

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

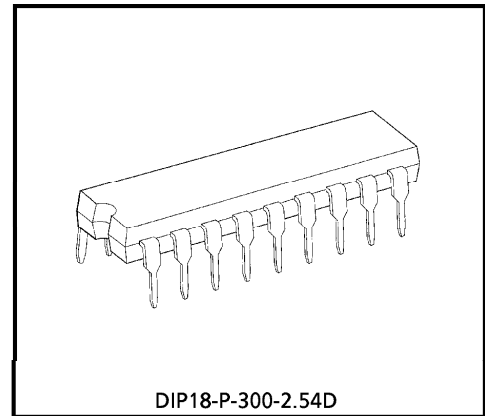
# TD62380P

## 8CH LOW SATURATION DARLINGTON SINK DRIVER

The TD62380P is comprised of eight NPN low saturation drivers.

This device is specifically designed for multiplexed digit driving of eight digit common-cathode LED and also can be employed as a sink driver for multiplexed LED displays using with the TD62785P, TD62785F at standard supply voltage, 5V.

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



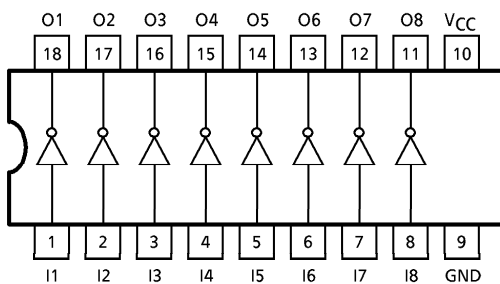
DIP18-P-300-2.54D

Weight : 1.47g (Typ.)

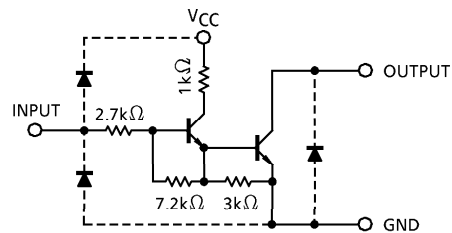
### FEATURES

- Low saturation output  $V_{CE(sat)} = 0.5V$  (Max.) @  $I_{OUT} = 120mA$
- Output rating 15V (Min.) / 120mA (Max.)
- Input compatible with TTL and 5V CMOS
- Low level active inputs
- Standard supply voltage
- Package type-P : DIP-18 pin

### PIN CONNECTION (TOP VIEW)



### SCHEMATICS (EACH DRIVER)



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

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## MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V <sub>CC</sub>	7	V
Output Sustaining Voltage	V <sub>CE(SUS)</sub>	15	V
Output Current	I <sub>OUT</sub>	120	mA / ch
Input Voltage	V <sub>IN</sub>	7	V
Input Current	I <sub>IN</sub>	5	mA
Power Dissipation	P <sub>D</sub> (Note)	1.47	W
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 11.7mW/°C.

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

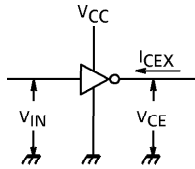
CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V <sub>CC</sub>	—	4.5	5.0	5.5	V
Output Voltage	V <sub>OUT</sub>	—	—	—	12	V
Output Current	I <sub>OUT</sub>	—	—	—	120	mA / ch
Input Voltage	V <sub>IN</sub>	—	0	—	V <sub>CC</sub>	V
Power Dissipation	P <sub>D</sub>	—	—	—	0.52	W

## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

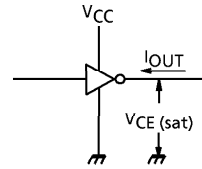
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current	I <sub>CEX</sub>	1	V <sub>CC</sub> = 5V, V <sub>IN</sub> = OPEN V <sub>OUT</sub> = 12V, Ta = 85°C	—	—	100	μA
Output Saturation Voltage	V <sub>CE(sat)</sub>	2	V <sub>CC</sub> = 5V, V <sub>OUT</sub> = 120mA	—	0.18	0.5	V
Input Current	I <sub>IN(ON)</sub>	3	V <sub>CC</sub> = 5V, V <sub>IN</sub> = 2.4V	—	0.4	0.7	mA
Supply Current	I <sub>CC</sub>	4	V <sub>CC</sub> = V <sub>IN</sub> = 5V	—	—	8	mA / Gate
Turn-On Delay	t <sub>ON</sub>	5	V <sub>OUT</sub> = 10V, R <sub>L</sub> = 100Ω C <sub>L</sub> = 15pF	—	0.1	—	μs
Turn-Off Delay	t <sub>OFF</sub>			—	1.2	—	μs

**TEST CIRCUIT**

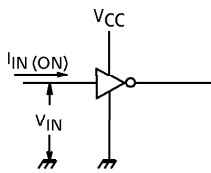
1.  $I_{CEX}$



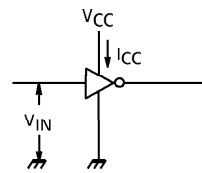
2.  $V_{CE(sat)}$



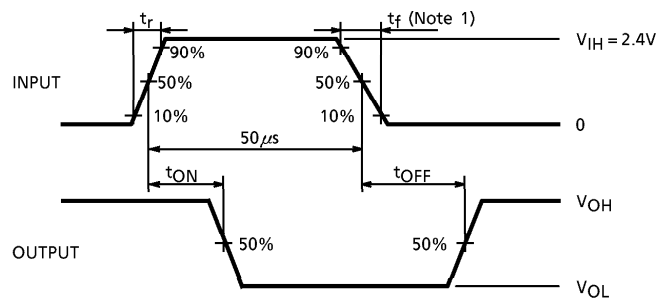
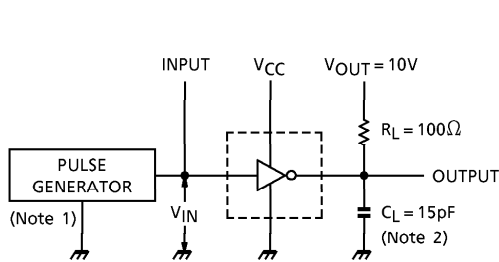
3.  $I_{IN(ON)}$



4.  $I_{CC}$



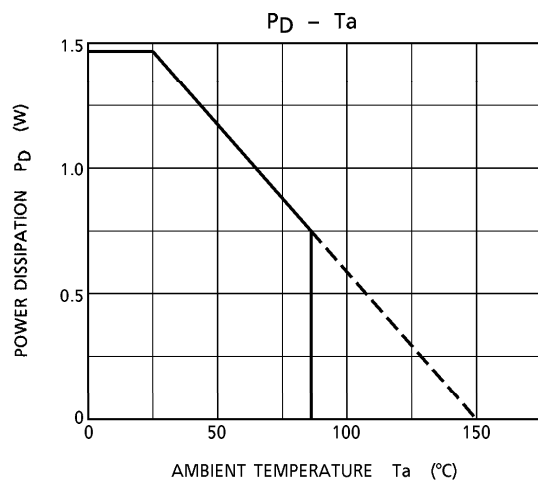
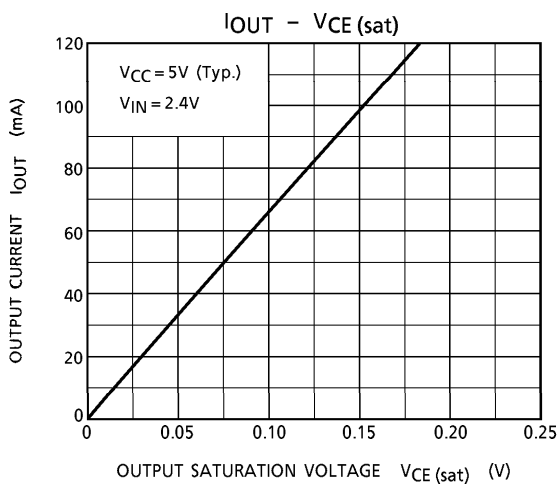
5.  $t_{ON}, t_{OFF}$



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

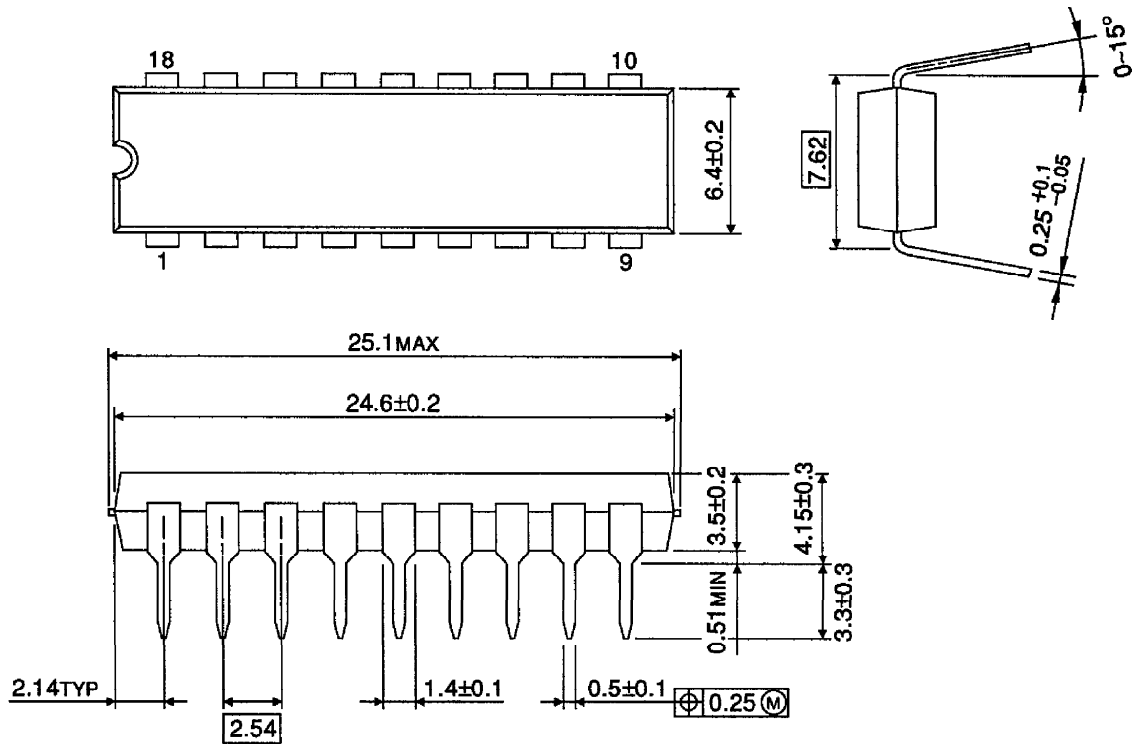
**PRECAUTIONS for USING**

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



OUTLINE DRAWING  
DIP18-P-300-2.54D

Unit : mm



Weight : 1.47g (Typ.)