

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.

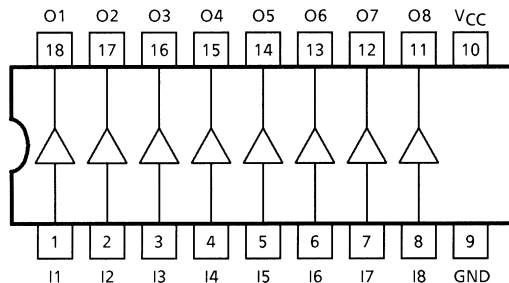
Applications include relay, hammer and lamp drivers.

FEATURES

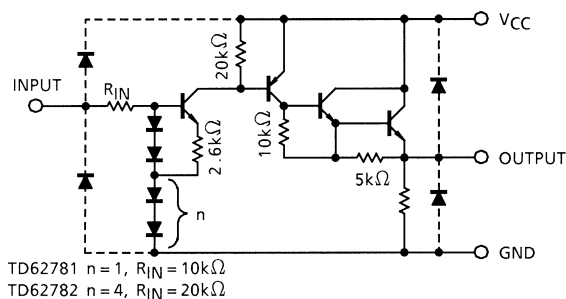
- High output voltage Type-AP, AF: $V_{OUT} = 60\text{ V (Min)}$
Type-F : $V_{OUT} = 35\text{ V (Min)}$
- Output current (single output) $I_{OUT} = -50\text{ mA / ch (Max)}$
- Pull-down resistors / each output
- Single supply voltage
- Input compatible with various types of logic

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

PIN CONNECTION (TOP VIEW)

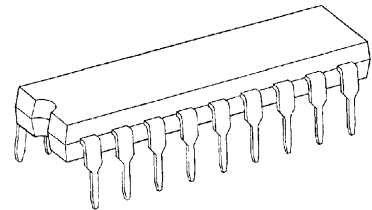


SCHEMATICS (EACH DRIVER)



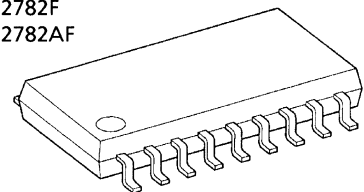
Note: The input and output parasitic diodes cannot be used as clamp diodes.

TD62781AP
TD62782AP



DIP18-P-300-2.54D

TD62781F
TD62781AF
TD62782F
TD62782AF



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	AP / AF	V _{CC}	60	V
	F		35	
Output Voltage		V _{OUT}	V _{CC}	V
Output Current		I _{OUT}	-50	mA / ch
Input Voltage		V _{IN}	20	V
Power Dissipation	AP	P _D (Note)	1.47	W
	F / AF		0.96	
Operating Temperature		T _{opr}	-40~85	°C
Storage Temperature		T _{stg}	-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 _{CC}	—	4.5	—	55	V
	TD62781F			4.5	—	35	
	TD62782AP, TD62782AF			6.0	—	55	
	TD62782F			6.0	—	35	
Output Voltage		V _{OUT}	—	0	—	V _{CC}	V
Output Current		I _{OUT}	—	0	—	-40	mA / ch
Input Voltage	TD62781	V _{IN}	—	0	—	7	V
	TD62782			0	—	15	
Power Dissipation	AP	P _D	—	—	—	0.52	W
	AF / F		—	—	—	0.35	

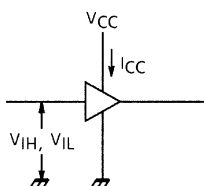
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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	μA
		TD62782			$V_{IN} = 7.5\text{ V}$	—	170	250	
Output Current		“H” Level	I_{OL}	3	—	—	200	—	μA
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	$V_{CC} = 55\text{ V}$, $C_L = 15\text{ pF}$	—	0.2	—	μs
Turn-Off Delay			t_{OFF}		(Note)	—	6.0	—	

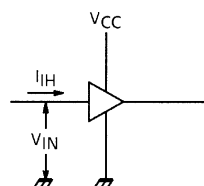
 Note: $V_{CC} = 35 \text{ V}$ for Type-F

TEST CIRCUIT

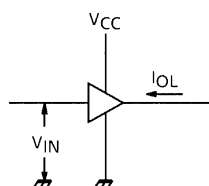
1. V_{IH} , V_{IL} , I_{CC}



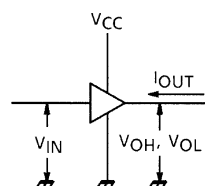
2. I_{IH}



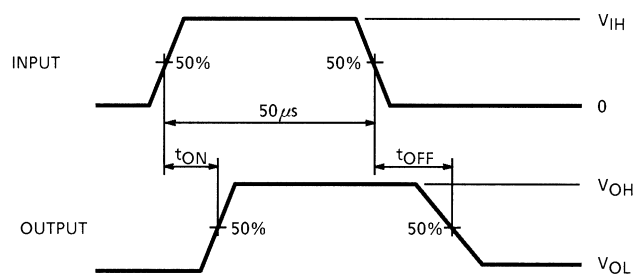
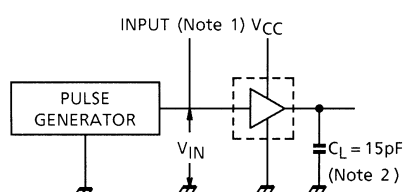
3. I_{OL}



4. V_{OH} , V_{OL}



5. t_{ON} , t_{OFF}



Note 1: Pulse Width 50 μ s, Duty Cycle 10%

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

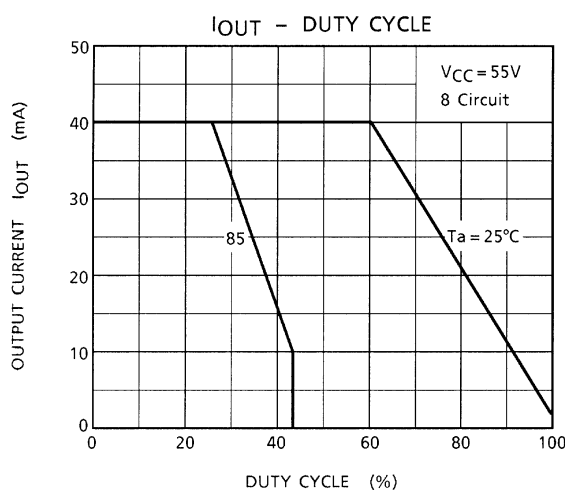
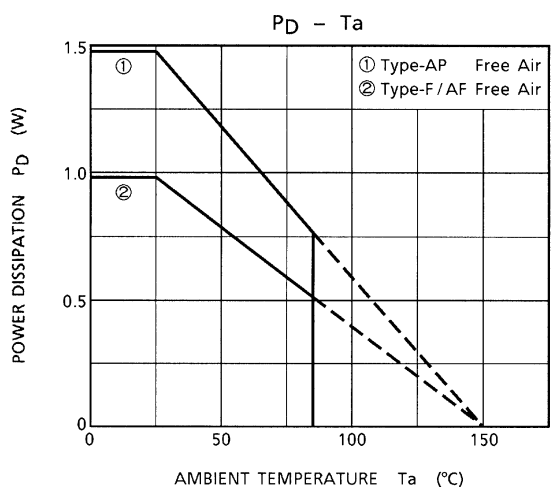
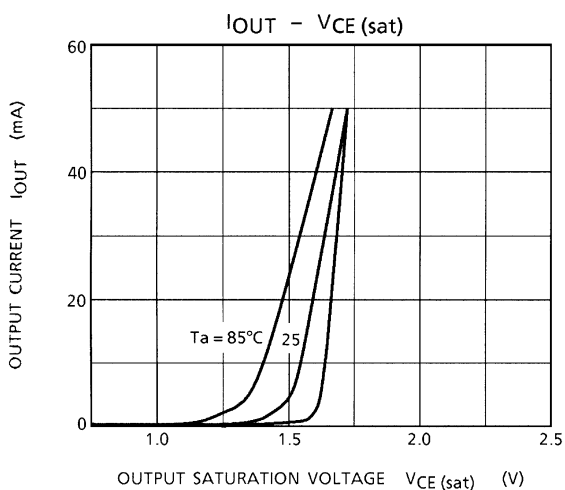
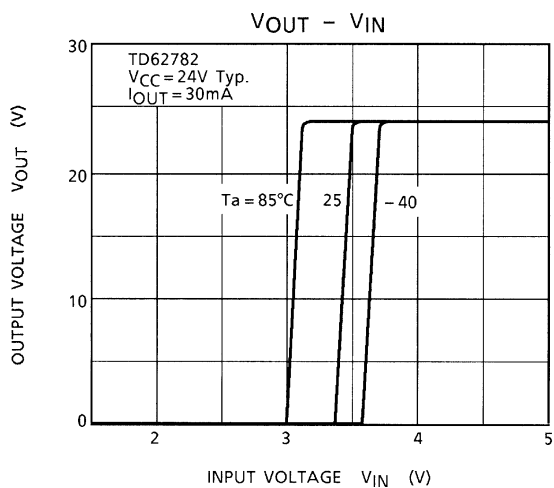
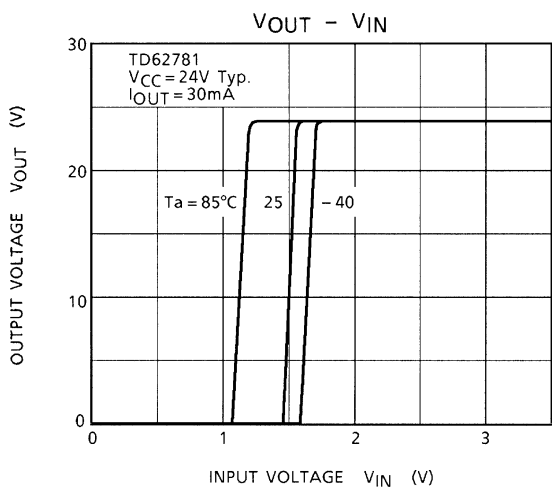
Note 2: C_L includes probe and jig capacitance.

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.

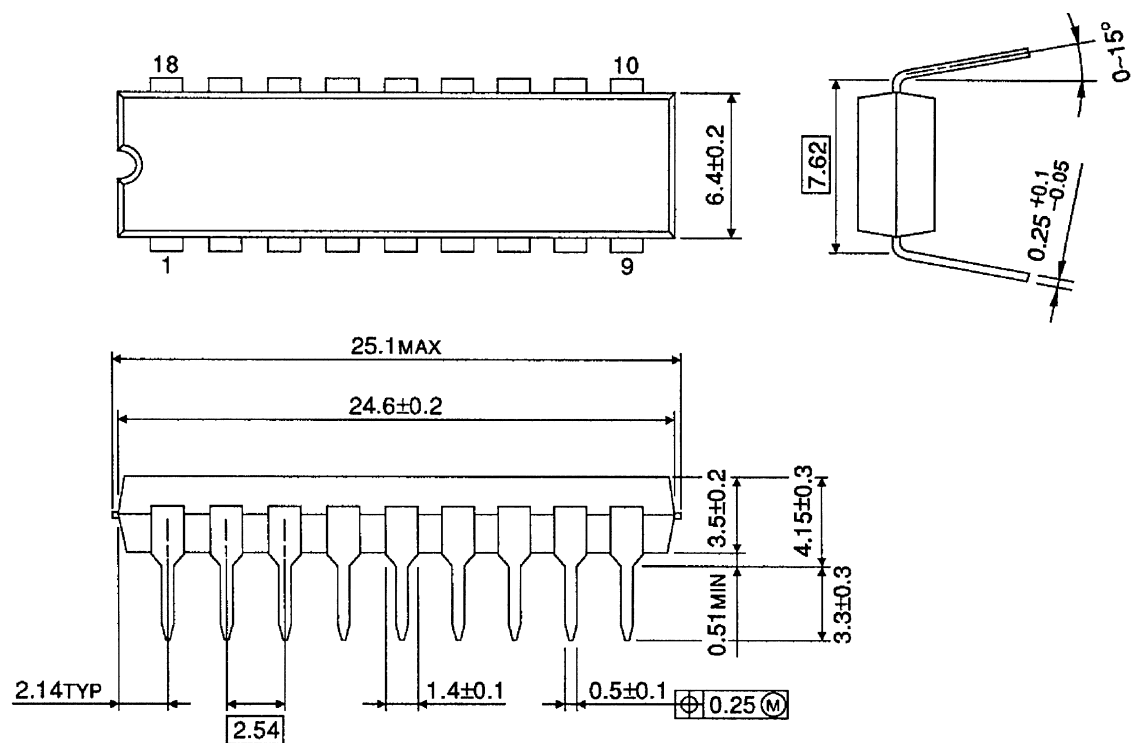
Utmost care is necessary in the design of the output line, V_{CC} and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.



PACKAGE DIMENSIONS

DIP18-P-300-2.54D

Unit: mm

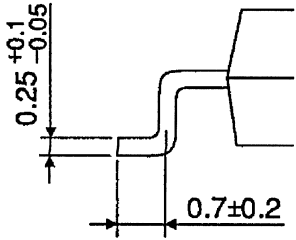
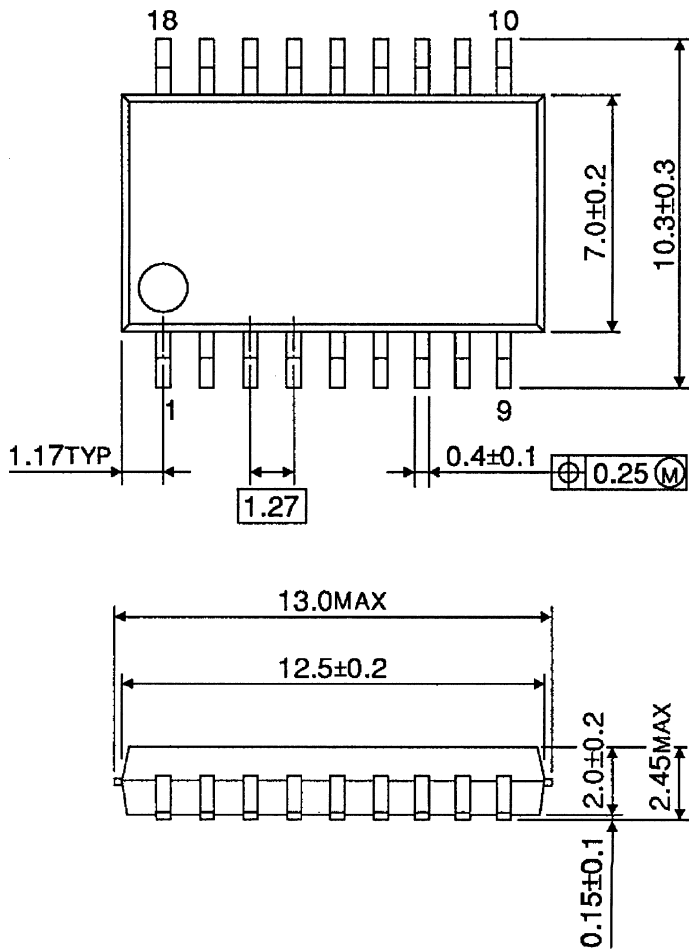


Weight: 1.47 g (Typ.)

PACKAGE DIMENSIONS

SOP18-P-375-1.27

Unit: mm



Weight: 0.41 g (Typ.)

RESTRICTIONS ON PRODUCT USE

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