

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

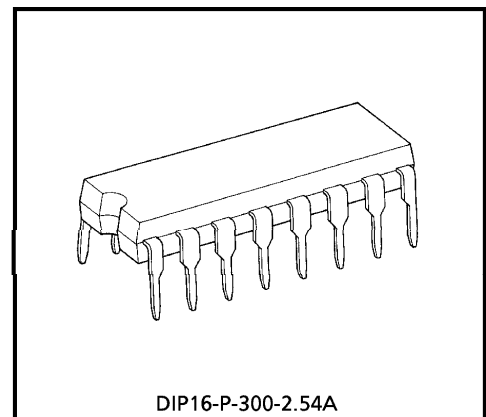
TD62064APA

4CH HIGH-CURRENT DARLINGTON SINK DRIVER

The TD62064APA is high-voltage, high-current darlington drivers comprised of four NPN darlington pairs. All units feature integral clamp diodes for switching inductive loads. Applications include relay, hammer, lamp and stepping moter drivers.

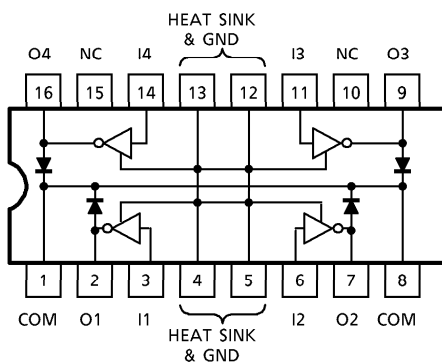
FEATURES

- Output current (single output) 1.5A / ch (Max.)
- High sustaining voltage output 50V (Min.)
- Output clamp diodes
- Input compatible with TTL and 5V CMOS
- GND and SUB Terminal = Heat Sink
- Package type-APA : DIP-16 pin

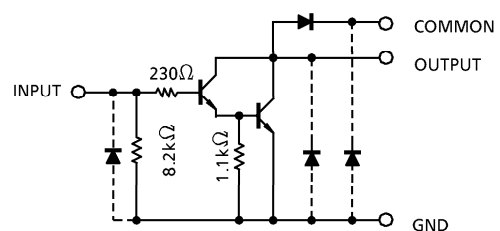


Weight : 1.11g (Typ.)

PIN CONNECTION (TOP VIEW)



SCHEMATICS (EACH DRIVER)



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

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- The information contained herein is subject to change without notice.

MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|-----------------------------|-----------------------|-------------------|--------|
| Output Sustaining Voltage | V _{CE (SUS)} | - 0.5~50 | V |
| Output Current | I _{OUT} | 1.5 | A / ch |
| Input Current | I _{IN} | 50 | mA |
| Input Voltage | V _{IN} | - 0.5~17 | V |
| Clamp Diode Reverse Voltage | V _R | 50 | V |
| Clamp Diode Forward Current | I _F | 1.50 | A / ch |
| Power Dissipation | P _D | 1.47 / 2.7 (Note) | W |
| Operating Temperature | T _{opr} | - 40~85 | °C |
| Storage Temperature | T _{stg} | - 55~150 | °C |

(Note) On Glass Epoxy PCB (50×50×1.6mm Cu 50%)

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

| CHARACTERISTIC | SYMBOL | CONDITION | MIN. | TYP. | MAX. | UNIT | |
|-----------------------------|-----------------------|--|--------------------------|------|------|---------|------|
| Output Sustaining Voltage | V _{CE (SUS)} | | 0 | — | 50 | V | |
| Output Current | I _{OUT} | DC 1 Circuit, Ta = 25°C | 0 | — | 1250 | mA / ch | |
| | | T _{pw} ≤ 25ms 4 Circuits On Ta = 85°C T _j = 120°C | Duty = 10% | 0 | — | | 1250 |
| | | | Duty = 50% | 0 | — | | 700 |
| Input Voltage | V _{IN} | | 0 | — | 8 | V | |
| | Output On | V _{IN (ON)} | I _{OUT} = 1.25A | 2.5 | — | 8 | V |
| | Output Off | V _{IN (OFF)} | | 0 | — | 0.4 | V |
| Input Current | I _{IN} | | 0 | — | 20 | mA | |
| Clamp Diode Reverse Voltage | V _R | | 0 | — | 50 | V | |
| Clamp Diode Forward Current | I _F | | — | — | 1.25 | A | |
| Power Dissipation | P _D | Ta = 85°C (Note) | — | — | 1.4 | W | |

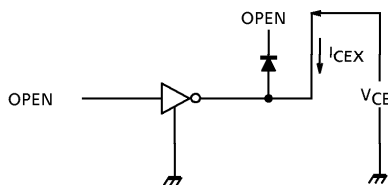
(Note) On Glass Epoxy (50×50×1.6mm Cu 50%)

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

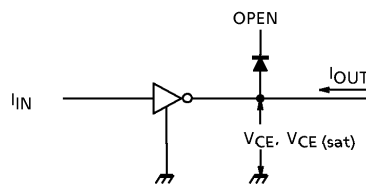
| CHARACTERISTIC | SYMBOL | TEST CIR-CUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|--------------------------------------|-----------------------|---------------|---|--------------------------|------|------|------|
| Output Leakage Current | I _{CEX} | 1 | V _{CE} = 50V, Ta = 25°C | — | — | 50 | μA |
| | | | V _{CE} = 50V, Ta = 85°C | — | — | 500 | |
| Collector-Emitter Saturation Voltage | V _{CE (sat)} | 2 | I _{OUT} = 1.25A, I _{IN} = 2mA | — | — | 1.6 | V |
| | | | I _{OUT} = 0.75A, I _{IN} = 935μA | — | — | 1.25 | |
| DC Current Transfer Ratio | h _{FE} | 2 | V _{CE} = 2V | I _{OUT} = 1.0A | — | 800 | — |
| | | | | I _{OUT} = 1.25A | — | 1500 | |
| Input Voltage (Output On) | V _{IN (ON)} | 3 | I _{OUT} = 1.25A, I _{IN} = 2mA | — | — | 2.4 | V |
| Clamp Diode Reverse Current | I _R | 4 | V _R = 50V, Ta = 25°C | — | — | 50 | μA |
| | | | V _R = 50V, Ta = 85°C | — | — | 100 | |
| Clamp Diode Forward Voltage | V _F | 5 | I _F = 1.25A | — | — | 2 | V |
| Input Capacitance | C _{IN} | 6 | V _{IN} = 0V, f = 1MHz | — | 15 | — | pF |
| Turn-On Delay | t _{ON} | 7 | C _L = 15pF, V _{OUT} = 50V R _L = 40Ω | — | 0.1 | — | μs |
| Turn-Off Delay | t _{OFF} | | | — | 1.0 | — | |

TEST CIRCUIT

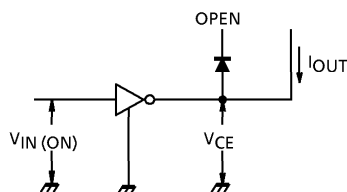
1. I_{CEX}



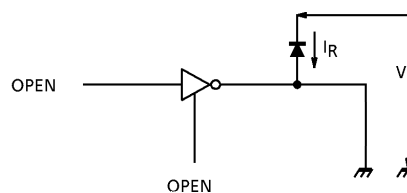
2. V_{CE (sat)}, h_{FE}



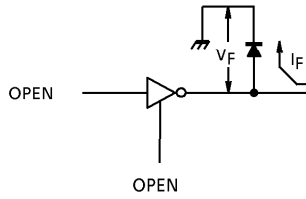
3. V_{IN (ON)}



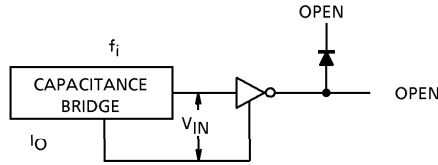
4. I_R



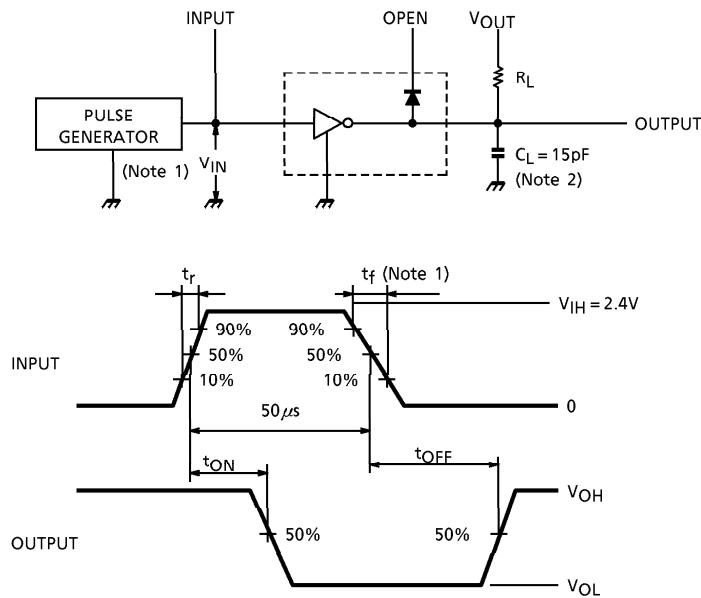
5. V_F



6. C_{IN}



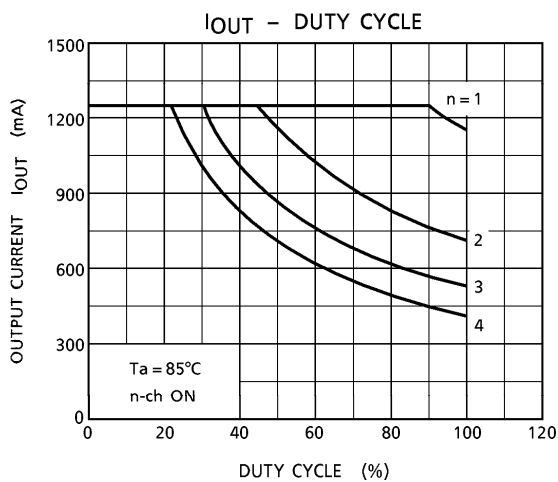
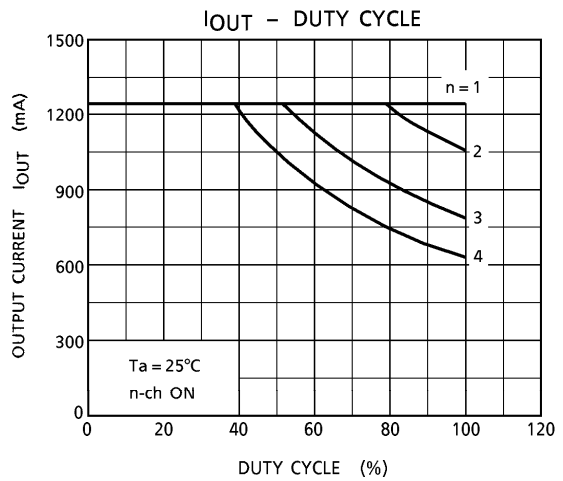
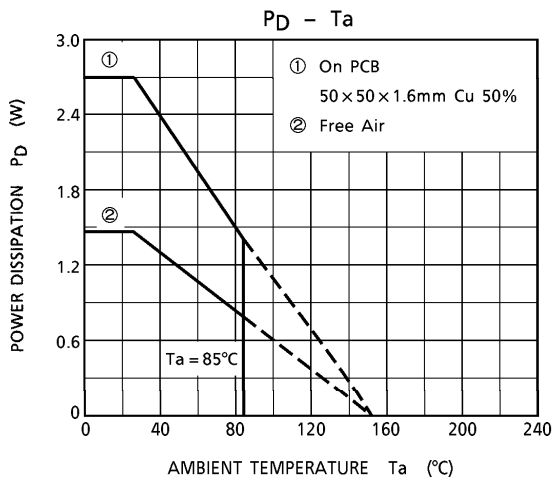
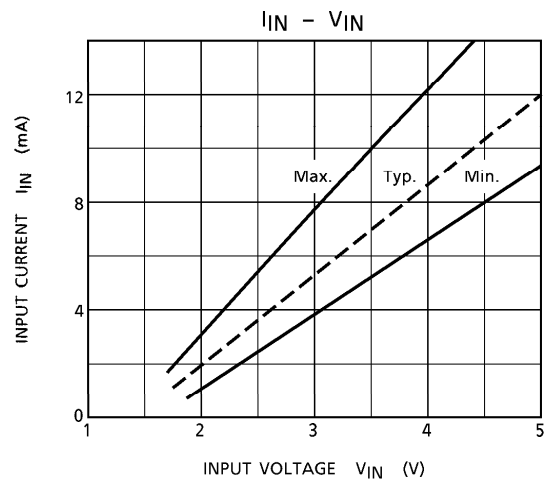
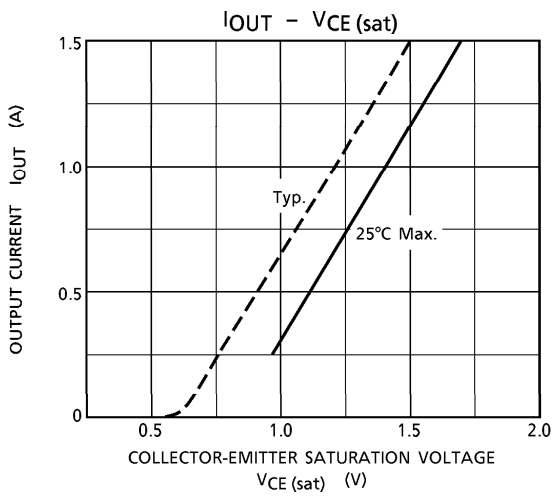
7. t_{ON} , t_{OFF}



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

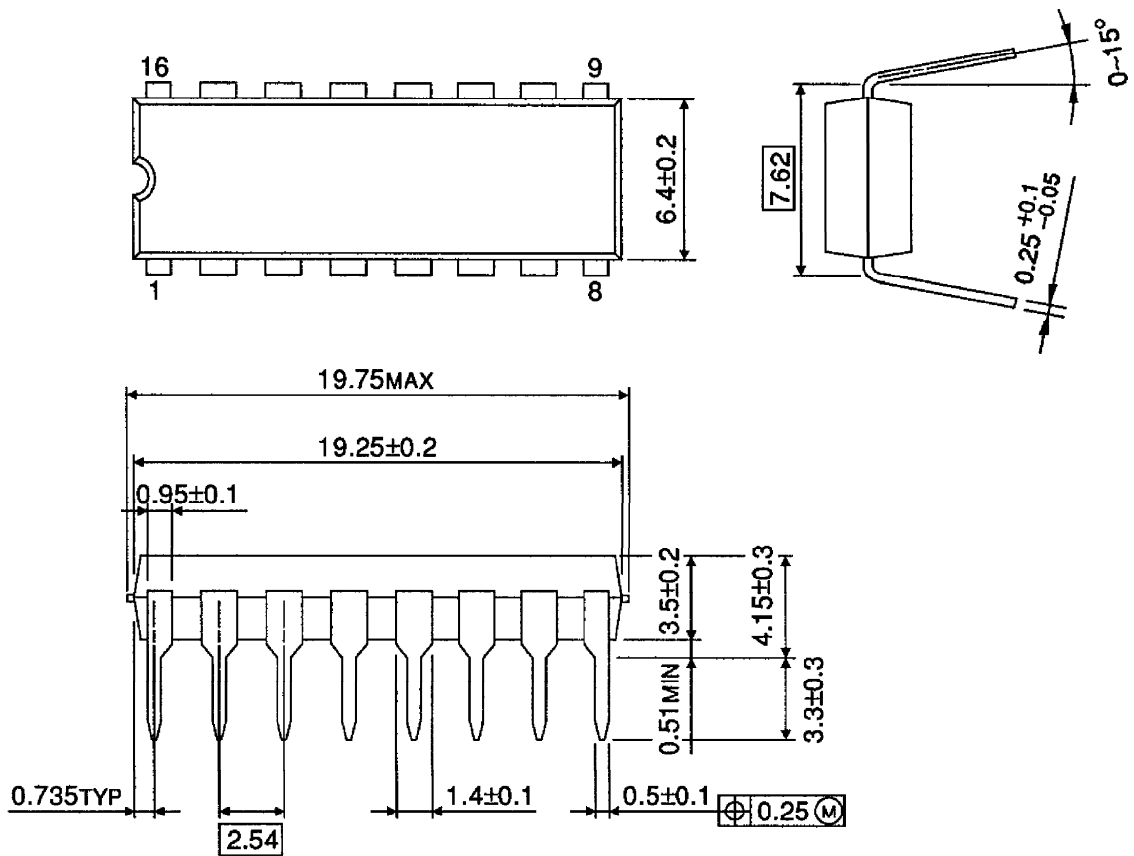
PRECAUTIONS for USING

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



OUTLINE DRAWING
DIP16-P-300-2.54A

Unit : mm



Weight : 1.11g (Typ.)