

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

## TD62781APG,TD62781AFG TD62782APG,TD62782AFG

### 8CH HIGH-VOLTAGE SOURCE DRIVER

The TD62781APG / AFG 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.

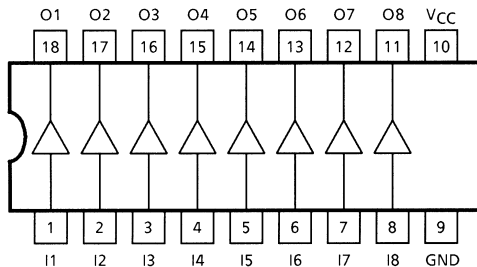
This devices are a product for the Pb free(Sn-Ag).

### FEATURES

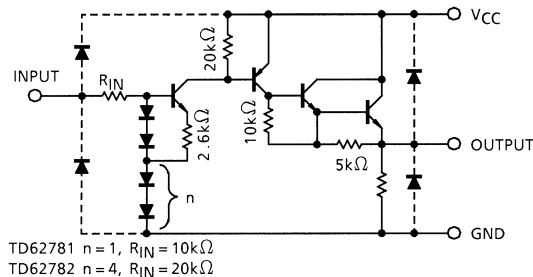
- High output voltage  $V_{OUT} = 60\text{ V (Min)}$
- Output current (single output)  $I_{OUT} = -50\text{ mA / ch (Max)}$
- Pull-down resistors / each output
- Single supply voltage
- Input compatible with various types of logic

TYPE	DESIGNATION
TD62781APG / AFG	TTL, 5 V CMOS
TD62782APG / AFG	6~15 V PMOS CMOS

### PIN CONNECTION (TOP VIEW)

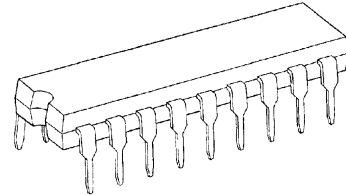


### SCHEMATICS (EACH DRIVER)



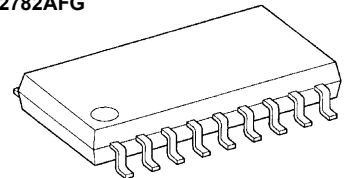
Note: The input and output parasitic diodes cannot be used as clamp diodes.

TD62781APG  
TD62782APG



DIP18-P-300-2.54D

TD62781AFG  
TD62782AFG



SOP18-P-375-1.27

Weight

DIP18-P-300-2.54D : 1.47 g (Typ.)

SOP18-P-375-1.27 : 0.41 g (Typ.)

**MAXIMUM RATINGS (Ta = 25°C)**

CHARACTERISTIC		SYMBOL	RATING	UNIT
Supply Voltage		V <sub>CC</sub>	60	V
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	APG	P <sub>D</sub> (Note)	1.47	W
	AFG		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 ( AF Type).

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

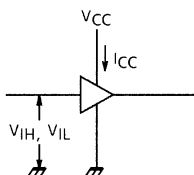
CHARACTERISTIC		SYMBOL	CONDITION	MIN	TYP.	MAX	UNIT
Supply Voltage	TD62781APG	V <sub>CC</sub>	—	4.5	—	55	V
	TD62781AFG						
	TD62782APG			6.0	—	55	
	TD62782AFG						
Output Voltage		V <sub>OUT</sub>	—	0	—	V <sub>CC</sub>	V
Output Current		I <sub>OUT</sub>	—	0	—	-40	mA / ch
Input Voltage	TD62781	V <sub>IN</sub>	—	0	—	7	V
	TD62782			0	—	15	
Power Dissipation	APG	P <sub>D</sub>	—	—	—	0.52	W
	AFG		—	—	—	0.35	

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

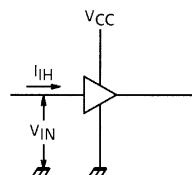
CHARACTERISTIC			SYMBOL	TEST CIR- CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Input Voltage	“H” Level	TD62781	V <sub>IH</sub>	1	—	2.0	—	—	V
		TD62782				4.5	—	—	
	“L” Level	TD62781	V <sub>IL</sub>	1	—	0	—	0.8	V
		TD62782				0	—	2.0	
Input Current	“H” Level	TD62781	I <sub>IH</sub>	2	V <sub>IN</sub> = 2.4 V	—	40	75	μA
		TD62782			V <sub>IN</sub> = 7.5 V	—	170	250	
Output Current		“H” Level	I <sub>OL</sub>	3	—	—	200	—	μA
Output Voltage		“H” Level	V <sub>OH</sub>	4	I <sub>OUT</sub> = −40 mA, V <sub>IN</sub> = V <sub>IH</sub> MIN.	V <sub>CC</sub> −2.5	V <sub>CC</sub> −1.7	—	V
		“L” Level	V <sub>OL</sub>		I <sub>OUT</sub> = 0, V <sub>IN</sub> = V <sub>IL</sub> MIN.	—	50	250	mV
Supply Current			I <sub>CC</sub> (ON)	1	V <sub>CC</sub> = 55 V, V <sub>IN</sub> = V <sub>IH</sub> MIN.	—	—	20	mA
			I <sub>CC</sub> (OFF)		V <sub>CC</sub> = 55 V, V <sub>IN</sub> = V <sub>IL</sub> MAX.	—	—	1	
Turn-On Delay			t <sub>ON</sub>	5	V <sub>CC</sub> = 55 V, C <sub>L</sub> = 15 pF	—	0.2	—	μs
Turn-Off Delay			t <sub>OFF</sub>			—	6.0	—	

## TEST CIRCUIT

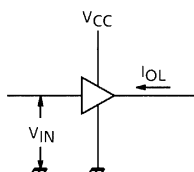
### 1. $V_{IH}$ , $V_{IL}$ , $I_{CC}$



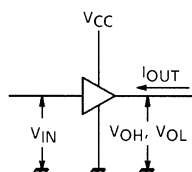
### 2. $I_{IH}$



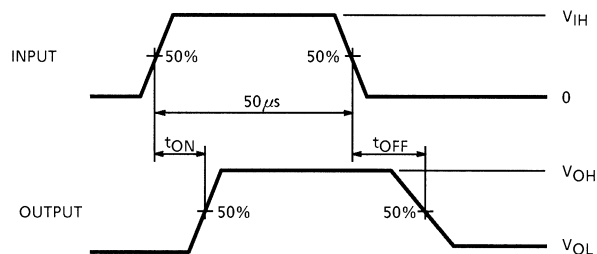
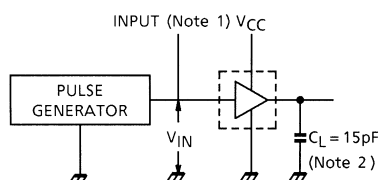
### 3. $I_{OL}$



### 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

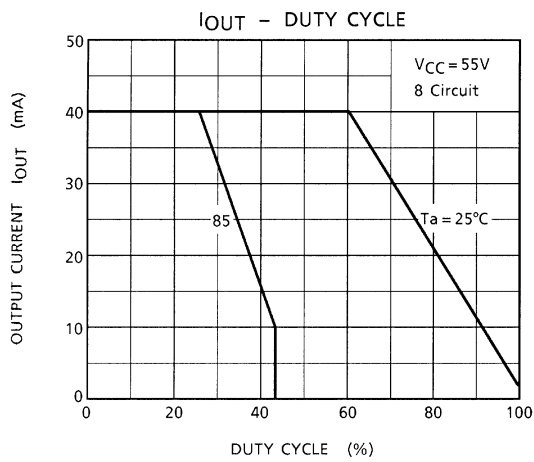
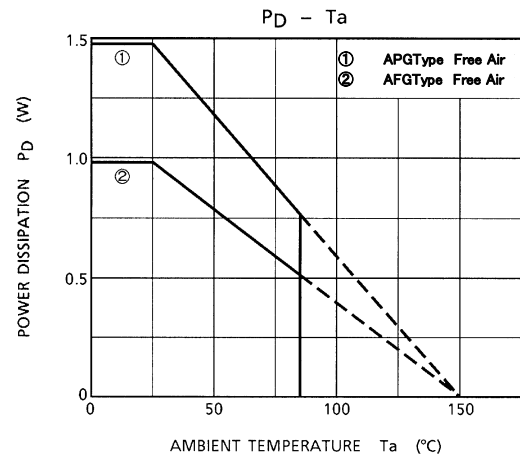
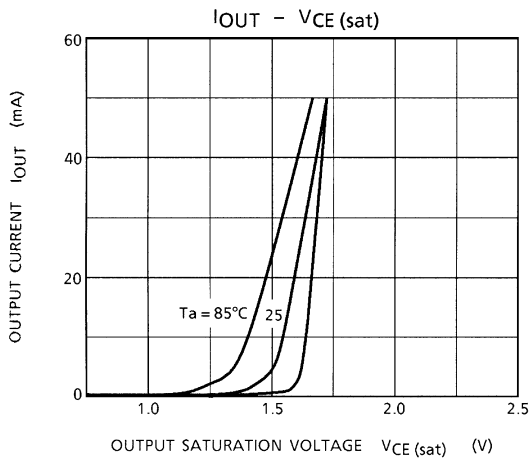
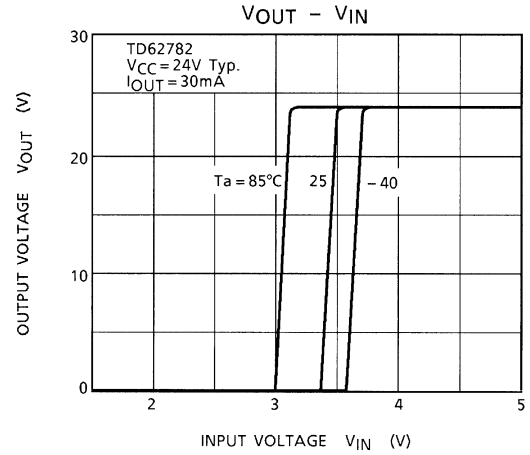
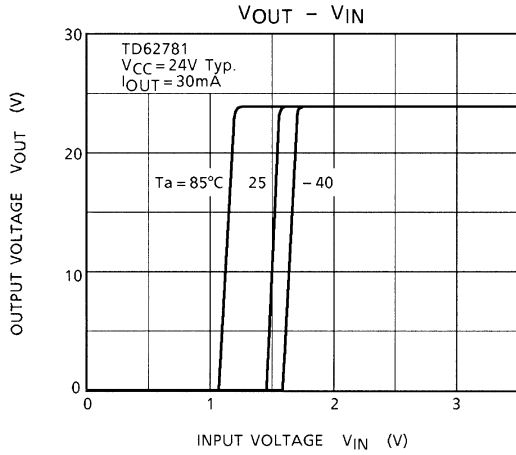
Note 2:  $C_L$  includes probe and jig capacitance.

## 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.

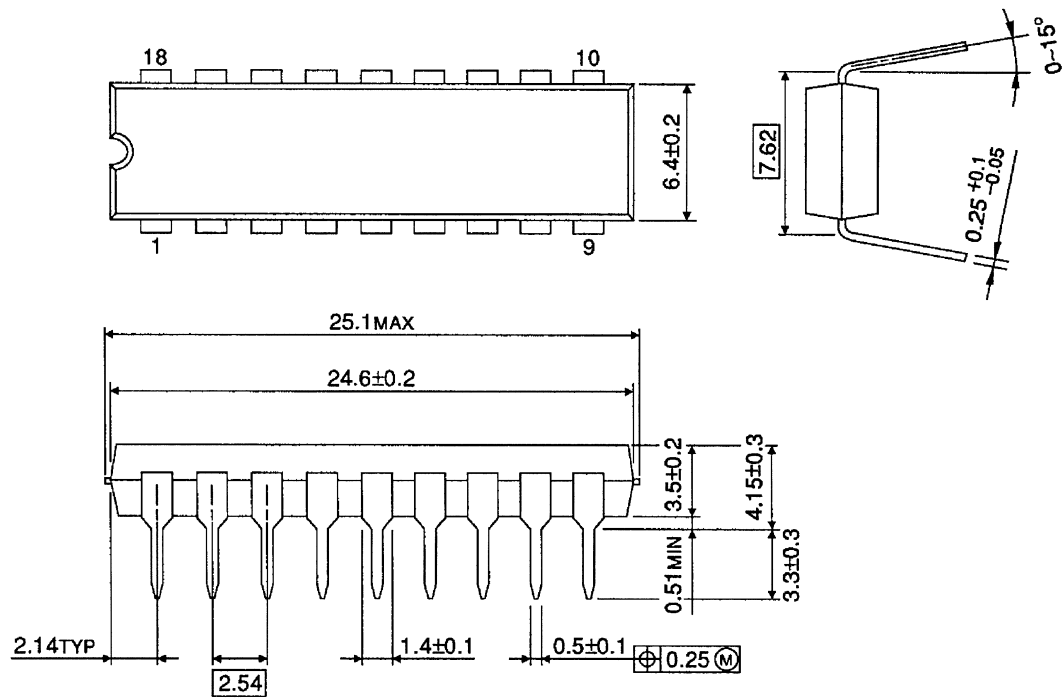
Utmost care is necessary in the design of the output line, VCC and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.



## PACKAGE DIMENSIONS

DIP18-P-300-2.54D

Unit: mm

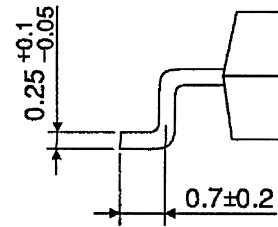
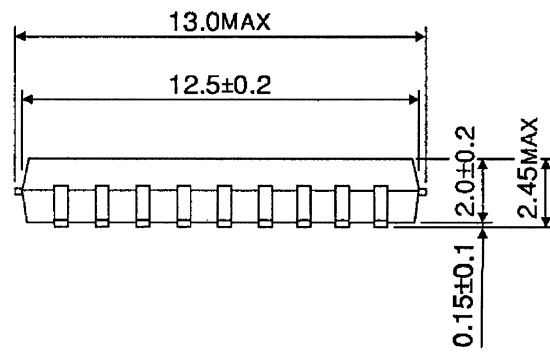
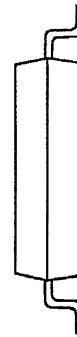
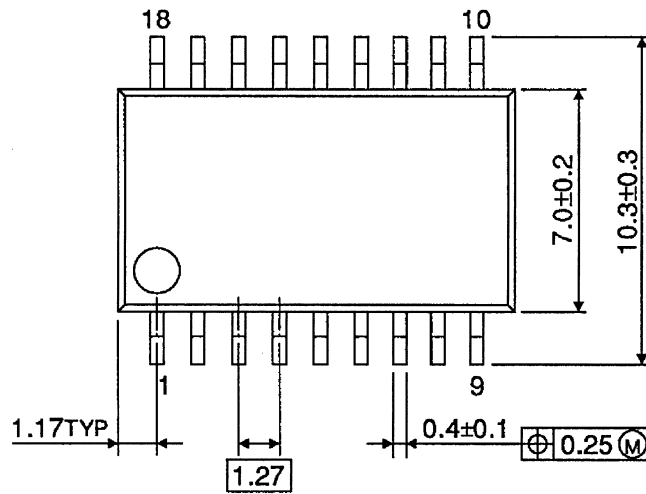


Weight: 1.47 g (Typ.)

## PACKAGE DIMENSIONS

SOP18-P-375-1.27

Unit: mm



Weight: 0.41 g (Typ.)

About solderability, following conditions were confirmed

- Solderability

- (1) Use of Sn-63Pb solder Bath

- solder bath temperature = 230°C
    - dipping time = 5 seconds
    - the number of times = once
    - use of R-type flux

- (2) Use of Sn-3.0Ag-0.5Cu solder Bath

- solder bath temperature = 245°C
    - dipping time = 5 seconds
    - the number of times = once
    - use of R-type flux

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