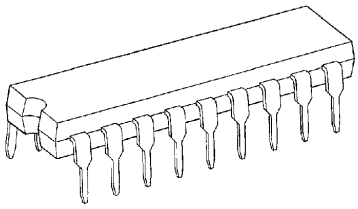
TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62382AP, TD62382F, TD62382AF

8CH LOW INPUT ACTIVE SINK DRIVER

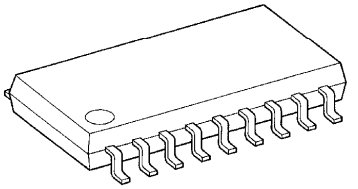
The TD62382AP / F / AF are non-inverting transistor array which are comprised of eight Low saturation output stages and PNP input stages.
This device is low level input active driver and is suitable for operation with TTL, 5V CMOS and 5V Microprocessor which have sink current output drivers.
Applications include relay, hammer, lamp and LED display drivers.

TD62382AP



DIP18-P-300-2.54D

TD62382F
TD62382AF



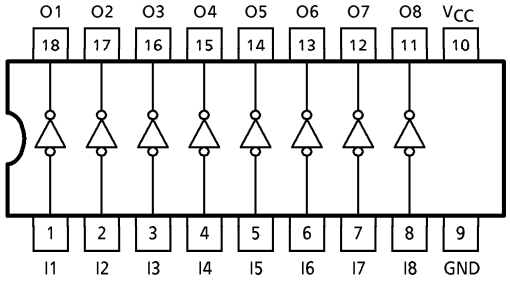
SOP18-P-375-1.27

Weight
DIP18-P-300-2.54D : 1.47g (Typ.)
SOP18-P-375-1.27 : 0.41g (Typ.)

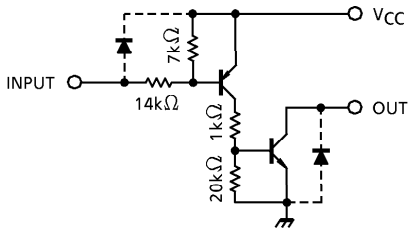
FEATURES

- Low saturation output 0.23V MAX. @I_{OUT} = 40mA MAX.
- Output rating 35V MIN. / 50mA MAX. (TD62382F)
  50V MIN. / 50mA MAX. (TD62382AP, TD62382AF)
- Input compatible with TTL and 5V CMOS
- Low level active inputs
- Standard supply voltage
- Package type-AP : DIP-18pin
- Package type-F, AF : SOP-18pin

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_{CC}	−0.5~7.0	V
Output Sustaining Voltage	AP, AF	$V_{CE\ (SUS)}$	−0.5~50	V
	F		−0.5~35	
Output Current		I_{OUT}	50	mA / ch
Input Voltage		V_{IN}	−22~V_{CC} + 0.5	V
Input Current		I_{IN}	10	mA
Power Dissipation	AP	P_D (Note)	1.47	W
	F, AF		0.96	
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 (AP-Type), 7.7mW / °C (F, AF-Type).

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

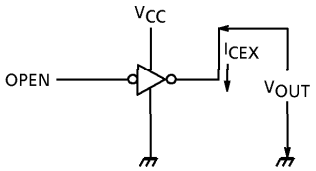
CHARACTERISTIC		SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage		V_{CC}	—	4.5	5.0	5.5	V
Output Sustaining Voltage	AP, AF	$V_{CE\ (SUS)}$	—	0	—	50	V
	F		—	0	—	35	
Output Current		I_{OUT}	DC 1 Circuit	0	—	40	mA / ch
	AP		8 Circuits	0	—	40	
	AF, F		8 Circuits	0	—	40	
Input Voltage		V_{IN}	—	−20	—	V_{CC}	V
	Output On	$V_{IN\ (ON)}$	—	−20	—	V_{CC} − 3.5	V
	Output Off	$V_{IN\ (OFF)}$	—	V_{CC} − 0.3	—	V_{CC} + 0.5	
Power Dissipation	AP	P_D	—	—	—	0.52	W
	F, AF		—	—	—	0.35	

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

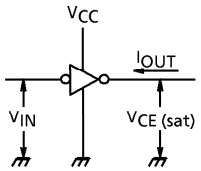
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Output Leakage Current		I_{CEX}	1	V_{CC} = 5.5V, I_{IN} = 0 V_{OUT} = 35V, Ta = 75°C		—	—	100	μA
Output Saturation Voltage		$V_{CE\ (sat)}$	2	V_{CC} = 4.5V, V_{IN} = 0.8V I_{OUT} = 40mA		—	—	0.23	V
Input Current	Output On	$I_{IN\ (ON)}$	3	V_{CC} = 5.5V, V_{IN} = 0.4V		—	− 0.32	− 0.45	mA
				V_{CC} = 5.5V, V_{IN} = − 20V		—	—	− 2.6	
	Output Off	$I_{IN\ (OFF)}$	4	—		—	—	− 40	μA
Input Voltage	Output On	$V_{IN\ (ON)}$	5	—		− 20	—	V_{CC} − 3.5	V
Supply Current	Output On	$I_{CC\ (ON)}$	6	V_{CC} = 5.5V, V_{IN} = 0V		—	—	6	mA / ch
	Output Off	$I_{CC\ (OFF)}$		V_{CC} = V_{IN} = 5.5V, Ta = 75°C		—	—	100	μA
Turn-On Delay	AP, AF	t_{ON}	7	V_{CC} = 5V C_L = 15pF	V_{OUT} = 35V, R_L = 82Ω	—	0.1	—	μs
	F				V_{OUT} = 50V, R_L = 1kΩ	—	0.1	—	
Turn-Off Delay	AP, AF	t_{OFF}			V_{OUT} = 35V, R_L = 82Ω	—	3.0	—	
	F				V_{OUT} = 50V, R_L = 1kΩ	—	3.0	—	

TEST CIRCUIT

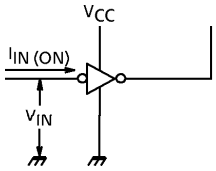
1. I_{CEX}



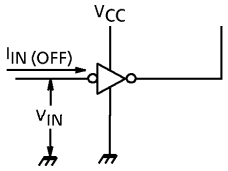
2. $V_{CE\ (sat)}$



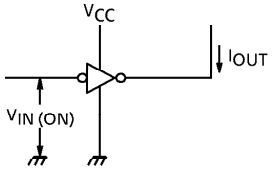
3. $I_{IN\ (ON)}$



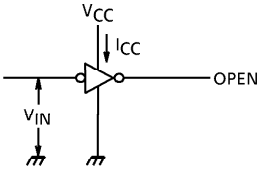
4. $I_{IN\ (OFF)}$



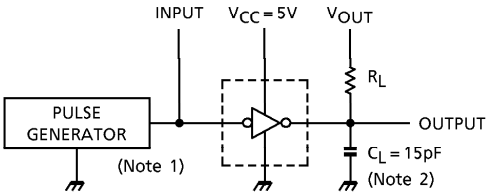
5. $V_{IN\ (ON)}$

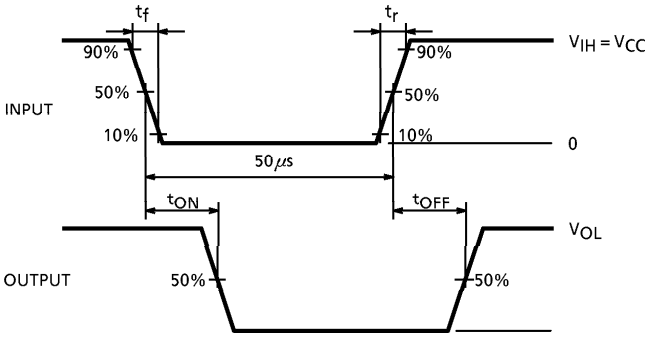


6. I_{CC}



7. t_{ON}, t_{OFF}



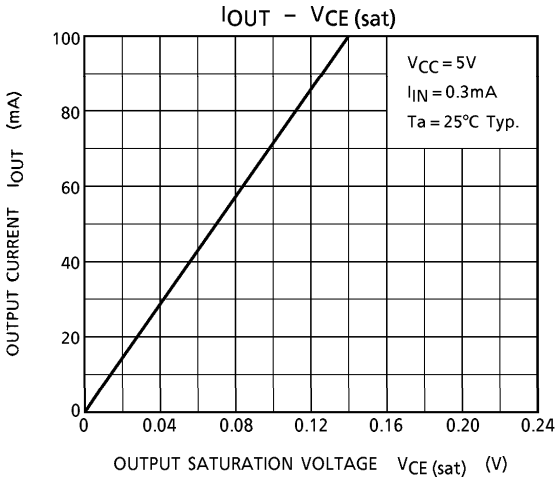


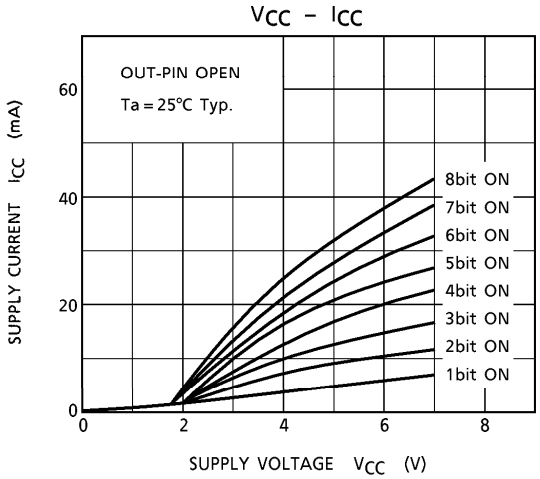
(Note 1) Pulse Width 50μs, Duty Cycle 10%
Output Impedance 50Ω, $t_r \leqq$ 10ns, $t_f \leqq$ 5ns

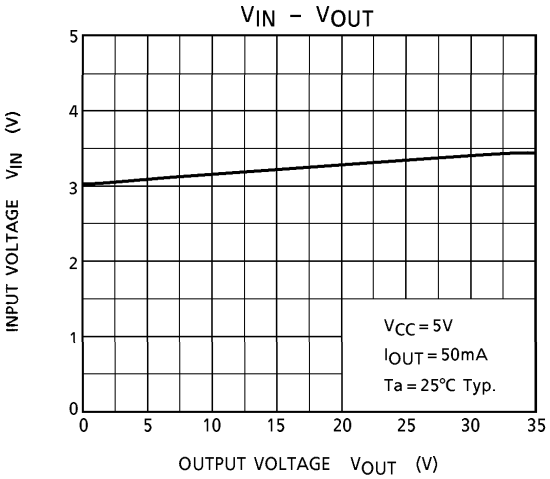
(Note 2) C_L includes probe and jig capacitance

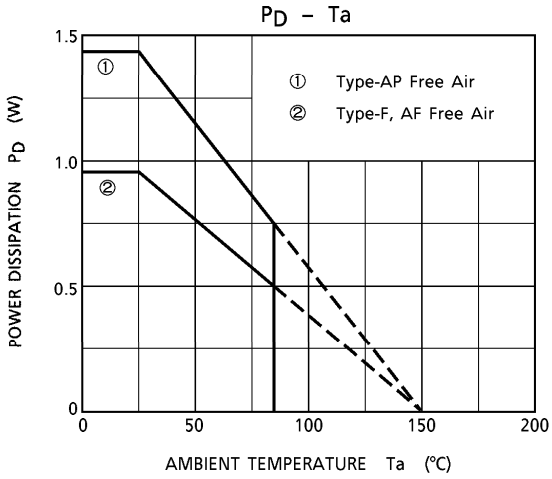
PRECAUTIONS for USING

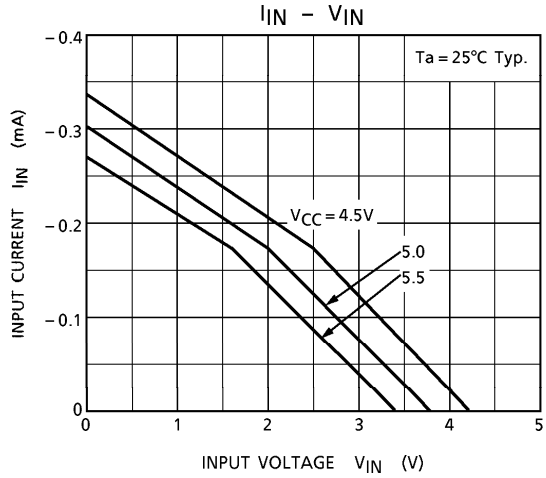
Utmost care is necessary in the design of the output line, V_{CC} and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.


I_{OUT} – $V_{CE\,(sat)}$
V_{CC} = 5V
I_{IN} = 0.3mA
Ta = 25°C Typ.
OUTPUT CURRENT I_{OUT} (mA)
OUTPUT SATURATION VOLTAGE $V_{CE\,(sat)}$ (V)


V_{CC} – I_{CC}
OUT-PIN OPEN
Ta = 25°C Typ.
8bit ON
7bit ON
6bit ON
5bit ON
4bit ON
3bit ON
2bit ON
1bit ON
SUPPLY CURRENT I_{CC} (mA)
SUPPLY VOLTAGE V_{CC} (V)


V_{IN} – V_{OUT}
V_{CC} = 5V
I_{OUT} = 50mA
Ta = 25°C Typ.
INPUT VOLTAGE V_{IN} (V)
OUTPUT VOLTAGE V_{OUT} (V)

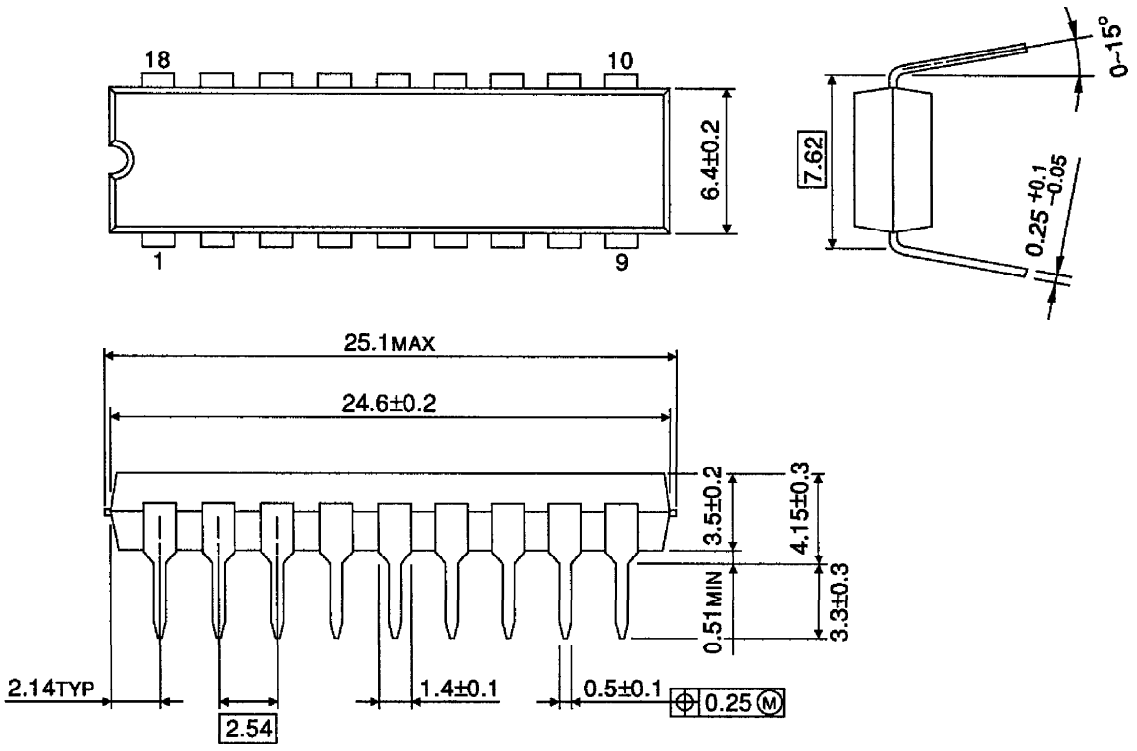

P_D – Ta
① Type-AP Free Air
② Type-F, AF Free Air
POWER DISSIPATION P_D (W)
AMBIENT TEMPERATURE Ta (°C)


I_{IN} – V_{IN}
Ta = 25°C Typ.
V_{CC} = 4.5V
5.0
5.5
INPUT CURRENT I_{IN} (mA)
INPUT VOLTAGE V_{IN} (V)

OUTLINE DRAWING

DIP18-P-300-2.54D

Unit : mm

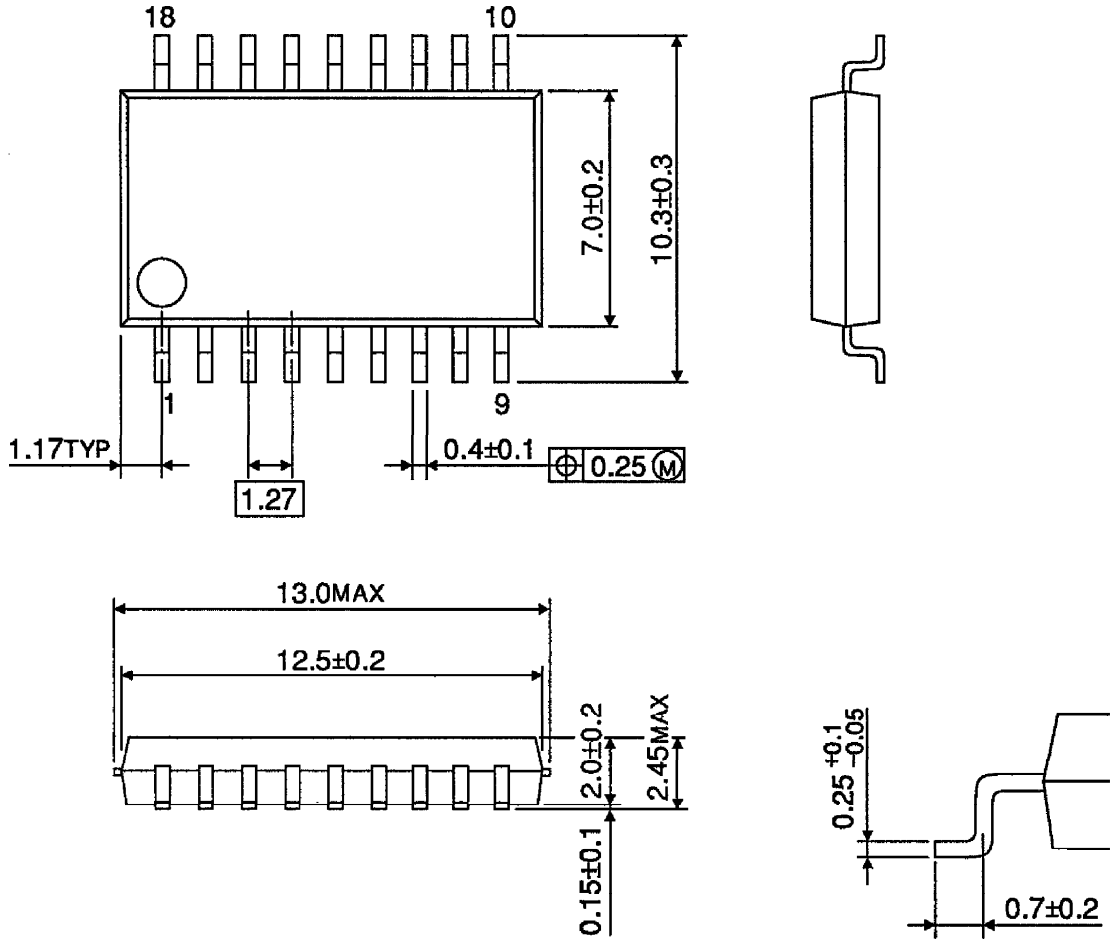


Weight : 1.47g (Typ.)

OUTLINE DRAWING

SOP18-P-375-1.27

Unit : mm



Weight : 0.41g (Typ.)