

**TOSHIBA****TD62501~507P/F**

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62501P, TD62501F, TD62502P, TD62502F, TD62503P, TD62503F, TD62504P  
 TD62504F, TD62505P, TD62505F, TD62506P, TD62506F, TD62507P, TD62507F

**7 SINGLE DRIVER**

TD62501, 502, 503, 504P/F : COMMON EMITTER  
 TD62505, 506P/F : COMMON COLLECTOR  
 TD62507P/F : ISOLATED

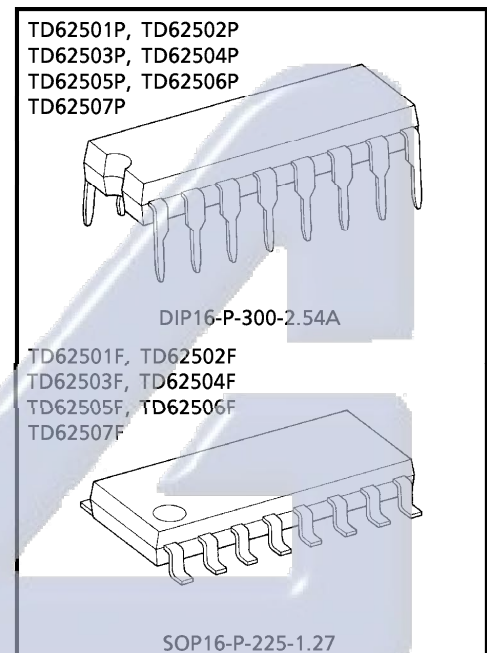
The TD62501P/F Series are comprised of seven or five NPN Transistor Arrays.

For proper operation, the substrate (SUB) must be connected to the most negative voltage.

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

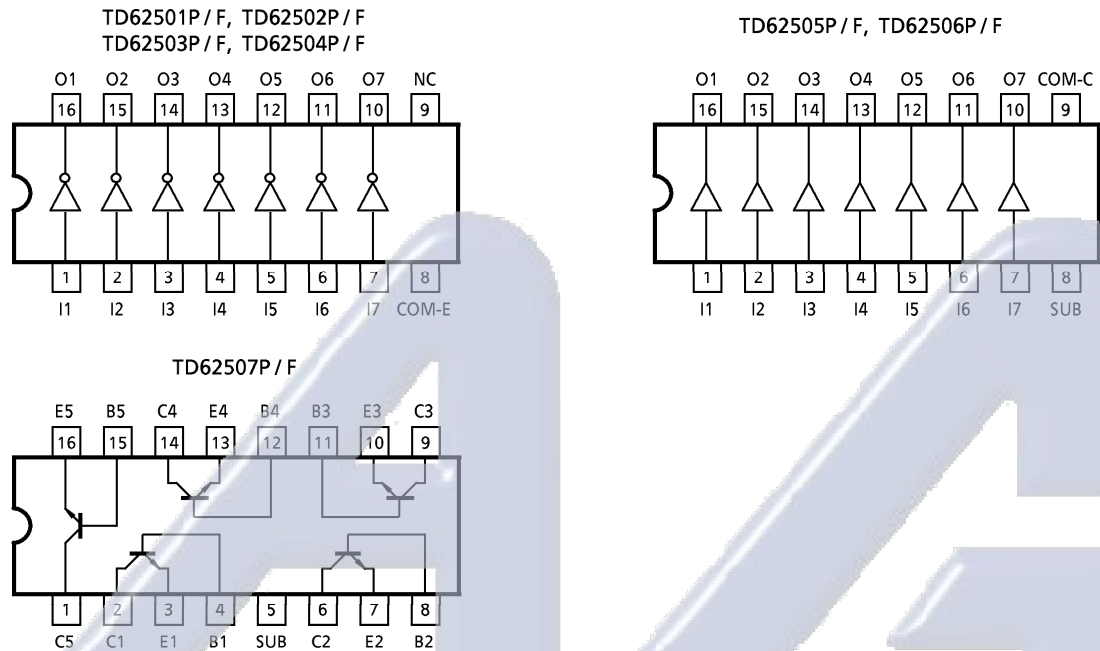
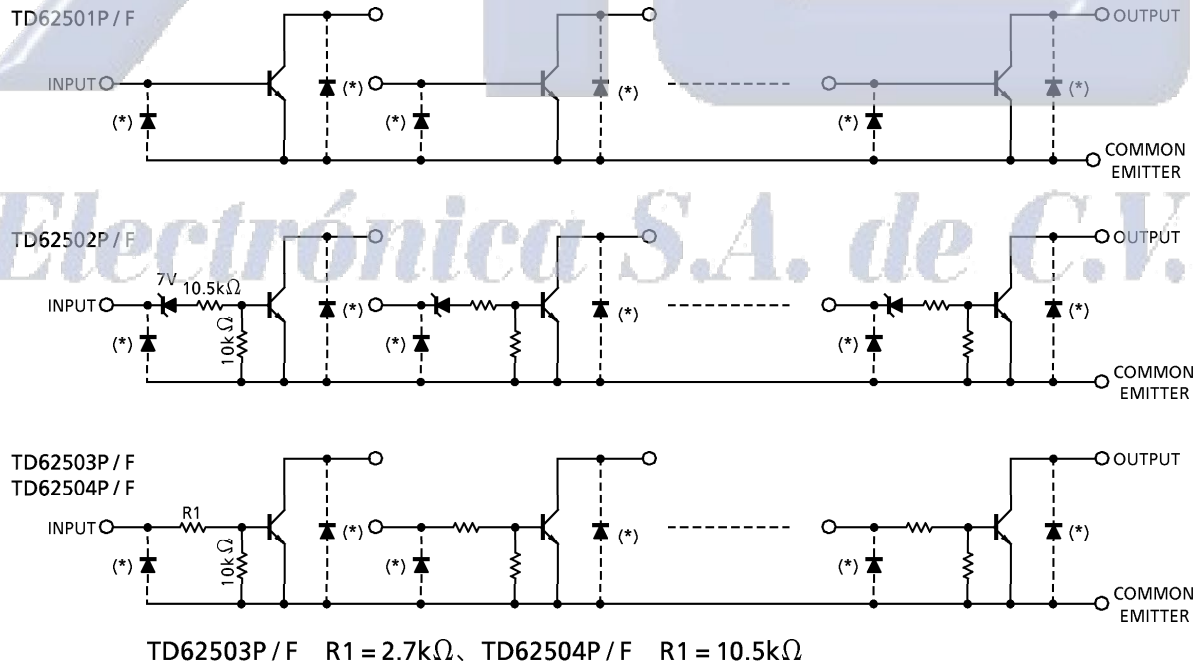
**FEATURES**

- Output Current (Single Output) 200mA MAX.
- High Sustaining Voltage Output 35V MIN.
- Inputs Compatible with Various Types of Logic.
- TD62501P/F, TD62505P/F and TD62507P/F : Using external resistor... General Purpose
- TD62502P/F :  $R_{IN} = 10.5k\Omega + 7V$  Zener Diode... 14~25V P-MOS
- TD62503P/F, TD62506P/F :  $R_{IN} = 2.7k\Omega$ ... TTL, 5V C-MOS
- TD62504P/F, :  $R_{IN} = 10.5k\Omega$ ... 6~15V P-MOS, C-MOS
- Package Type-p : DIP-16 pin
- Package Type-F : SOP-16 pin



Weight

DIP16-P-300-2.54A : 1.11g (Typ.)  
 SOP16-P-225-1.27 : 0.16g (Typ.)

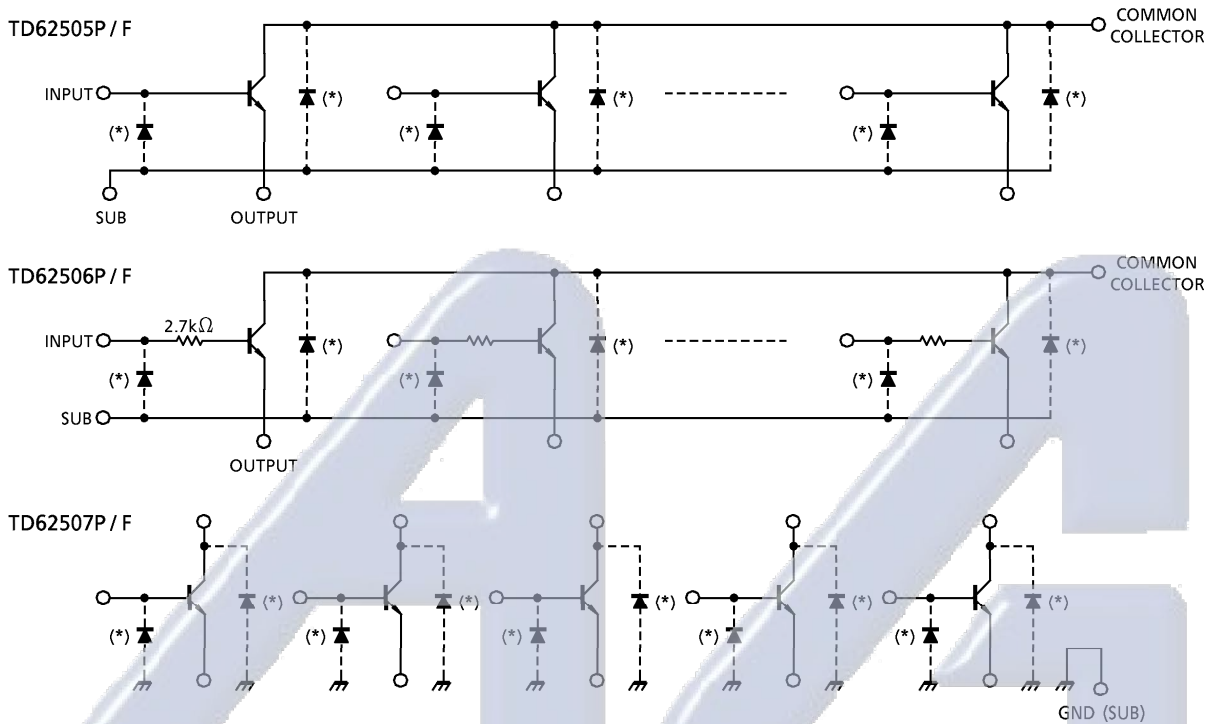
**TOSHIBA****TD62501~507P/F****PIN CONNECTION (Top view)****SCHEMATICS (Each driver)**

(\*) Parasitic Diodes

TOSHIBA

TD62501~507P/F

SCHEMATICS (Each driver)



(\*) Parasitic Diodes  
(Note) The input and output parasitic diodes cannot be used as clamp diodes.

MAXIMUM RATINGS (Ta = 25°C Unless otherwise noted)

| CHARACTERISTIC            |   | SYMBOL                   | RATING         | UNIT    |
|---------------------------|---|--------------------------|----------------|---------|
| Collector-Emitter Voltage |   | V <sub>CEO</sub>         | 35             | V       |
| Collector-Base Voltage    |   | V <sub>CB0</sub>         | 50             | V       |
| Collector Current         |   | I <sub>C</sub>           | 200            | mA / ch |
| Input Voltage             |   | V <sub>IN</sub> (Note 1) | - 0.5~45       | V       |
|                           |   | V <sub>IN</sub> (Note 2) | - 0.5~30       |         |
| Input Current             |   | I <sub>IN</sub> (Note 3) | 25             | mA      |
| Isolation Voltage         |   | V <sub>SUB</sub>         | 35             | V       |
| Power Dissipation         | P | P <sub>D</sub>           | 1.0            | W       |
|                           | F |                          | 0.625 (Note 4) |         |
| Operating Temperature     |   | T <sub>opr</sub>         | - 40~85        | °C      |
| Storage Temperature       |   | T <sub>stg</sub>         | - 55~150       | °C      |

- (Note 1) TD62506P / F  
(Note 2) TD62502P / F, TD62503P / F, TD62504P / F  
(Note 3) TD62501P / F, TD62505P / F, TD62507P / F  
(Note 4) On Glass Epoxy PCB (30 × 30 × 1.6mm, Cu 50%)

**TOSHIBA****TD62501~507P/F****RECOMMENDED OPERATING CONDITIONS** ( $T_a = -40 \sim 85^\circ\text{C}$ )

| CHARACTERISTIC            |              | SYMBOL    | CONDITION  | MIN. | TYP. | MAX.  | UNIT    |
|---------------------------|--------------|-----------|------------|------|------|-------|---------|
| Collector-Emitter Voltage |              | $V_{CEO}$ |            | 0    | —    | 35    | V       |
| Collector-Base Voltage    |              | $V_{CBO}$ |            | 0    | —    | 50    | V       |
| Collector Current         |              | $I_C$     |            | 0    | —    | 150   | mA / ch |
| Input Voltage             | TD62506P / F | $V_{IN}$  |            | 0    | —    | 35    | V       |
|                           | TD62502P / F |           |            |      |      |       |         |
|                           | TD62503P / F |           |            | 0    | —    | 25    |         |
|                           | TD62504P / F |           |            |      |      |       |         |
| Input Current             | TD62501P / F | $I_{IN}$  |            | 0    | —    | 10    | mA      |
|                           | TD62505P / F |           |            |      |      |       |         |
|                           | TD62507P / F |           |            |      |      |       |         |
| Power Dissipation         | P            | $P_D$     | On PCB (*) | —    | —    | 0.360 | W       |
|                           | F            |           |            | —    | —    | 0.325 |         |

(\*)  $30 \times 30 \times 1.6\text{mm}$ , Cu 50%**ELECTRICAL CHARACTERISTICS** ( $T_a = 25^\circ\text{C}$  Unless otherwise noted)

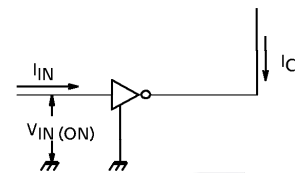
| CHARACTERISTIC                       |              | SYMBOL        | TEST CIRCUIT | TEST CONDITION                                                            | MIN. | TYP. | MAX. | UNIT          |
|--------------------------------------|--------------|---------------|--------------|---------------------------------------------------------------------------|------|------|------|---------------|
| Output Leakage Current               |              | $I_{CEX}$     | 1            | $V_{CE} = 25\text{V}$ , $V_{IN} = 0$                                      | —    | —    | 10   | $\mu\text{A}$ |
| Collector-Emitter Saturation Voltage |              | $V_{CE(sat)}$ | 2            | $I_{IN} = 1\text{mA}$ , $I_C = 10\text{mA}$                               | —    | —    | 0.2  | V             |
|                                      |              |               |              | $I_{IN} = 3\text{mA}$ , $I_C = 150\text{mA}$<br>(Note 1)                  | —    | —    | 0.8  |               |
| DC Current Transfer Ratio            | (Note 2)     | $h_{FE}$      | 2            | $V_{CE} = 10\text{V}$ , $I_C = 10\text{mA}$                               | 70   | —    | —    |               |
|                                      | (Note 3)     |               |              |                                                                           | 50   | —    | —    |               |
| Input Voltage                        | TD62502P / F | $V_{IN(ON)}$  | 3            | $I_{IN} = 1\text{mA}$<br>$I_C = 10\text{mA}$                              | 13   | 17   | 23   | V             |
|                                      | TD62503P / F |               |              |                                                                           | 2.4  | 3.4  | 4.2  |               |
|                                      | TD62504P / F |               |              |                                                                           | 7.5  | 11.5 | 15   |               |
| Turn-On Delay                        |              | $t_{ON}$      | 4            | $V_{OUT} = 35\text{V}$ , $R_L = 3.3\text{k}\Omega$<br>$C_L = 15\text{pF}$ | —    | 50   | —    | ns            |
| Turn-Off Delay                       |              | $t_{OFF}$     |              |                                                                           | —    | 200  | —    |               |

(Note 1) Except TD62502P / F Only

(Note 2) Only TD62501P / F, TD62505P / F, TD62506P / F, TD62507P / F

(Note 3) Only TD62502P / F, TD62503P / F, TD62504P / F

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



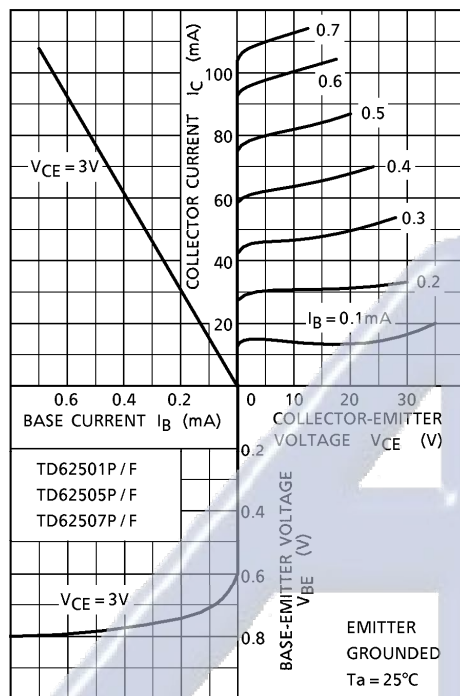
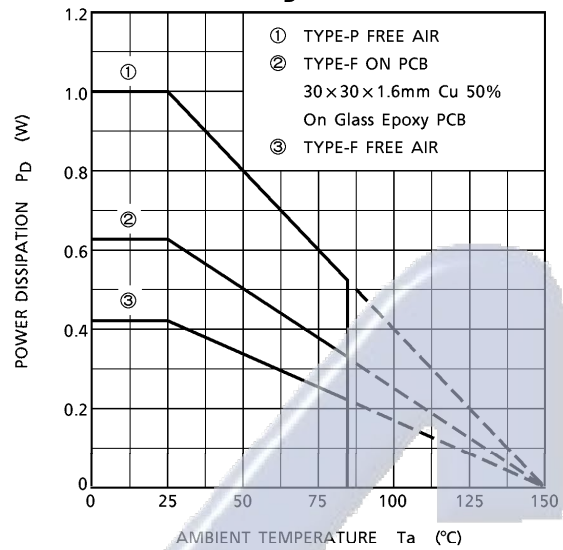
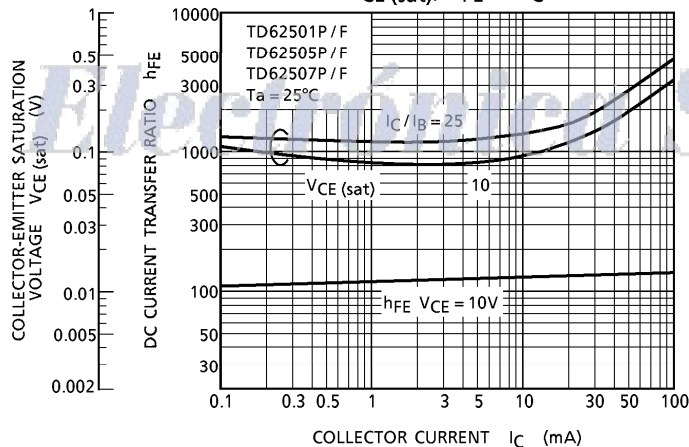
## INPUT CONDITION

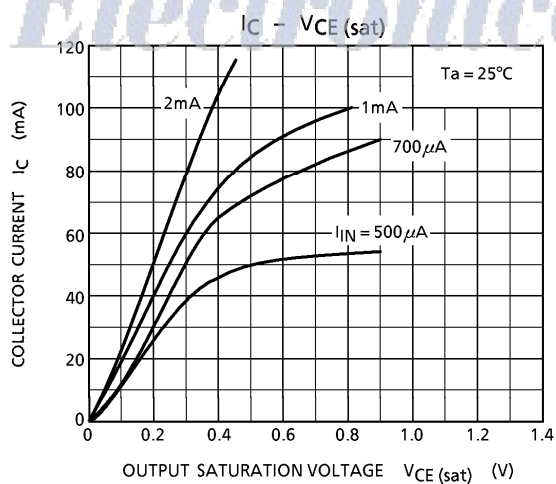
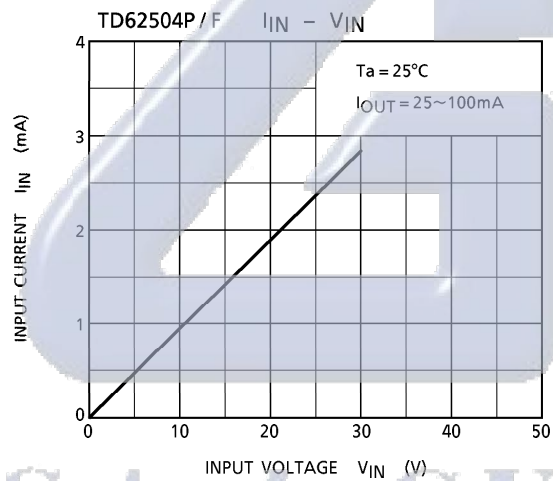
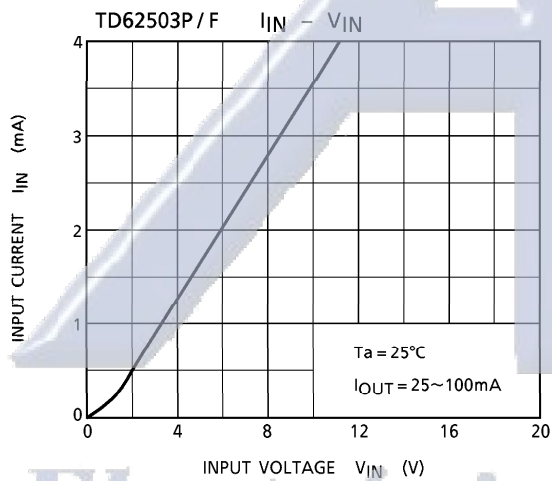
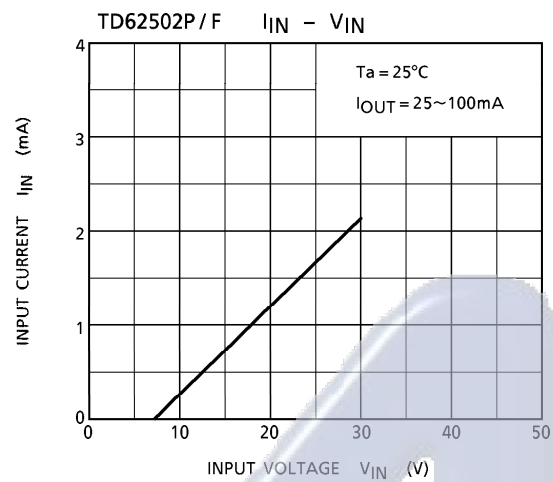
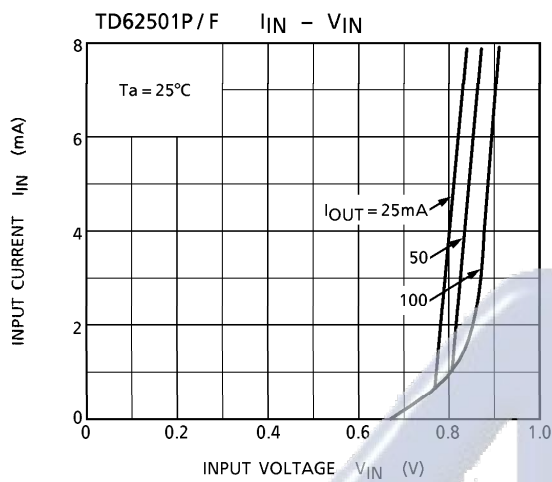
| TYPE NUMBER  | $R_1$        | $V_{IH}$ |
|--------------|--------------|----------|
| TD62501P / F | $2.7k\Omega$ | 3V       |
| TD62502P / F | $0\Omega$    | 15V      |
| TD62503P / F | $0\Omega$    | 3V       |
| TD62504P / F | $0\Omega$    | 10V      |
| TD62505P / F | $2.7k\Omega$ | 3V       |
| TD62506P / F | $0\Omega$    | 3V       |
| TD62507P / F | $2.7k\Omega$ | 3V       |

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STATIC CHARACTERISTICS

 $P_D - T_a$  $V_{CE(sat)}, h_{FE} - I_C$ 

**TOSHIBA****TD62501~507P/F**



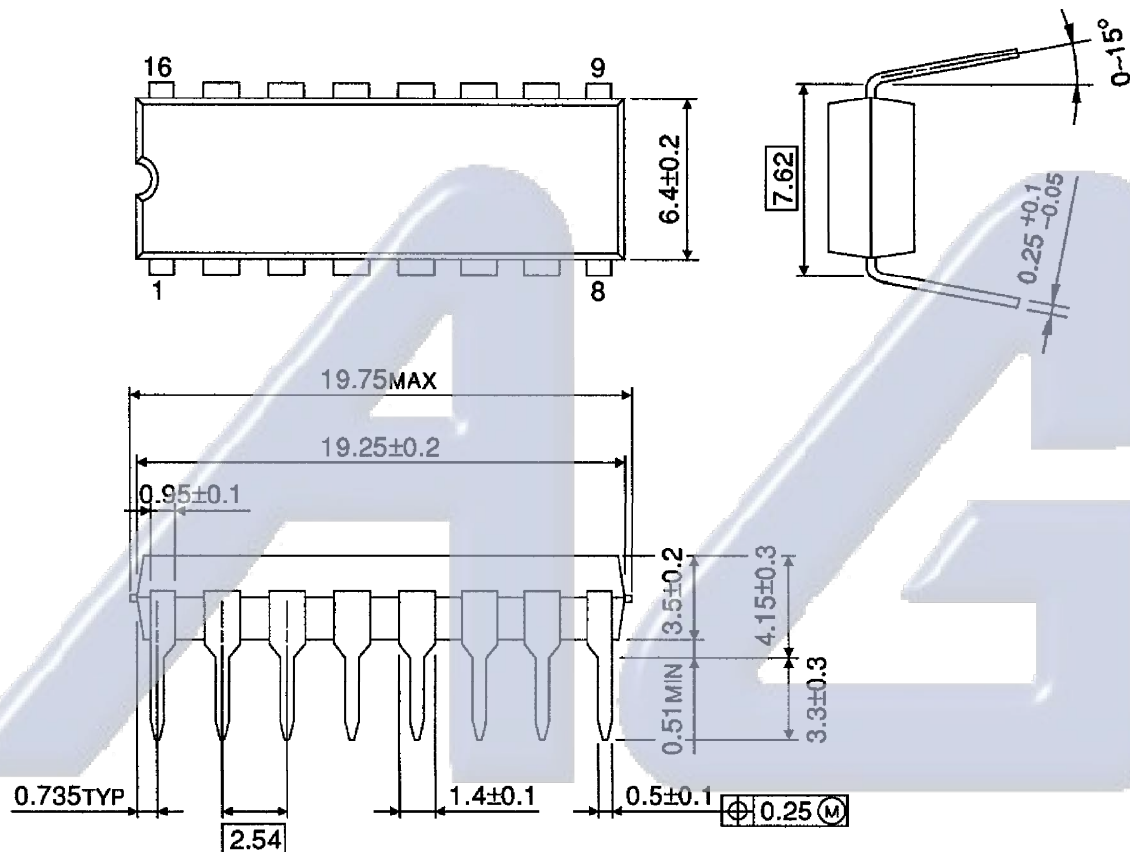
**TOSHIBA**

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**OUTLINE DRAWING**

DIP16-P-300-2.54A

Unit : mm



Weight : 1.11g (Typ.)



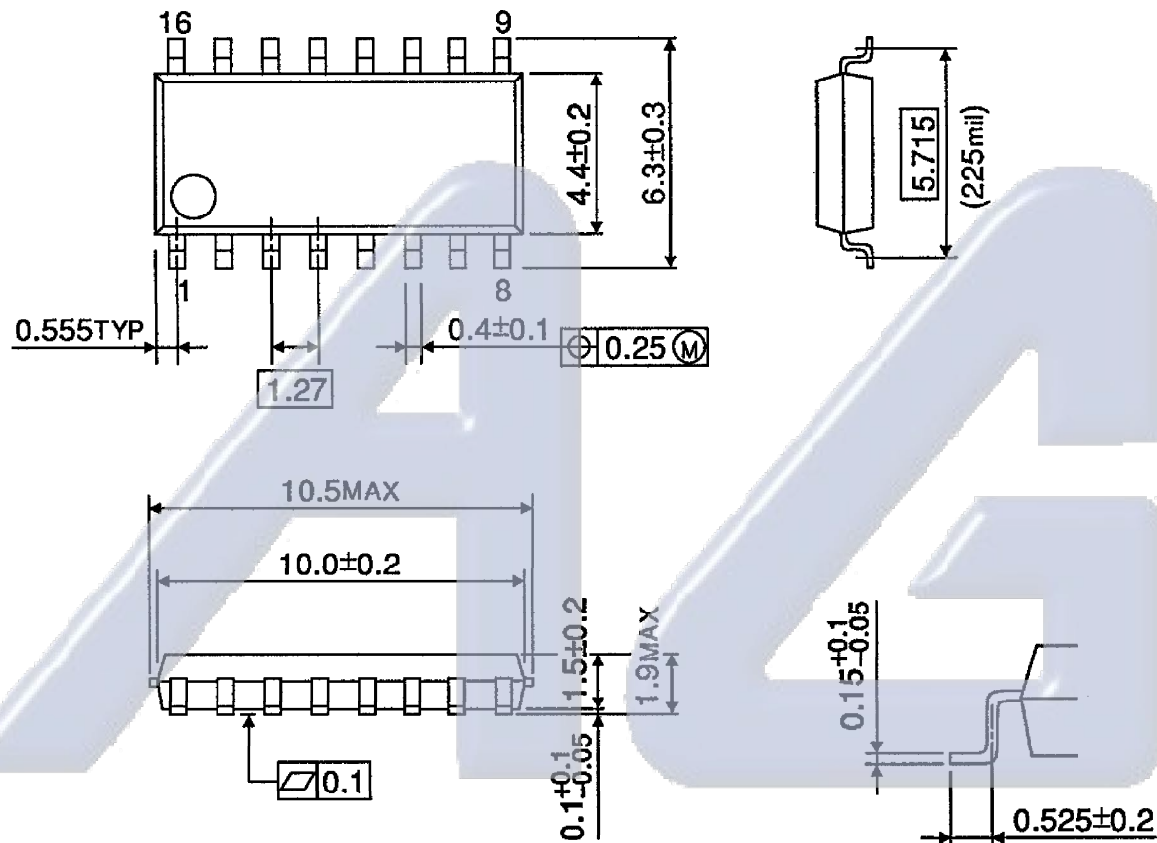
**TOSHIBA**

TD62501~507P/F

## OUTLINE DRAWING

SOP16-P-225-1.27

Unit : mm



Weight : 0.16g (Typ.)