

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62381P, TD62381F

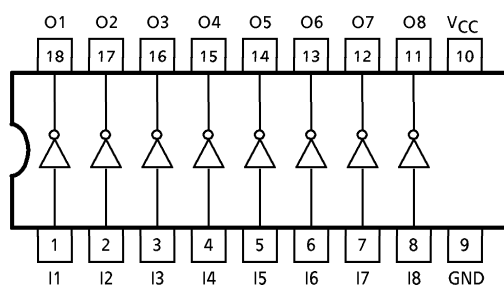
8CH LOW SATURATION SINK DRIVER

The TD62381P and TD62381F are comprised of eight NPN low saturation drivers. These devices are 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 and TD62785F at standard supply voltage, 5V. Applications include relay, hammer, lamp and LED display drivers.

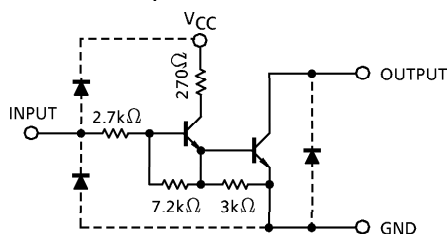
FEATURES

- Low saturation output voltage : $V_{CE(sat)} = 0.9V$ (Max.)
@ $I_{out} = 500mA$
- Output rating 15V (Min.) / 500mA (Max.)
- Input compatible with TTL and 5V CMOS
- Low level active inputs
- Standard supply voltage
- Package type-P : DIP-18pin
- Package type-F : SOP-18pin

PIN CONNECTION (TOP VIEW)

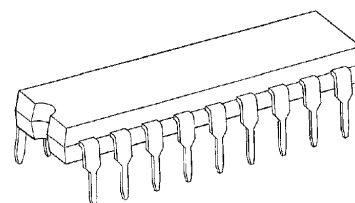


SCHEMATICS (EACH DRIVER)



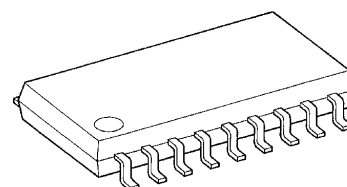
(Note) The input and output parasitic diodes cannot be used as clamp diodes.

TD62381P



DIP18-P-300-2.54D

TD62381F



SOP18-P-375-1.27

Weight

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

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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}	500	mA / ch
Input Voltage	V _{IN}	7	V
Input Current	I _{IN}	5	mA
Power Dissipation	P	P _D	W
	F	(Note)	
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 (P-Type), 7.7mW/°C (F-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 Voltage		V _{OUT}	—		—	—	12	V
Output Current	P	I _{OUT}	DC 1 Circuit, Ta = 25°C		0	—	400	mA / ch
	F				0	—	400	
	P		T _{pw} ≤ 25ms 8 Circuit On Ta = 85°C T _j = 120°C	Duty = 10%	0	—	400	
				Duty = 50%	0	—	350	
	F			Duty = 10%	0	—	400	
				Duty = 50%	0	—	330	
Input Voltage		V _{IN}	—		0	—	V _{CC}	V
	Output On	V _{IN (ON)}	—		2.4	—	V _{CC}	
	Output Off	V _{IN (OFF)}	—		0	—	0.4	
Power Dissipation	P	P _D	—		—	—	0.52	W
	F		—		—	—	0.35	

ELECTRICAL CHARACTERISTICS (Ta = 25°C, V_{CC} = 5V)

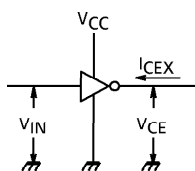
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current	I _{CEX}	1	V _{IN} = OPEN V _{OUT} = 12V, Ta = 85°C	—	—	100	μA
Output Saturation Voltage	V _{CE (sat)}	2	I _{OUT} = 500mA	—	—	0.9	V
			I _{OUT} = 350mA	—	—	0.7	
Input Current	I _{IN (ON)}	3	V _{CC} = 5V, V _{IN} = 2.4V	—	0.4	0.7	mA
Input Voltage (Output On)	V _{IN (ON)}	—	V _{CC} = 5V	—	—	2.4	V
Supply Current	I _{CC}	4	V _{CC} = V _{IN} = 5V	—	—	17	mA / ch
Turn-On Delay	t _{ON}	5	V _{OUT} = 10V, R _L = 20Ω C _L = 15pF	—	0.1	—	μs
Turn-Off Delay	t _{OFF}			—	1.2	—	μs

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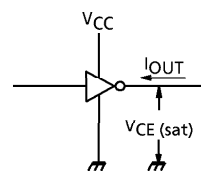
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TEST CIRCUIT

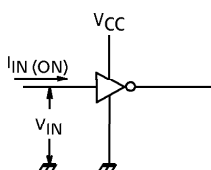
1. I_{CEX}



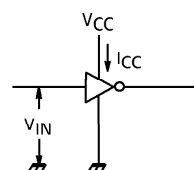
2. $V_{CE(sat)}$



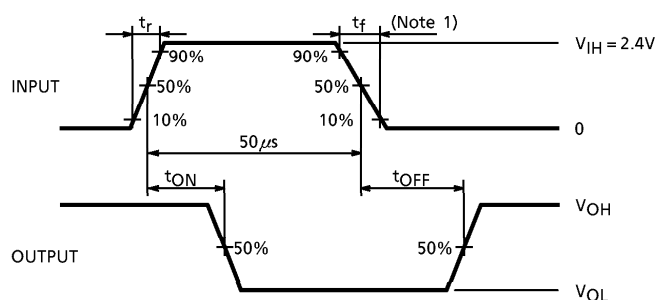
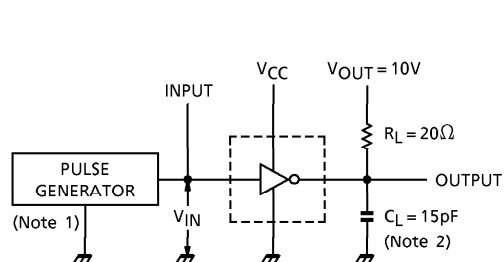
3. $I_{IN(ON)}$



4. I_{CC}



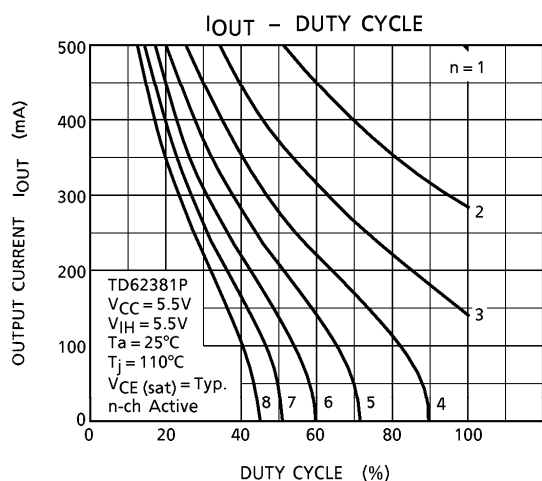
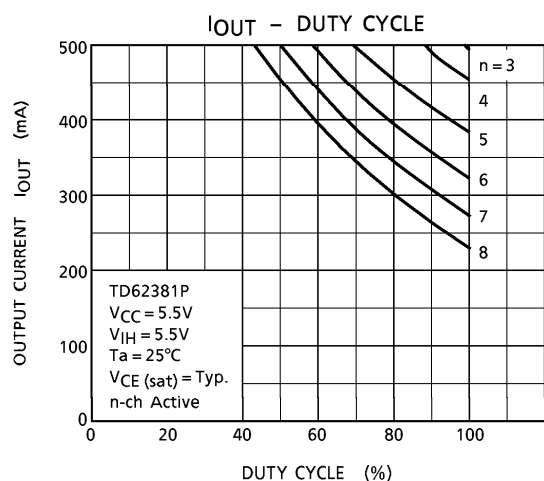
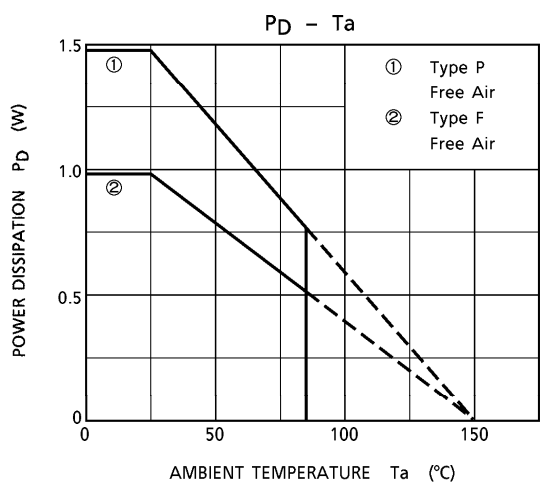
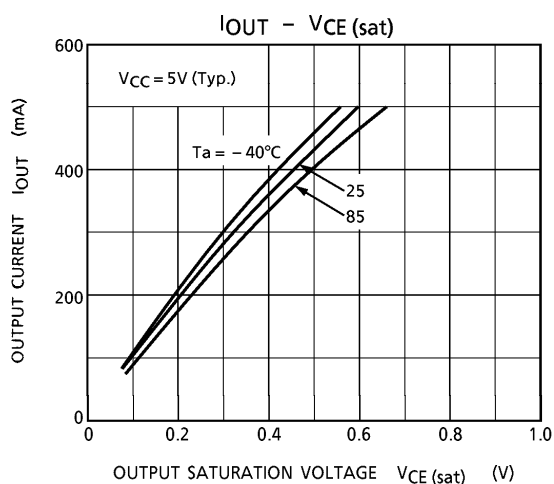
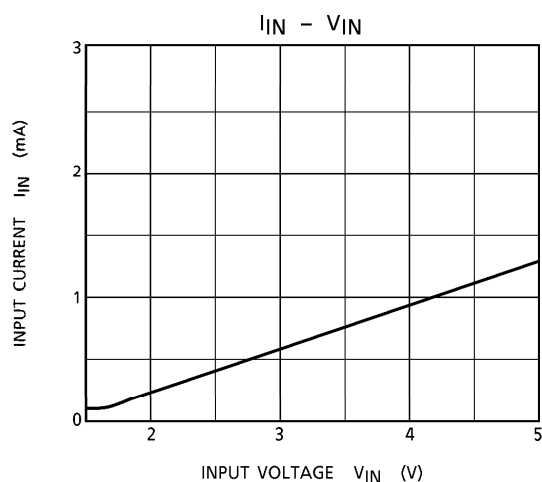
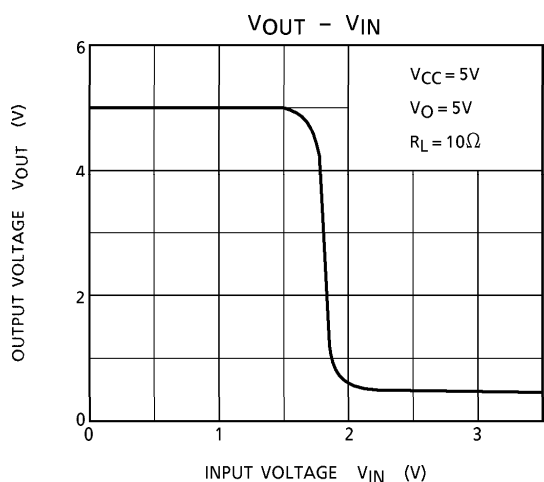
5. t_{ON} , t_{OFF}

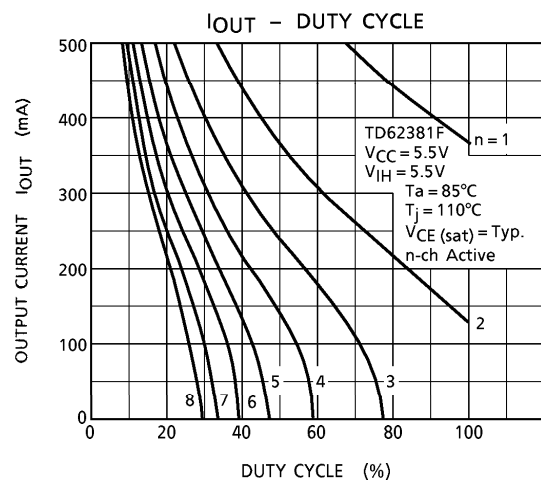
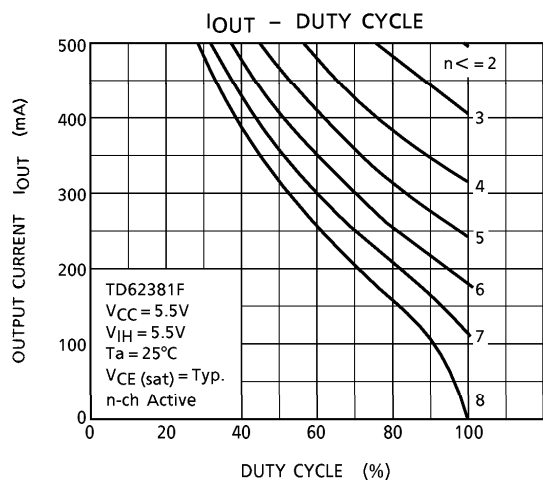


- (Note 1) Pulse Width $50\mu s$, Duty Cycle 10%
Output Impedance 50Ω , $t_r \leq 5ns$, $t_f \leq 10ns$
(Note 2) C_L includes probe and jig capacitance.

PRECAUTIONS for USING

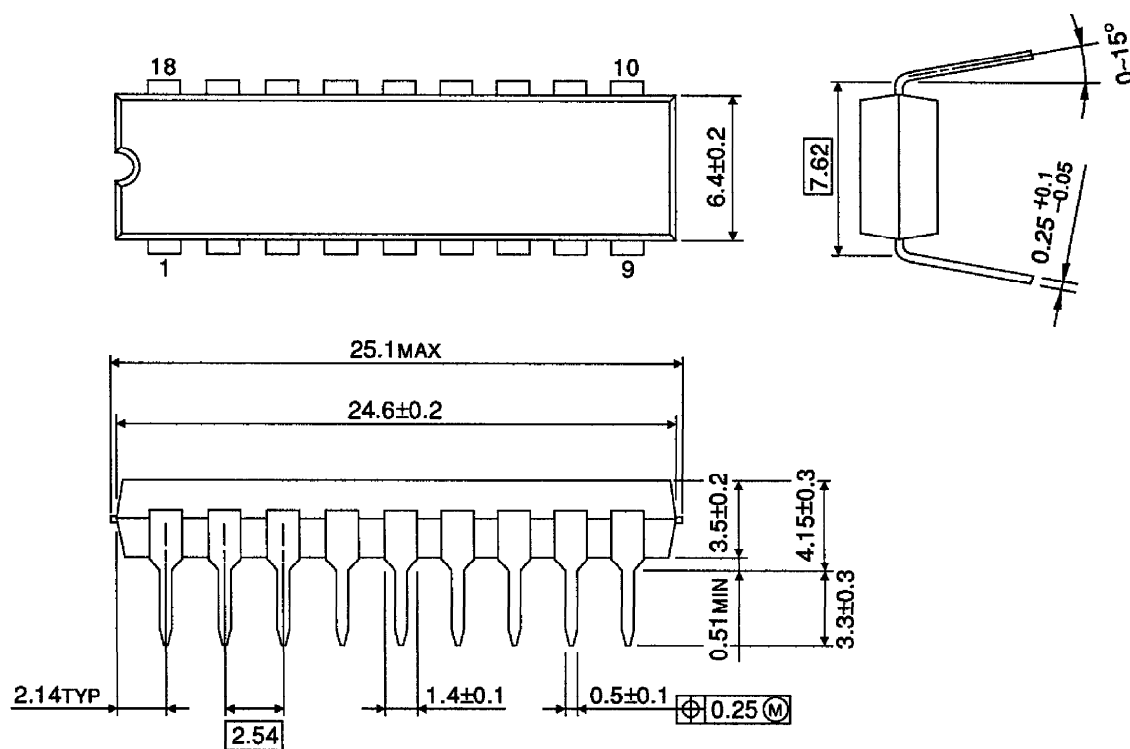
Utmost care is necessary in the design of the output line, V_{CC} and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.





OUTLINE DRAWING
DIP18-P-300-2.54D

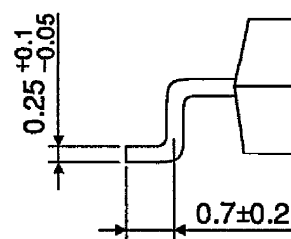
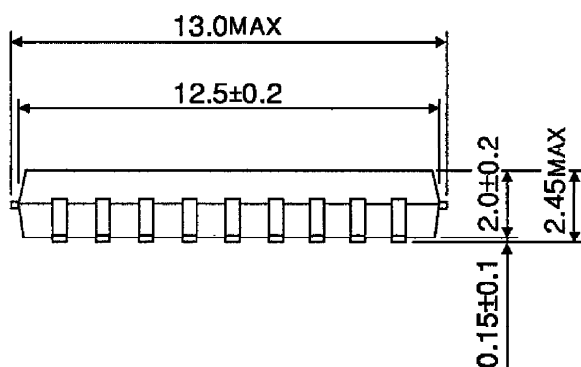
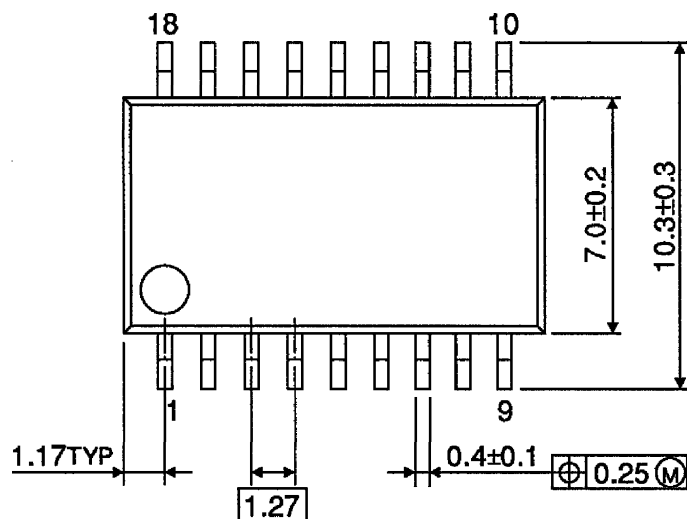
Unit : mm



Weight : 1.47g (Typ.)

OUTLINE DRAWING
SOP18-P-375-1.27

Unit : mm



Weight : 0.41g (Typ.)

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