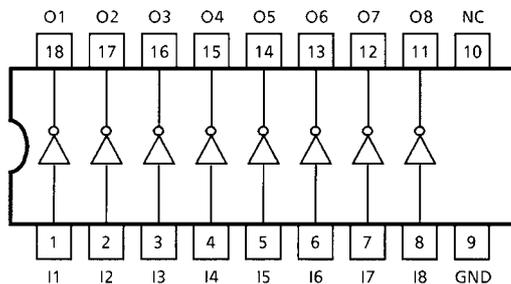
The TD62583AP / F / AF have a 2.7 kΩ series base resistor, and thus allows operation directly with TTL or CMOS operating at supply voltage of 5 V.

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

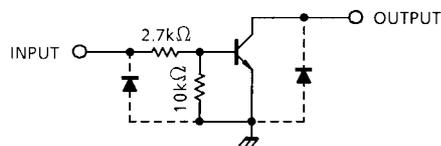
### FEATURES

- Output current (single output) 50 mA (Max)
- High sustaining voltage output 35 V (Min) (TD62583F)  
50 V (Min) (TD62583AP / AF)
- Low saturation voltage  $V_{CE(sat)} = 0.4 \text{ V} @ I_C = 16 \text{ mA}$
- Inputs compatible with TTL, 5 V CMOS
- Package type-AP : DIP-18 pin
- Package type-F, AF : SOP-18 pin

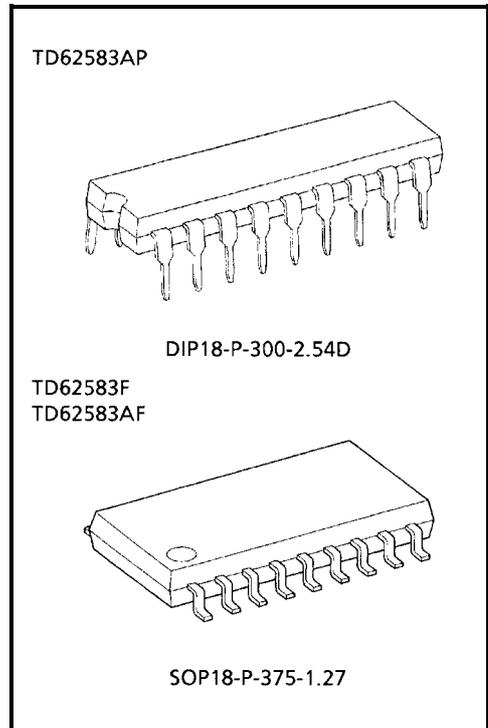
### PIN CONNECTION (TOP VIEW)



### SCHEMATICS (EACH DRIVER)



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



Weight  
 DIP18-P-300-2.54D : 1.47 g (Typ.)  
 SOP18-P-375-1.27 : 0.41 g (Typ.)

## MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC            |        | SYMBOL           | RATING  | UNIT    |
|---------------------------|--------|------------------|---------|---------|
| Output Sustaining Voltage | AP, AF | V <sub>CEO</sub> | 50      | V       |
|                           | F      |                  | 35      |         |
| Output Current            |        | I <sub>OUT</sub> | 50      | mA / ch |
| Input Voltage             |        | V <sub>IN</sub>  | 10      | V       |
| Power Dissipation         | AP     | P <sub>D</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      |

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

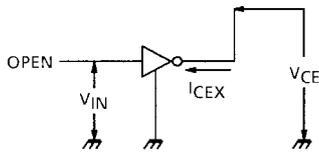
| CHARACTERISTIC            |           | SYMBOL               | CONDITION | MIN | TYP. | MAX  | UNIT    |
|---------------------------|-----------|----------------------|-----------|-----|------|------|---------|
| Output Sustaining Voltage | AP, AF    | V <sub>CEO</sub>     | —         | 0   | —    | 50   | V       |
|                           | F         |                      | —         | 0   | —    | 35   |         |
| Output Current            |           | I <sub>OUT</sub>     | —         | 0   | —    | 30   | mA / ch |
| Input Voltage             |           | V <sub>IN</sub>      | —         | 0   | —    | 7    | V       |
|                           | Output On | V <sub>IN (ON)</sub> | —         | 3.5 | —    | 7    |         |
| Power Dissipation         | AP        | P <sub>D</sub>       | —         | —   | —    | 0.52 | W       |
|                           | F, AF     |                      | —         | —   | —    | 0.4  |         |

## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

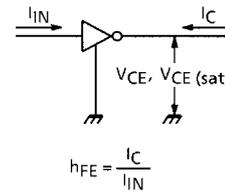
| CHARACTERISTIC            |        | SYMBOL                | TEST CIRCUIT | TEST CONDITION                                    | MIN | TYP. | MAX | UNIT |
|---------------------------|--------|-----------------------|--------------|---------------------------------------------------|-----|------|-----|------|
| Output Leakage Current    | AP, AF | I <sub>CEX</sub>      | 1            | V <sub>CE</sub> = 50 V                            | —   | —    | 10  | μA   |
|                           | F      |                       |              | V <sub>CE</sub> = 35 V                            |     |      |     |      |
| Output Saturation Voltage |        | V <sub>CE (sat)</sub> | 2            | I <sub>C</sub> = 16 mA, I <sub>IN</sub> = 0.3 mA  | —   | 0.2  | 0.4 | V    |
|                           |        |                       |              | I <sub>C</sub> = 30 mA, I <sub>IN</sub> = 0.45 mA |     |      |     |      |
| DC Current Transfer Ratio |        | h <sub>FE</sub>       | 2            | V <sub>CE</sub> = 4 V, I <sub>C</sub> = 30 mA     | 70  | 130  | —   | —    |
| Input Current             |        | I <sub>IN (ON)</sub>  | 3            | V <sub>IN</sub> = 2.5 V, I <sub>C</sub> = 16 mA   | —   | 0.65 | 1.7 | mA   |
| Turn-On Delay             | F      | t <sub>ON</sub>       | 4            | V <sub>OUT</sub> = 35 V, R <sub>L</sub> = 0.87 kΩ | —   | 0.1  | —   | μs   |
|                           | AP, AF |                       |              | V <sub>OUT</sub> = 50 V, R <sub>L</sub> = 1.25 kΩ |     |      |     |      |
| Turn-Off Delay            | F      | t <sub>ON</sub>       |              | V <sub>OUT</sub> = 35 V, R <sub>L</sub> = 0.87 kΩ | —   | 0.5  | —   |      |
|                           | AP, AF |                       |              | V <sub>OUT</sub> = 50 V, R <sub>L</sub> = 1.25 kΩ |     |      |     |      |

**TEST CIRCUIT**

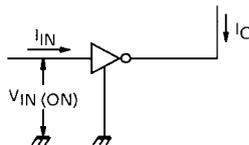
**1. I<sub>CEX</sub>**



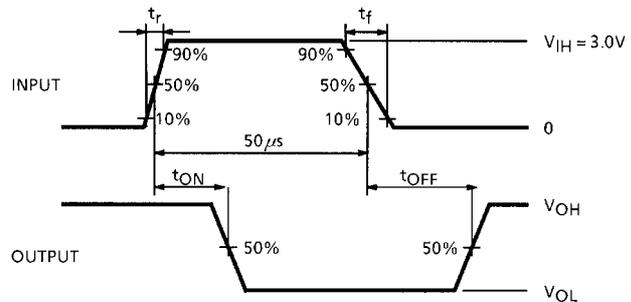
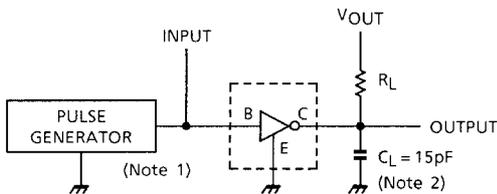
**2. h<sub>FE</sub>, V<sub>CE</sub> (sat)**



**3. V<sub>IN</sub> (ON)**



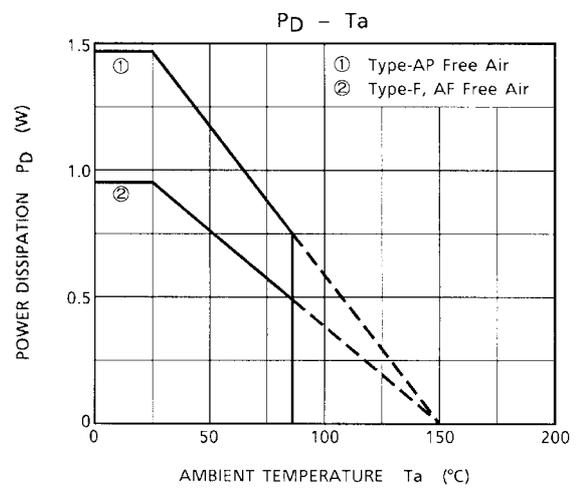
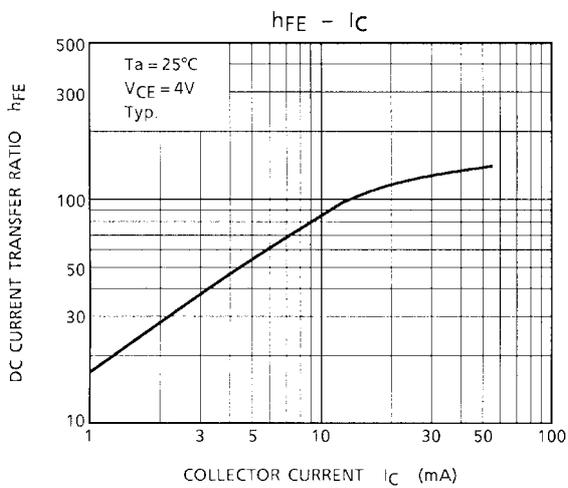
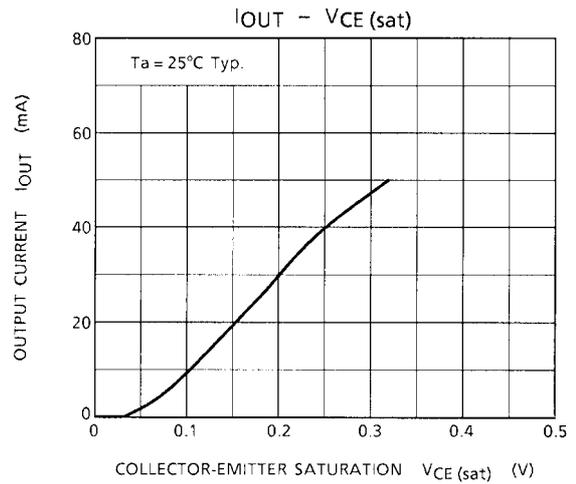
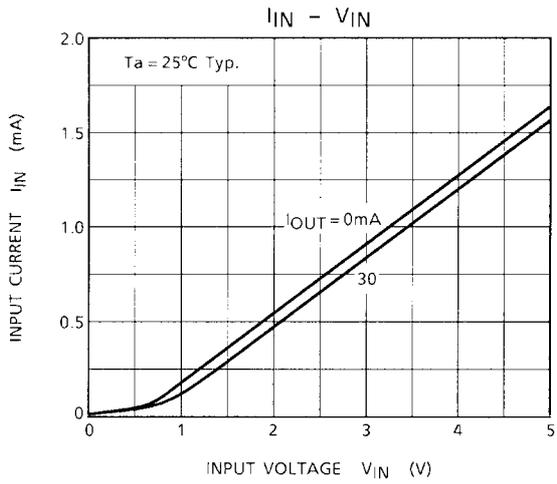
**4. t<sub>ON</sub>, t<sub>OFF</sub>**



Note 1: Pulse width 50 μs, Duty Cycle 10%  
 Output Impedance 50 Ω, t<sub>r</sub> ≤ 5 ns, t<sub>f</sub> ≤ 10 ns  
 Note 2: C<sub>L</sub> includes probe and jig capacitance.

**PRECAUTIONS for USING**

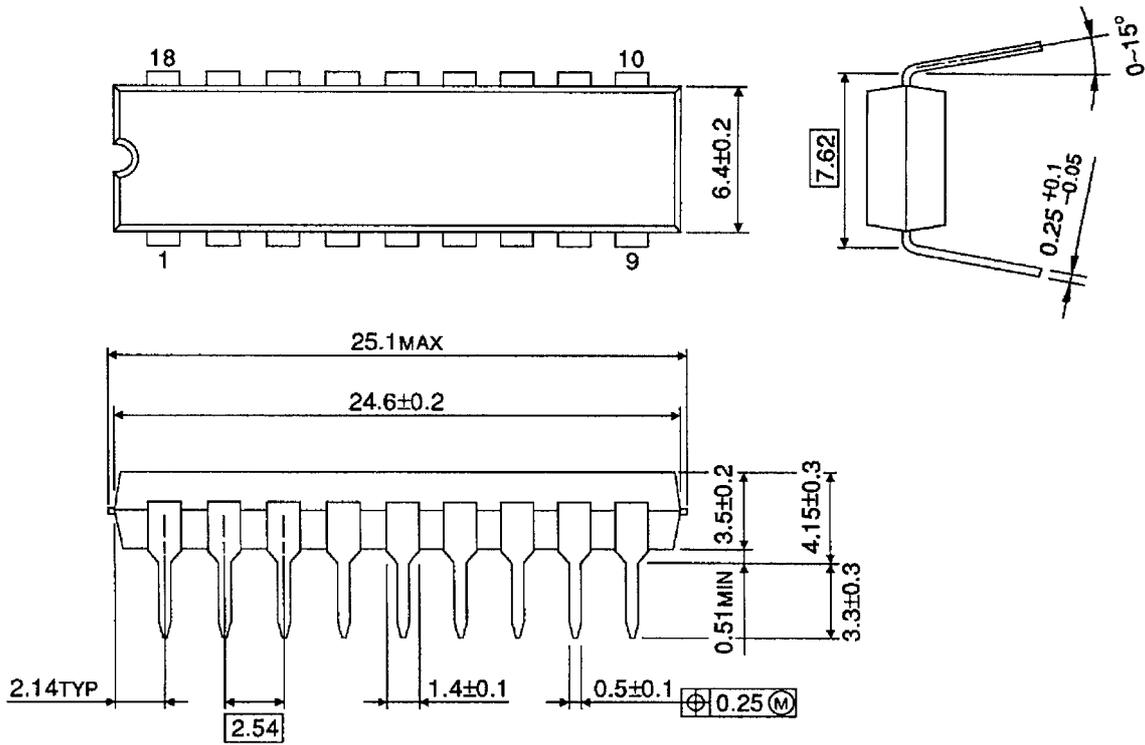
This IC does not integrate protection circuits such as overcurrent and overvoltage protectors. Thus, if excess current or voltage is applied to the IC, the IC may be damaged. Please design the IC so that excess current or voltage will not be applied to the IC. Utmost care is necessary in the design of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

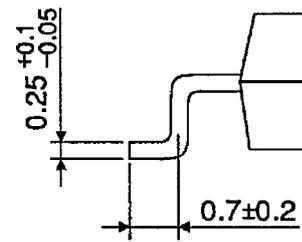
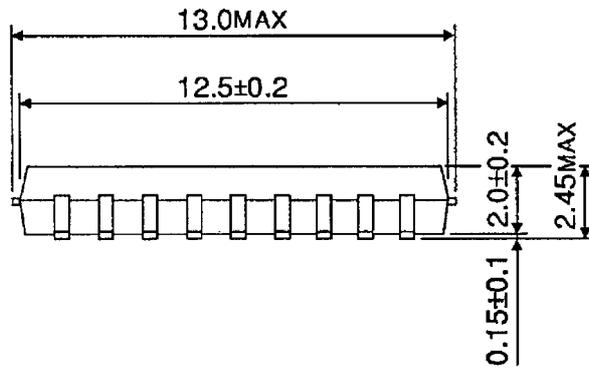
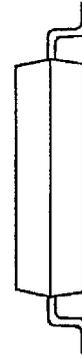
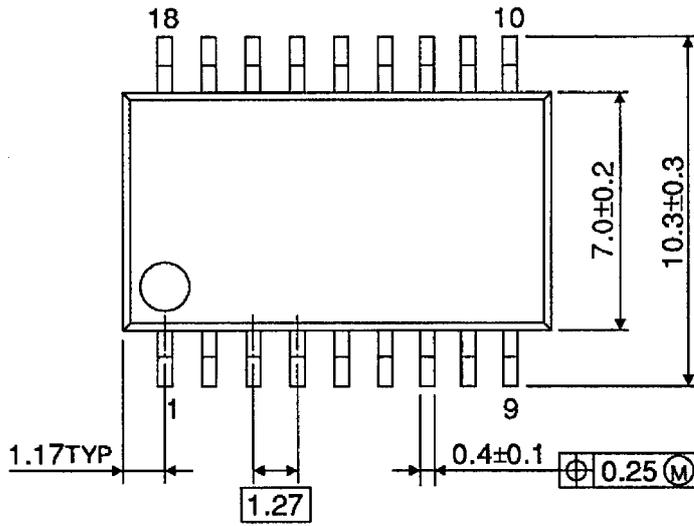


Weight: 1.47 g (Typ.)

## PACKAGE DIMENSIONS

SOP18-P-375-1.27

Unit: mm



Weight: 0.41 g (Typ.)

**RESTRICTIONS ON PRODUCT USE**

000707EBA

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