

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62785P, TD62785F

8CH SOURCE DRIVER

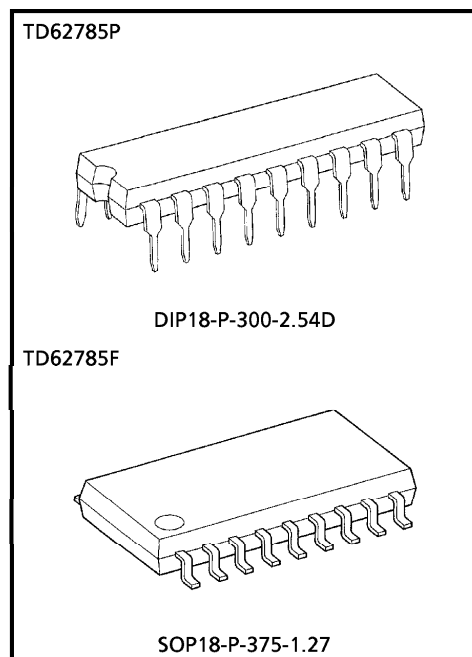
The TD62785P, TD62785F are eight Channel Non-Inverting Source current transistor Array.

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.

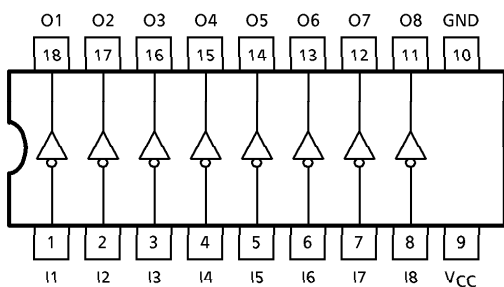
FEATURES

- 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

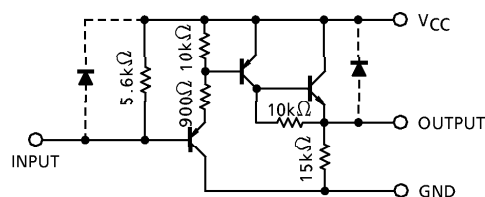


Weight
 DIP18-P-300-2.54D : 1.47g (Typ.)
 SOP18-P-375-1.27 : 0.41g (Typ.)

PIN CONNECTION (TOP VIEW)



SCHEMATICS (EACH DRIVER)



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

961001EBA2

- TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.
- The products described in this document are subject to foreign exchange and foreign trade control laws.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.

MAXIMUM RATING (Ta = 25°C)

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

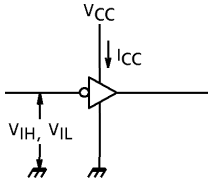
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Supply Voltage		V _{CC}	—	4.5	5.0	5.5	V	
Output Voltage		V _{OUT}	—	0	—	- V _{CC}	V	
Output Current	P	I _{OUT}	DC 1 Circuit, Ta = 25°C	0	—	- 400	mA / ch	
				0	—	- 400		
	P		T _{pw} ≤ 25ms	Duty = 10%	0	—		- 376
			8 Circuits On Ta = 85°C T _j = 120°C	Duty = 50%	0	—		- 67
	F			Duty = 10%	0	—		- 248
				Duty = 50%	0	—		- 38
Input Voltage		V _{IN}		—	0	—	V _{CC}	V
	Output On	V _{IN (ON)}	—	0	—	0.8	V	
	Output Off	V _{IN (OFF)}	—	V _{CC} - 1.0	—	V _{CC}	V	
Power Dissipation	P	P _D	—	—	—	0.52	W	
	F		—	—	—	0.35		

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

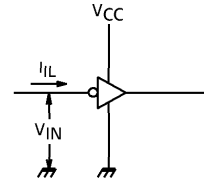
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Input Voltage	"H" Level	V _{IH}	1	—	V _{CC} - 1.0	—	—	V	
	"L" Level	V _{IL}		—	—	—	0.8		
Input Current	"L" Level	I _{IL}	2	V _{CC} = 5.5V, V _{IN} = 0.8V	—	- 1.5	- 2.3	mA	
Input Pull-Up Resistor		R _{ip}	—	—	—	5.6	—	kΩ	
Output Pull-Down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

TEST CIRCUIT

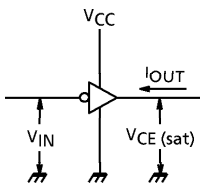
1. V_{IH} , V_{IL} , I_{CC}



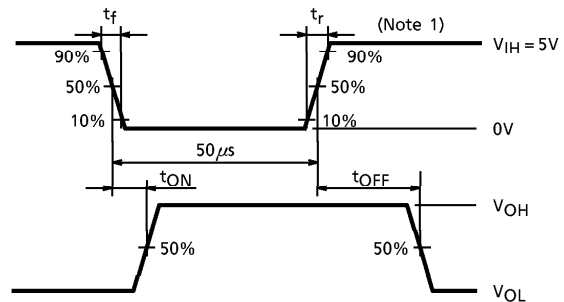
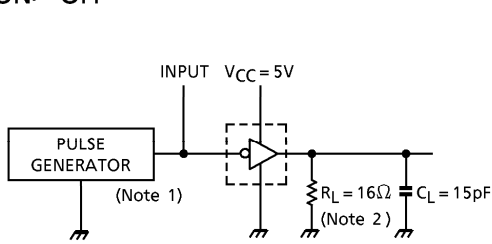
2. I_{IL}



3. $V_{CE(sat)}$



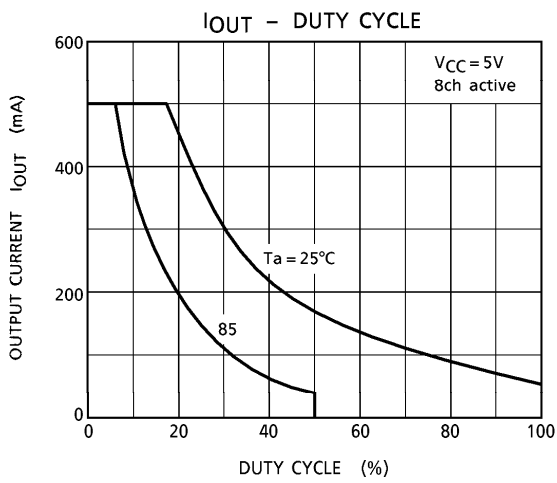
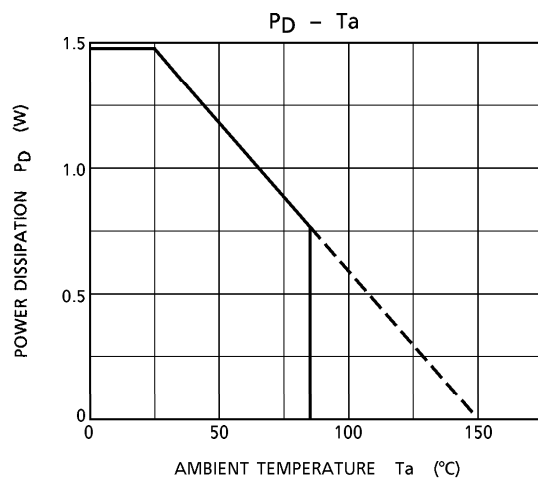
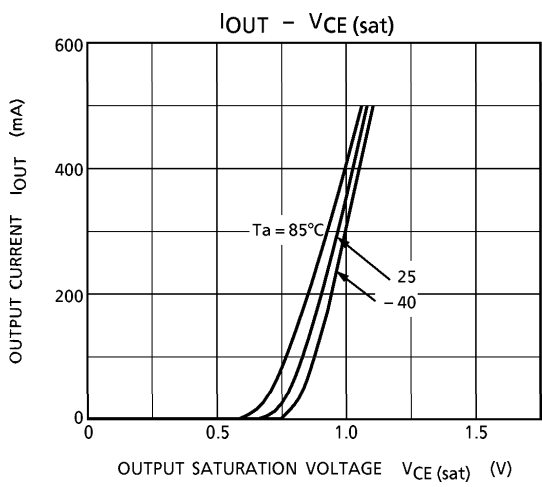
4. t_{ON} , t_{OFF}



- (Note 1) Pulse width $50\mu s$, duty cycle 10%
Output impedance 50Ω , $t_r \leq 5ns$, $t_f \leq 10ns$
- (Note 2) C_L includes probe and jig capacitance

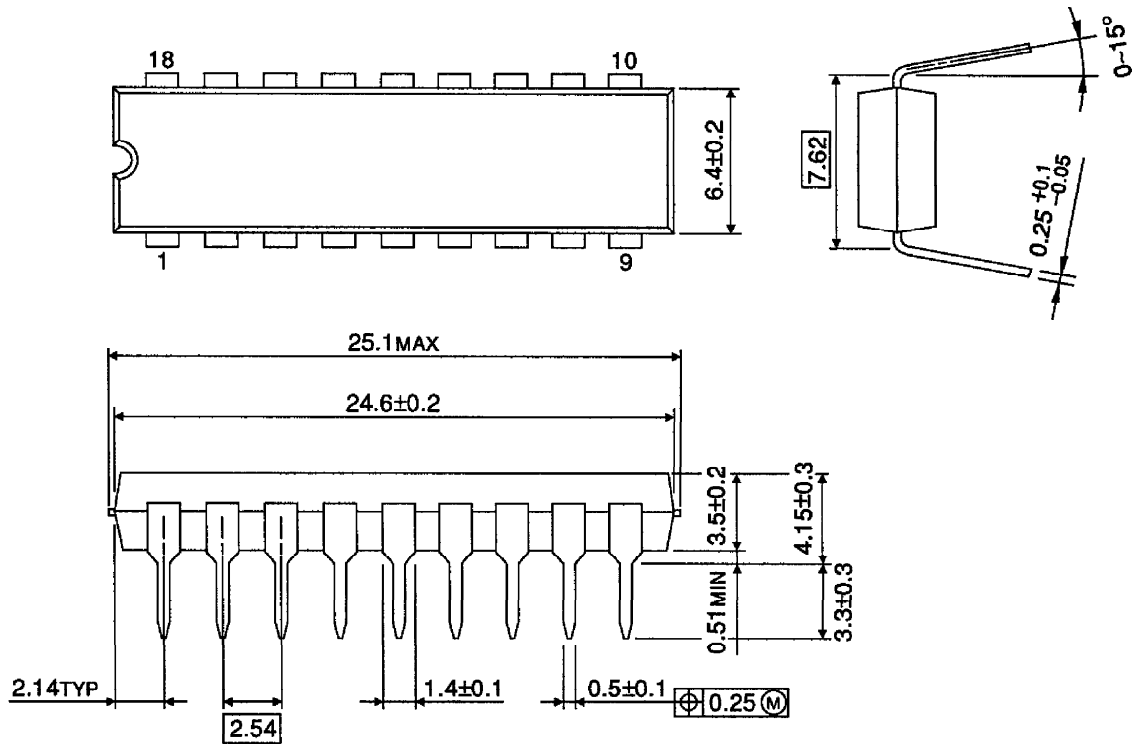
PRECAUTIONS for USING

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

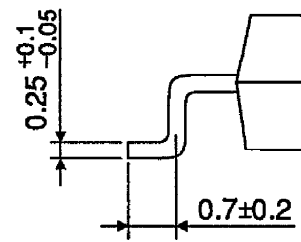
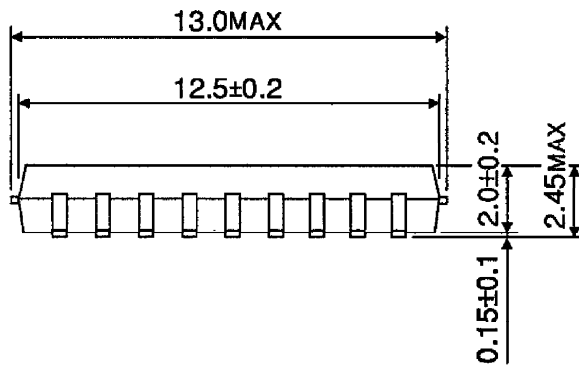
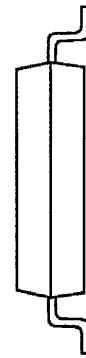
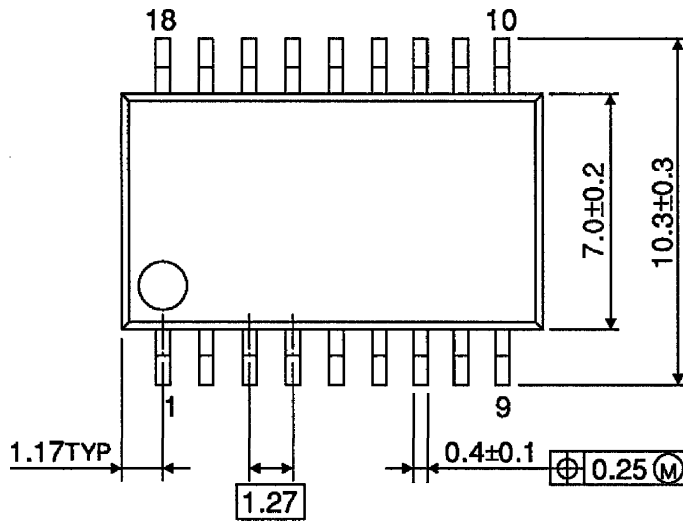
Unit : mm



Weight : 1.47g (Typ.)

OUTLINE DRAWING
SOP18-P-375-1.27

Unit : mm



Weight : 0.41g (Typ.)