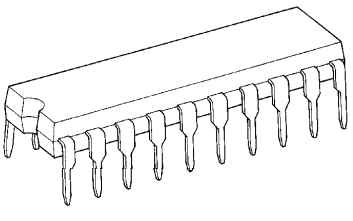
TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62383P

8CH LOW INPUT ACTIVE SINK DRIVER

The TD62383P is non-inverting transistor array which is comprised of eight Low saturation output stages and PNP input stages.
This device is low level input active driver and is suitable for operation with TTL, 5V CMOS and 5V Microprocessor which have sink current output drivers.
Applications include relay, hammer, lamp and LED display drivers.



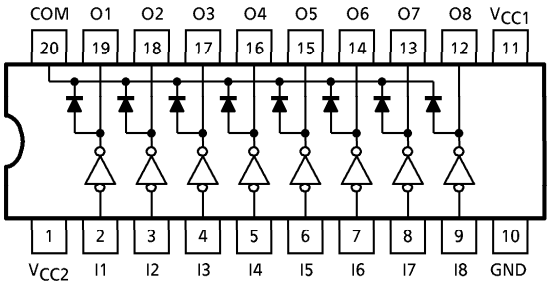
DIP20-P-300-2.54A

Weight : 2.25g (Typ.)

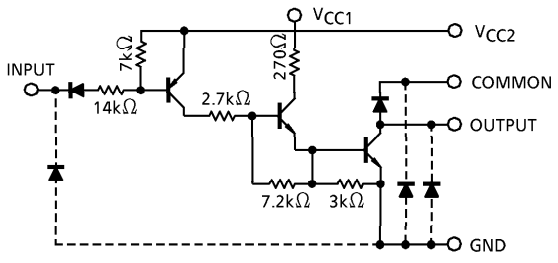
FEATURES

- Low saturation output 0.4V (Max.) @I_{OUT} = 350mA
- Output rating 10V (Min.) / 500mA (Max.)
- Input compatible with TTL and 5V CMOS
- Low level active inputs
- Standard supply voltage
- Output clamp diodes
- Package type-P : DIP-20pin

PIN CONNECTION (TOP VIEW)



SCHEMATICS (EACH DRIVER)



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

961001EBA2

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	$V_{CC1, 2}$	− 0.5~7.0	V
Output Sustaining Voltage	$V_{CE\ (SUS)}$	− 0.5~10.0	V
Output Current	I_{OUT}	500	mA / ch
Input Voltage	V_{IN}	− 22~V_{CC} + 0.5	V
Input Current	I_{IN}	10	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 11.7mW / °C.

RECOMMENDED OPERATING CONDITIONS (Ta = − 40~80°C)

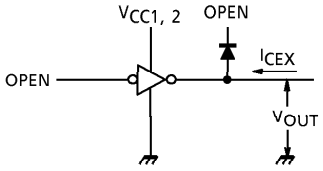
CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage	$V_{CC1, 2}$	—	4.5	5.0	5.5	V
Output Sustaining Voltage	V_{OUT}	—	0	—	10	V
Output Current	I_{OUT}	—	—	—	350	mA / ch
Input Voltage	V_{IN}	—	0	—	5.5	V
Power Dissipation	P_D	—	—	—	0.52	W

ELECTRICAL CHARACTERISTIC (Ta = 25°C)

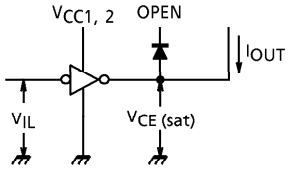
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current	I_{CEX}	1	$V_{CC} = V_{CC2} = 5.5V$, $V_{OUT} = 10V$ $I_{IN} = 0$, Ta = 85°C	—	—	100	μA
Output Saturation Voltage	$V_{CE\ (sat)}$	2	$V_{CC1} = V_{CC2} = 4.5V$ $I_{OUT} = 350mA$, $V_{IN} = V_{IL\ MAX.}$	—	—	0.4	V
Input Current	$I_{IN\ (ON)}$	3	$V_{CC1} = V_{CC2} = 5.5V$, $V_{IN} = 0.4V$	—	− 0.32	− 0.45	mA
Input Voltage	V_{IL}	—	$I_{OUT} = 350mA$	—	—	V_{CC} − 3.7	V
Clamp Diode Forward Voltage	V_F	4	$I_F = 350mA$	0	—	2.0	V
Clamp Diode Reverse Current	I_R	5	$V_R = 10V$, Ta = 25°C	—	—	50	μA
			$V_R = 10V$, Ta = 85°C	—	—	100	
Turn-On Delay	t_{ON}	6	$V_{CC1} = V_{CC2} = 5V$, $V_{OUT} = 10V$ $R_L = 28\Omega$, $C_L = 15pF$	—	0.2	—	μs
Turn-Off Delay	t_{OFF}			—	3.0	—	

TEST CIRCUIT

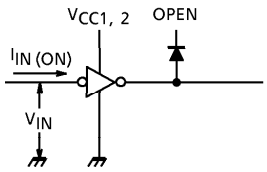
1. I_{CEX}



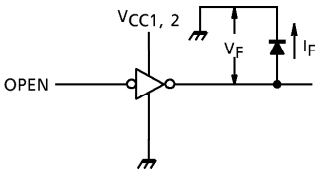
2. $V_{CE\ (sat)}$



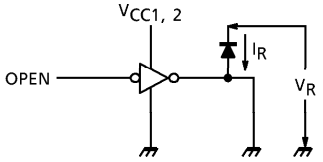
3. $I_{IN\ (ON)}$



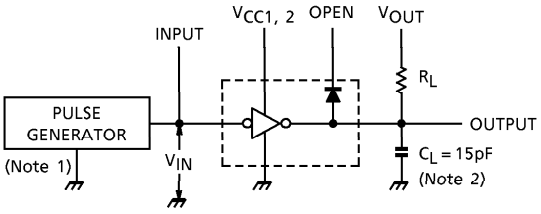
4. V_F

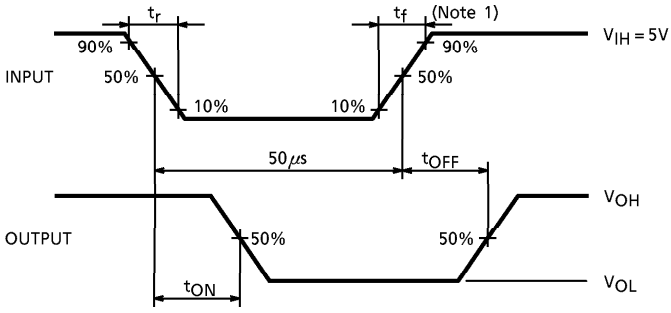


5. I_R



6. t_{ON}, t_{OFF}



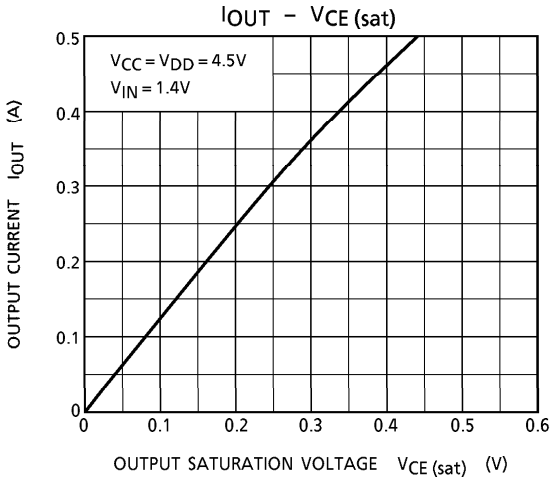


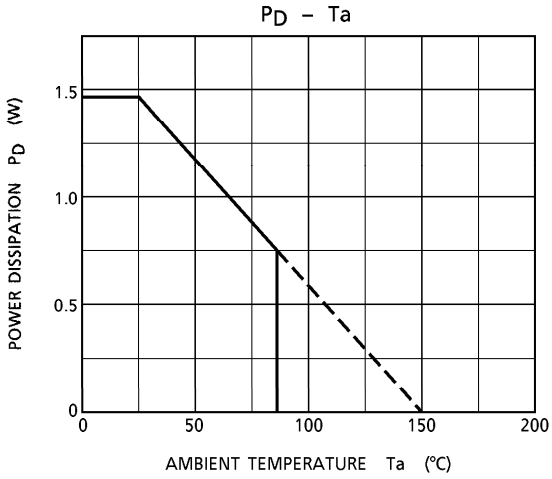
(Note 1) Pulse Width 50μs, Duty Cycle 10%
Output Impedance 50Ω, $t_r \leqq 5$ns, $t_f \leqq 10$ns

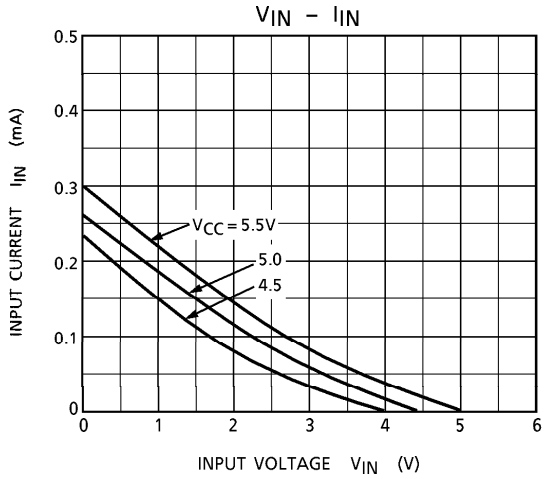
(Note 2) C_L includes probe and jig capacitance.

PRECAUTIONS for USING

Utmost care is necessary in the design of the output line, V_{CC} (V_{CC1}, V_{CC2}) and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.


I_{OUT} – $V_{CE\,(sat)}$
$V_{CC} = V_{DD} = 4.5V$
$V_{IN} = 1.4V$
OUTPUT CURRENT I_{OUT} (A)
0.5
0.4
0.3
0.2
0.1
0
0 0.1 0.2 0.3 0.4 0.5 0.6
OUTPUT SATURATION VOLTAGE $V_{CE\,(sat)}$ (V)

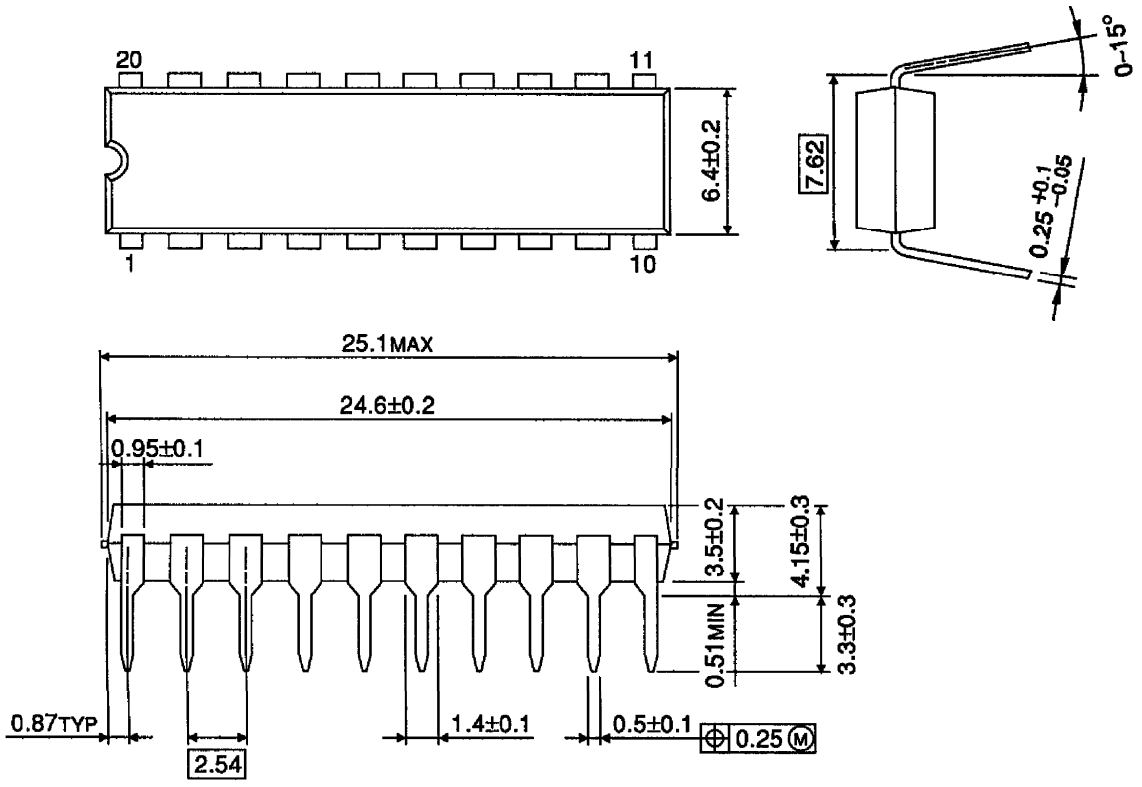

P_D – Ta
POWER DISSIPATION P_D (W)
1.5
1.0
0.5
0
0 50 100 150 200
AMBIENT TEMPERATURE Ta (°C)


V_{IN} – I_{IN}
INPUT CURRENT I_{IN} (mA)
0.5
0.4
0.3
0.2
0.1
0
$V_{CC} = 5.5V$
5.0
4.5
0 1 2 3 4 5 6
INPUT VOLTAGE V_{IN} (V)

OUTLINE DRAWING

DIP20-P-300-2.54A

Unit : mm



Weight : 2.25g (Typ.)