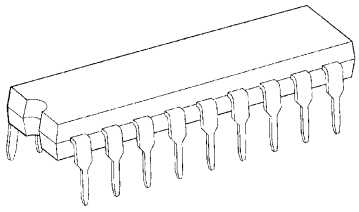
TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62380P

8CH LOW SATURATION DARLINGTON SINK DRIVER

The TD62380P is comprised of eight NPN low saturation driver. 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, 5 V. Applications include relay, hammer, lamp and LED display drivers.
Please observe the thermal condition for using.



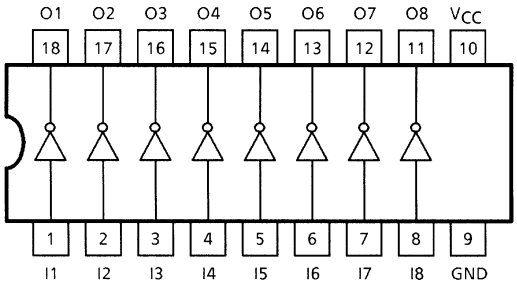
DIP18-P-300-2.54D

Weight: 1.47 g (Typ.)

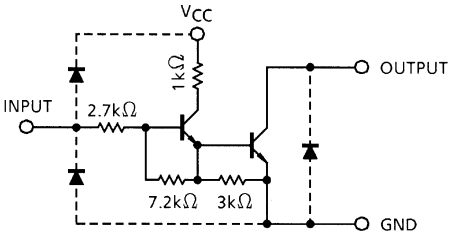
FEATURES

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

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)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	7	V
Output Sustaining Voltage	$V_{CE\ (SUS)}$	15	V
Output Current	I_{OUT}	120	mA / ch
Input Voltage	V_{IN}	7	V
Input Current	I_{IN}	5	mA
Power Dissipation	P_D (Note)	1.47	W
Operating Temperature	T_{opr}	−40~85	°C
Storage Temperature	T_{stg}	−55~150	°C

Note: Delated above 25°C in the proportion of 11.7 mW / °C.

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

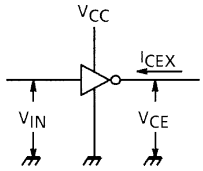
CHARACTERISTIC	SYMBOL	CONDITION	MIN	TYP.	MAX	UNIT
Supply Voltage	V_{CC}	—	4.5	5	5.5	V
Output Voltage	V_{OUT}	—	—	—	12	V
Output Current	I_{OUT}	—	—	—	120	mA / ch
Input Voltage	V_{IN}	—	0	—	V_{CC}	V
Power Dissipation	P_D	—	—	—	0.52	W

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

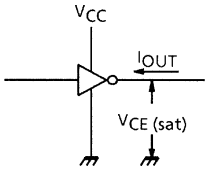
CHARACTERISTIC	SYMBOL	TEST CIR−CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Output Leakage Current	I_{CEX}	1	V_{CC} = 5 V, V_{IN} = OPEN V_{OUT} = 12 V, Ta = 85°C	—	—	100	μA
Output Saturation Voltage	$V_{CE\ (sat)}$	2	V_{CC} = 5 V, V_{OUT} = 120 mA	—	0.18	0.5	V
Input Current	$I_{IN\ (ON)}$	3	V_{CC} = 5 V, V_{IN} = 2.4 V	—	0.4	0.7	mA
Supply Current	I_{CC}	4	V_{CC} = V_{IN} = 5 V	—	—	8	mA / Gate
Turn−On Delay	t_{ON}	5	V_{OUT} = 10 V, R_L = 100 Ω C_L = 15 pF	—	0.1	—	μs
Turn−Off Delay	t_{OFF}			—	1.2	—	μs

TEST CIRCUIT

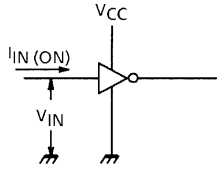
1. I_{CEX}



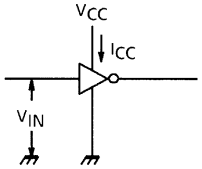
2. $V_{CE\ (sat)}$



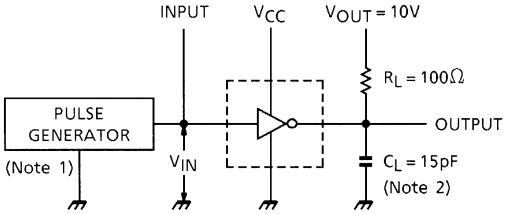
3. $I_{IN\ (ON)}$

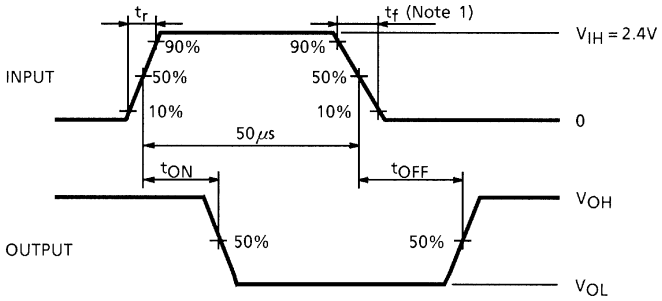


4. I_{CC}



5. t_{ON}, t_{OFF}



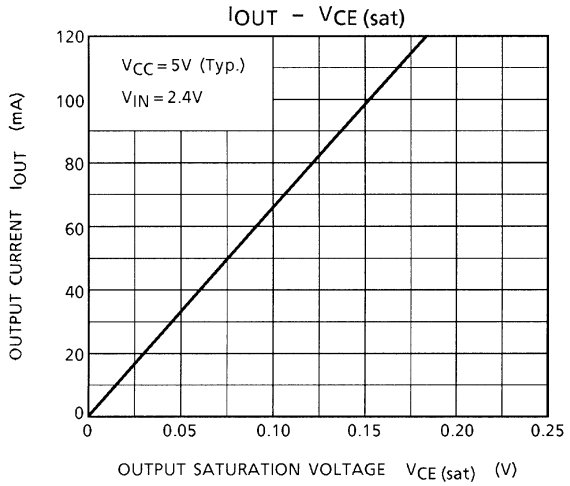


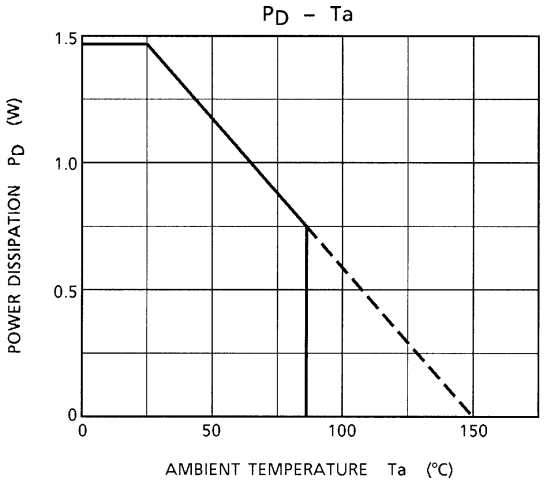
Note 1: Pulse Width 50 μs, Duty Cycle 10%
Output Impedance 50 Ω, $t_r \leq 5$ ns, $t_f \leq 10$ ns

Note 2: C_L includes probe and jig capacitance.

PRECAUTIONS for USING

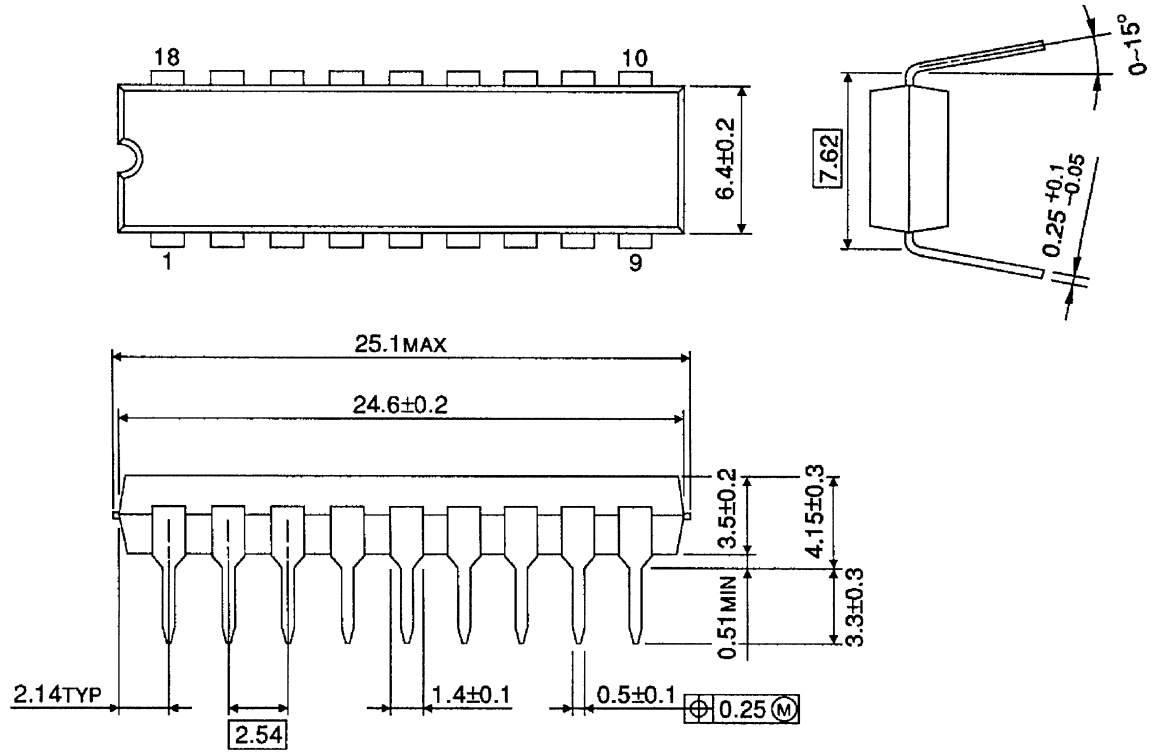
This IC does not include built-in protection circuits for excess current or overvoltage.
If this IC is subjected to excess current or overvoltage, it may be destroyed.
Hence, the utmost care must be taken when systems which incorporate this IC are designed.
Utmost care is necessary in the design of the 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.


I_{OUT} – $V_{CE\ (sat)}$
V_{CC} = 5V (Typ.)
V_{IN} = 2.4V
OUTPUT CURRENT I_{OUT} (mA)
120
100
80
60
40
20
0
0
0.05
0.10
0.15
0.20
0.25
OUTPUT SATURATION VOLTAGE $V_{CE\ (sat)}$ (V)


P_D – Ta
POWER DISSIPATION P_D (W)
1.5
1.0
0.5
0
0
50
100
150
AMBIENT TEMPERATURE Ta (°C)

PACKAGE DIMENSIONS

DIP18−P−300−2.54D Unit: mm



Weight: 1.47 g (Typ.)

RESTRICTIONS ON PRODUCT USE

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