

**TOSHIBA**

**TD62785P/F**

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

# TD62785P, TD62785F

## 8CH SOURCE DRIVER

The TD62785P, TD62785F are eight Channel Non-Inverting Source current transistor Array.

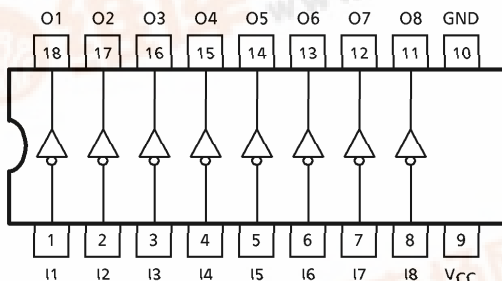
All units feature input pull-up resistors and output pull-down resistors. These device are specifically designed for multiplexed digit driving of eight digit common-anode LED and also can be employed as a source drivers for multiplexed LED displays using with the TD62381P, TD62381F at standard supply voltage, 5V.

Applications include relay, hammer and lamp drivers.

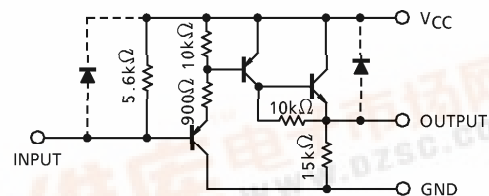
### FEATURES

- Low saturation voltage  $V_{CE(sat)} = 1.35V \text{ MAX.}$   
@ $I_{OUT} = -500mA$
- Output current (single output)  $I_{OUT} = -500mA \text{ MIN.}$
- Input pull-up resistor  $R_{IN} = 5.6k\Omega \text{ Typ.}$
- Output pull-down resistor  $R_{IN} = 15k\Omega \text{ Typ.}$
- Low level active inputs
- Package Type-P : DIP-18pin
- Package Type-F : SOP-18pin

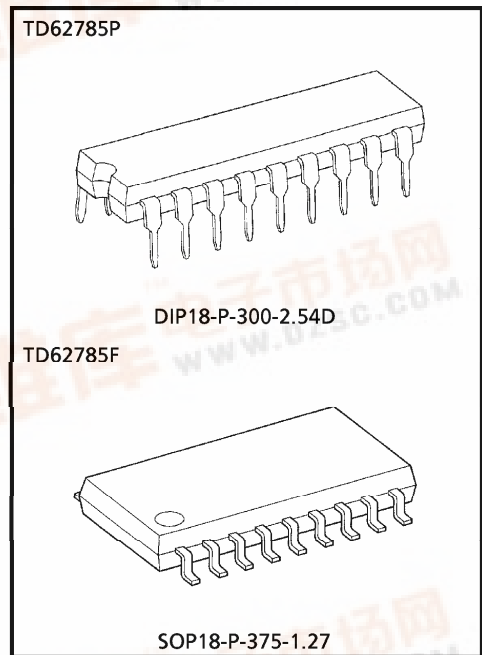
### PIN CONNECTION (TOP VIEW)



### SCHEMATICS (EACH DRIVER)



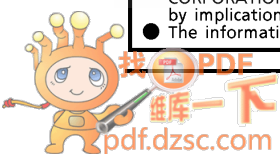
(Note) The input and output parasitic diodes cannot be used as clamp diodes.



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

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**MAXIMUM RATING (Ta = 25°C)**

CHARACTERISTIC	SYMBOL	RATING	UNIT	
Supply Voltage	V <sub>CC</sub>	7.0	V	
Output Voltage	V <sub>OUT</sub>	V <sub>CC</sub>	V	
Output Current	I <sub>OUT</sub>	- 500	mA / ch	
Input Voltage	V <sub>IN</sub>	V <sub>CC</sub>	V	
Input Current	I <sub>IN</sub>	- 10	mA	
Power Dissipation	P F	P <sub>D</sub> (Note 1)	1.47	W
			0.96	
Operating Temperature	T <sub>opr</sub>	- 40~85	°C	
Storage Temperature	T <sub>stg</sub>	- 55~150	°C	

(Note 1) 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)**

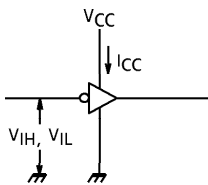
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Supply Voltage	V <sub>CC</sub>	—	4.5	5.0	5.5	V	
Output Voltage	V <sub>OUT</sub>	—	0	—	- V <sub>CC</sub>	V	
Output Current	P F	DC 1 Circuit, Ta = 25°C  T <sub>pw</sub> ≤ 25ms 8 Circuits On Ta = 85°C T <sub>j</sub> = 120°C	0	—	- 400	mA / ch	
							I <sub>OUT</sub>
	Duty = 50%		0	—	- 67		
	Duty = 50%		0	—	- 38		
							Input Voltage
V <sub>IN</sub> (ON)	—	0	—	0.8	V		
V <sub>IN</sub> (OFF)	—	V <sub>CC</sub> - 1.0	—	V <sub>CC</sub>	V		
Power Dissipation	P F	P <sub>D</sub>	—	—	0.52	W	
			—	—	0.35		

**ELECTRICAL CHARACTERISTICS (Ta = 25°C)**

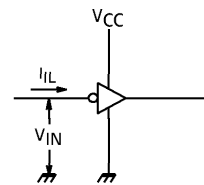
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT		
Input Voltage	"H" Level	V <sub>IH</sub>	1	—	—	V <sub>CC</sub> - 1.0	V		
	"L" Level	V <sub>IL</sub>						0.8	
Input Current	"L" Level	I <sub>IL</sub>	2	V <sub>CC</sub> = 5.5V, V <sub>IN</sub> = 0.8V	—	- 1.5	- 2.3	mA	
Input Pull-Up Resistor	R <sub>IP</sub>	—	—	—	5.6	—	kΩ		
Output Pull-Down Resistor	R <sub>OP</sub>	—	—	—	15	—	kΩ		
Output Voltage	"H" Level	V <sub>OH</sub>	3	V <sub>CC</sub> = 0V GND = - 4.5V V <sub>IN</sub> = GND	I <sub>OUT</sub> = - 500mA	—	—	V <sub>CC</sub> - 1.35	V
					I <sub>OUT</sub> = - 350mA	—	—	V <sub>CC</sub> - 1.30	
Supply Current	I <sub>CC</sub> (ON)	1	4	V <sub>CC</sub> = 55V, V <sub>IN</sub> = GND	—	—	12.5	mA / ch	
	I <sub>CC</sub> (OFF)			V <sub>CC</sub> = 55V, V <sub>IN</sub> = OPEN	—	—	10	μA	
Turn-On Delay	t <sub>ON</sub>	4	V <sub>CC</sub> = 5V, R <sub>L</sub> = 16Ω C <sub>L</sub> = 15pF	—	0.1	—	μs		
Turn-Off Delay	t <sub>OFF</sub>			—	3.5	—	μs		

**TEST CIRCUIT**

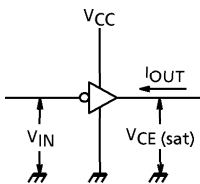
1.  $V_{IH}$ ,  $V_{IL}$ ,  $I_{CC}$



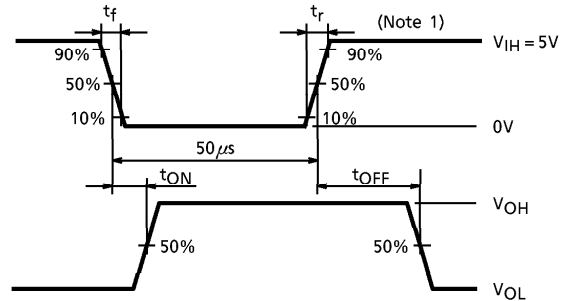
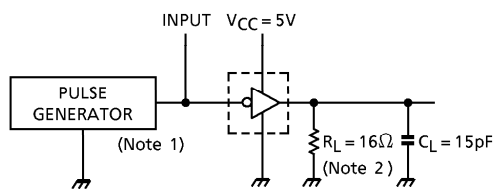
2.  $I_{IL}$



3.  $V_{CE(sat)}$



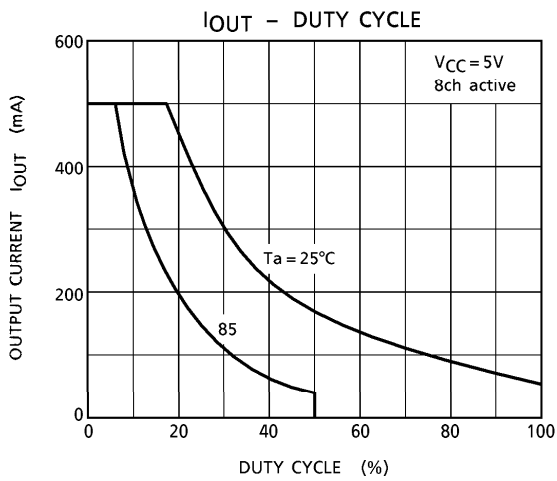
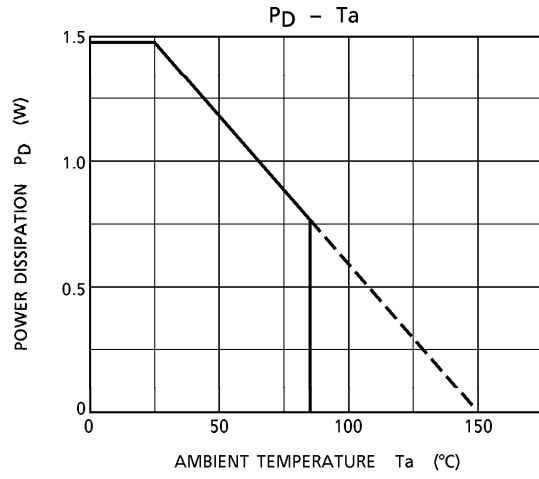
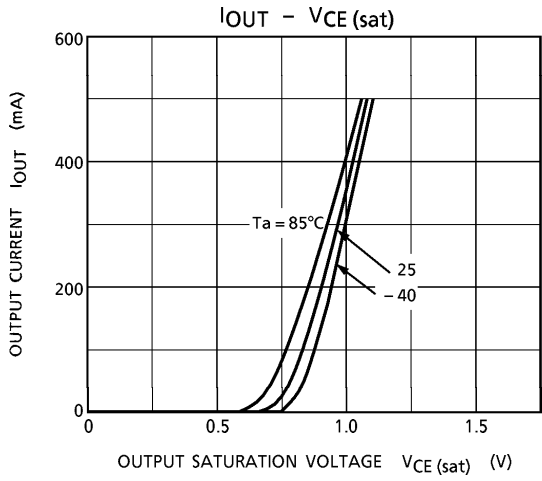
4.  $t_{ON}$ ,  $t_{OFF}$



- (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

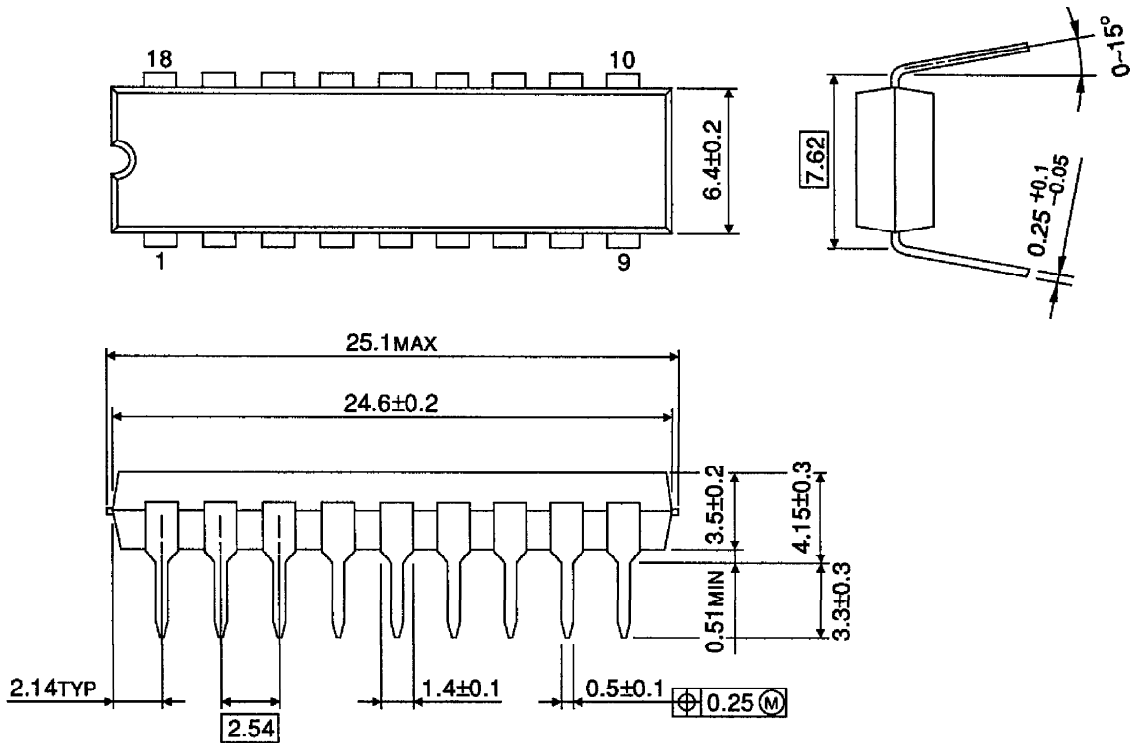
**PRECAUTIONS for USING**

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

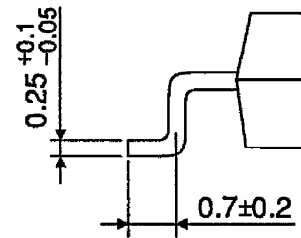
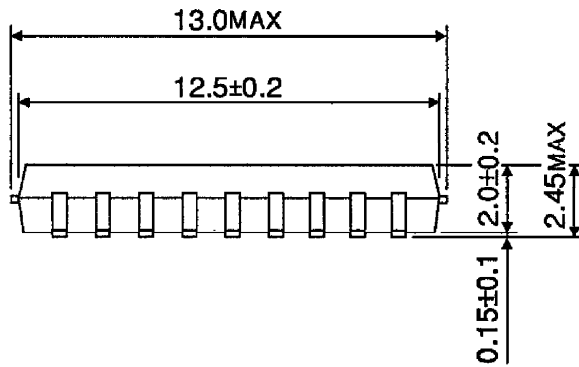
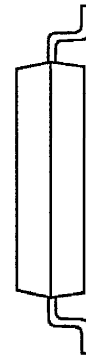
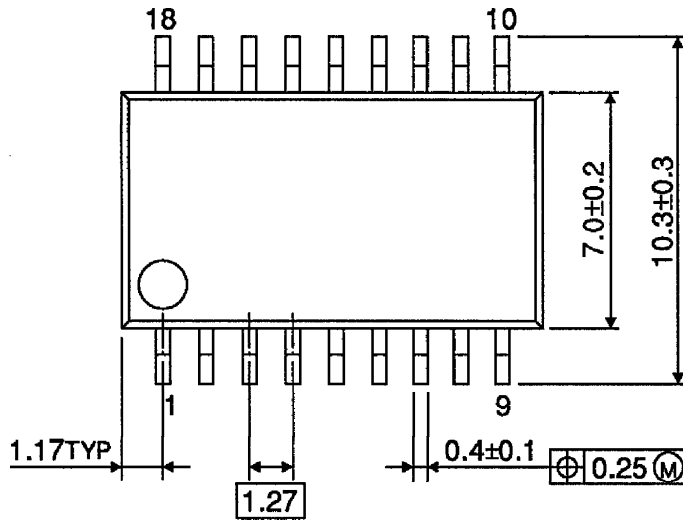
Unit : mm



Weight : 1.47g (Typ.)

OUTLINE DRAWING  
SOP18-P-375-1.27

Unit : mm



Weight : 0.41g (Typ.)