

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

## TD62781AP,TD62781F,TD62781AF TD62782AP,TD62782F,TD62782AF

### 8CH HIGH-VOLTAGE SOURCE DRIVER

The TD62781AP / F / AF Series are comprised of eight source current Transistor Array.

These drivers are specifically designed for fluorescent display applications.

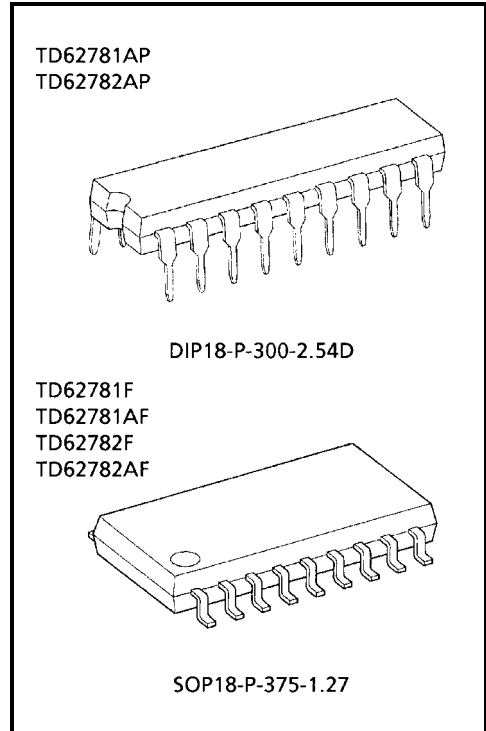
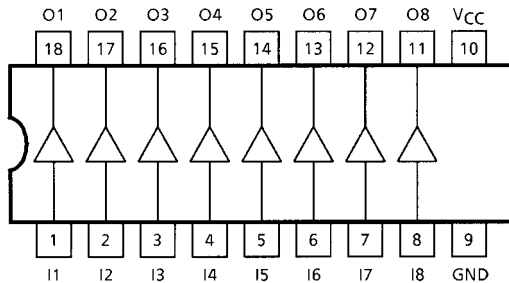
Applications include relay, hammer and lamp drivers.

### FEATURES

- High output voltage      Type-AP, AF:  $V_{OUT} = 60\text{ V (Min)}$   
   Type-F           :  $V_{OUT} = 35\text{ V (Min)}$
- Output current (single output)  $I_{OUT} = -50\text{ mA / ch (Max)}$
- Pull-down resistors / each output
- Single supply voltage
- Input compatible with various types of logic

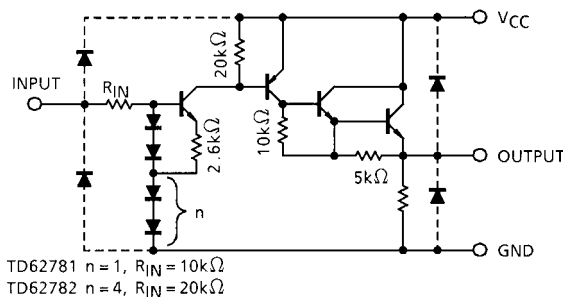
TYPE	DESIGNATION
TD62781AP / F / AF	TTL, 5 V CMOS
TD62782AP / F / AF	6~15 V PMOS CMOS

### PIN CONNECTION (TOP VIEW)



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

### SCHEMATICS (EACH DRIVER)



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

## MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Supply Voltage	AP / AF	V <sub>CC</sub>	60	V
	F		35	
Output Voltage		V <sub>OUT</sub>	V <sub>CC</sub>	V
Output Current		I <sub>OUT</sub>	-50	mA / ch
Input Voltage		V <sub>IN</sub>	20	V
Power Dissipation	AP	P <sub>D</sub> (Note)	1.47	W
	F / AF		0.96	
Operating Temperature		T <sub>opr</sub>	-40~85	°C
Storage Temperature		T <sub>stg</sub>	-55~150	°C

Note: Delated above 25°C in the proportion 11.7 mW / °C (AP Type), 7.7 mW / °C (F, AF Type).

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

CHARACTERISTIC		SYMBOL	CONDITION	MIN	TYP.	MAX	UNIT
Supply Voltage	TD62781AP, TD62781AF	V <sub>CC</sub>	—	4.5	—	55	V
	TD62781F			4.5	—	35	
	TD62782AP, TD62782AF			6.0	—	55	
	TD62782F			6.0	—	35	
Output Voltage		V <sub>OUT</sub>	—	0	—	V <sub>CC</sub>	V
Output Current		I <sub>OUT</sub>	—	0	—	-40	mA / ch
Input Voltage	TD62781	V <sub>IN</sub>	—	0	—	7	V
	TD62782			0	—	15	
Power Dissipation	AP	P <sub>D</sub>	—	—	—	0.52	W
	AF / F			—	—	0.35	

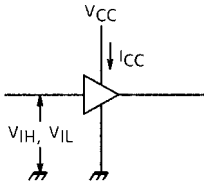
## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC			SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Input Voltage	"H" Level	TD62781	$V_{IH}$	1	—	2.0	—	—	V
		TD62782				4.5	—	—	
	"L" Level	TD62781	$V_{IL}$	1	—	0	—	0.8	V
		TD62782				0	—	2.0	
Input Current	"H" Level	TD62781	$I_{IH}$	2	$V_{IN} = 2.4\text{ V}$	—	40	75	$\mu\text{A}$
		TD62782			$V_{IN} = 7.5\text{ V}$	—	170	250	
Output Current		"H" Level	$I_{OL}$	3	—	—	200	—	$\mu\text{A}$
Output Voltage		"H" Level	$V_{OH}$	4	$I_{OUT} = -40\text{ mA}, V_{IN} = V_{IH\text{ MIN.}}$	$V_{CC} - 2.5$	$V_{CC} - 1.7$	—	V
		"L" Level	$V_{OL}$		$I_{OUT} = 0, V_{IN} = V_{IL\text{ MIN.}}$	—	50	250	mV
Supply Current			$I_{CC\text{ (ON)}}$	1	$V_{CC} = 55\text{ V}, V_{IN} = V_{IH\text{ MIN.}}$ (Note)	—	—	20	mA
			$I_{CC\text{ (OFF)}}$		$V_{CC} = 55\text{ V}, V_{IN} = V_{IL\text{ MAX.}}$ (Note)	—	—	1	
Turn-On Delay			$t_{ON}$	5	$V_{CC} = 55\text{ V}, C_L = 15\text{ pF}$ (Note)	—	0.2	—	$\mu\text{s}$
Turn-Off Delay			$t_{OFF}$			—	6.0	—	

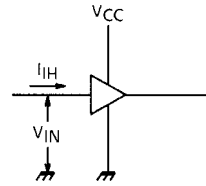
Note:  $V_{CC} = 35\text{ V}$  for Type-F

## TEST CIRCUIT

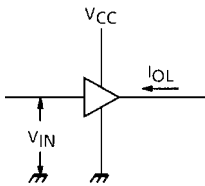
### 1. $V_{IH}$ , $V_{IL}$ , $I_{CC}$



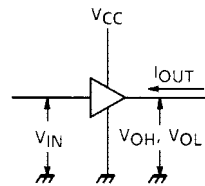
### 2. $I_{IH}$



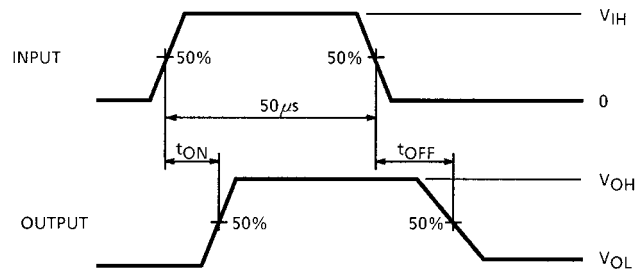
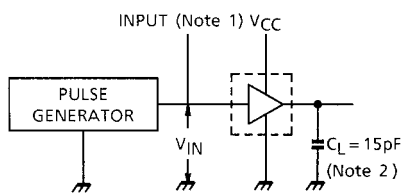
### 3. $I_{OL}$



### 4. $V_{OH}$ , $V_{OL}$



### 5. $t_{ON}$ , $t_{OFF}$



Note 1: Pulse Width 50  $\mu$ s, Duty Cycle 10%

Output Impedance 50  $\Omega$ ,  $t_r \leq 100$  ns,  $t_f \leq 100$  ns

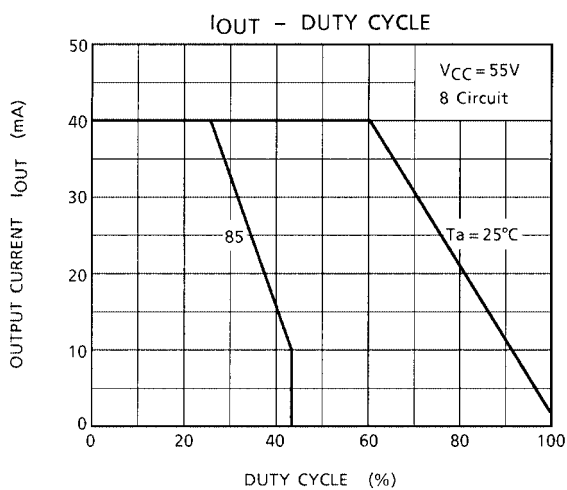
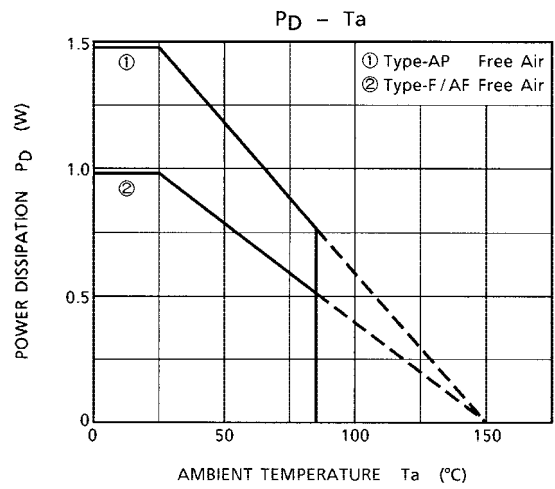
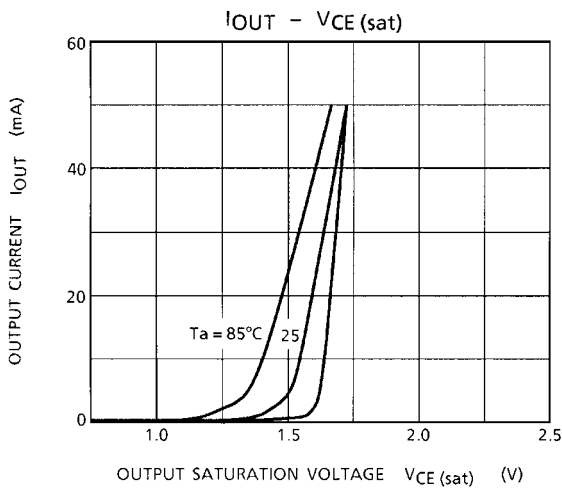
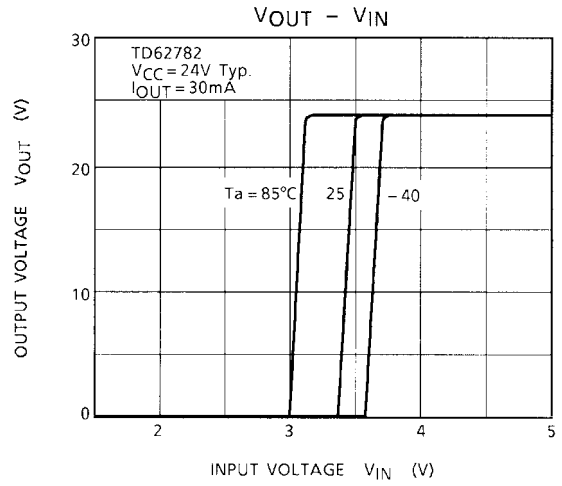
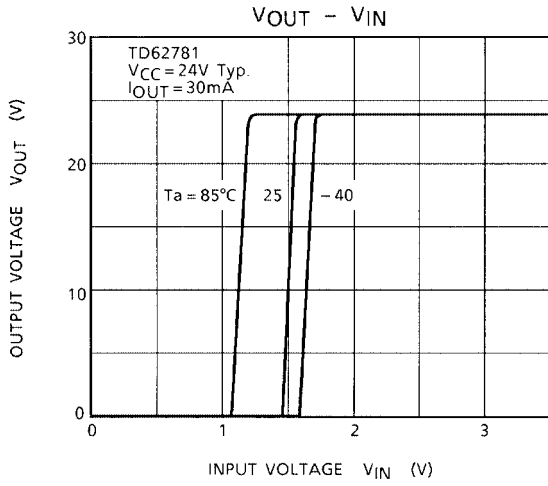
Note 2:  $C_L$  includes probe and jig capacitance.

## PRECAUTIONS for USING

This IC does not integrate protection circuits such as overcurrent and overvoltage protectors.

Thus, if excess current or voltage is applied to the IC, the IC may be damaged. Please design the IC so that excess current or voltage will not be applied to the IC.

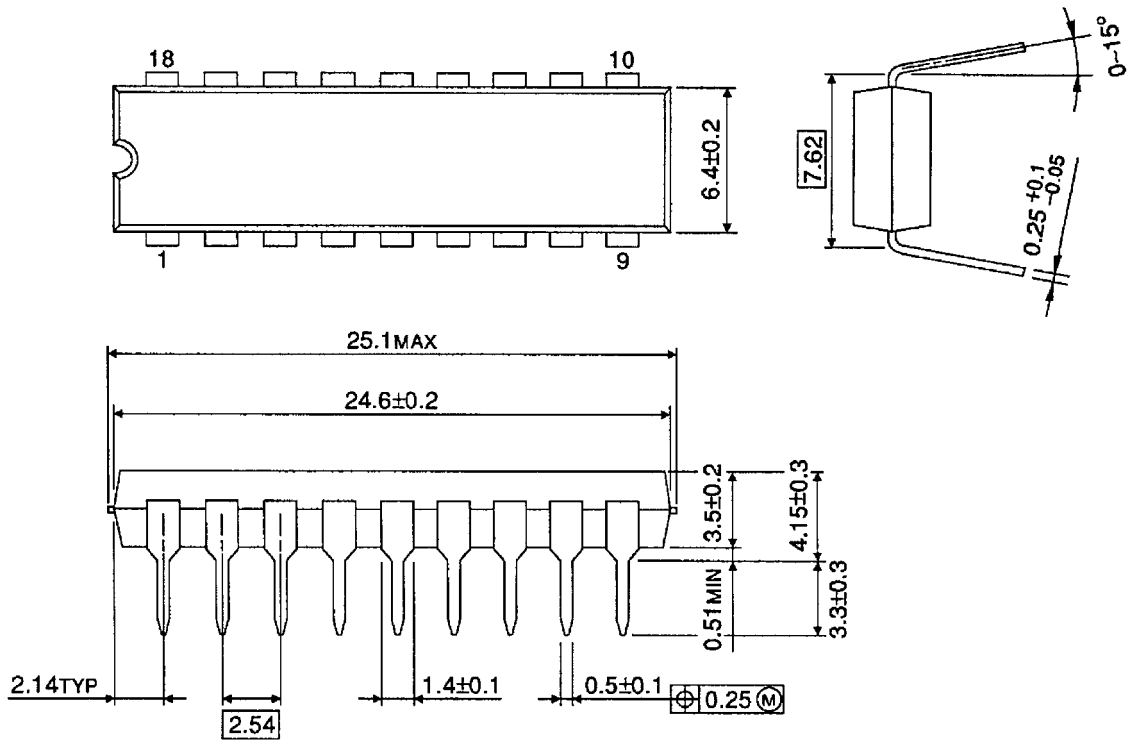
Utmost care is necessary in the design of the output line, VCC and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.



## PACKAGE DIMENSIONS

DIP18-P-300-2.54D

Unit: mm

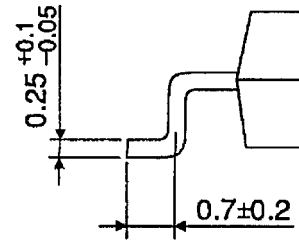
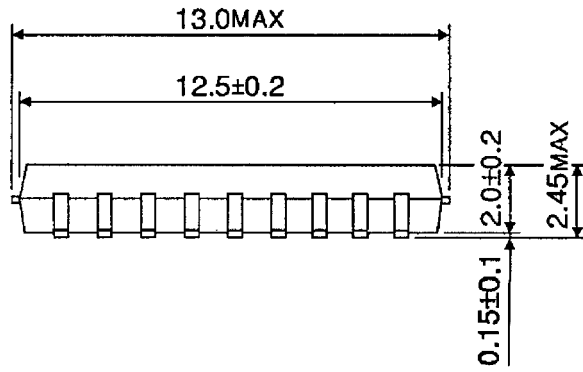
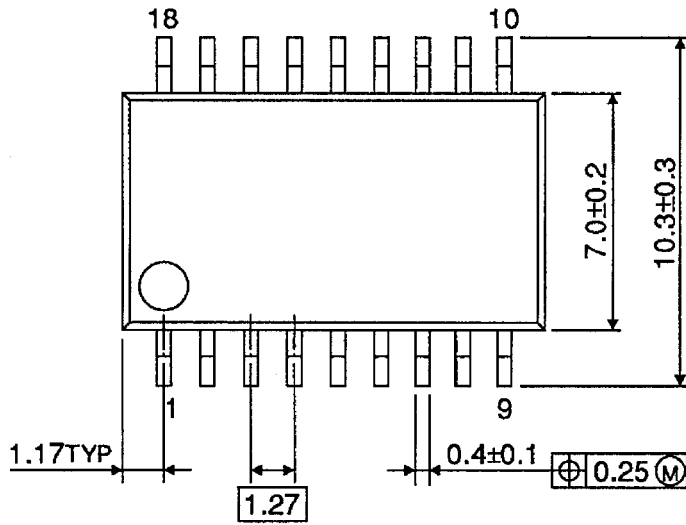


Weight: 1.47 g (Typ.)

## PACKAGE DIMENSIONS

SOP18-P-375-1.27

Unit: mm



Weight: 0.41 g (Typ.)

**RESTRICTIONS ON PRODUCT USE**

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