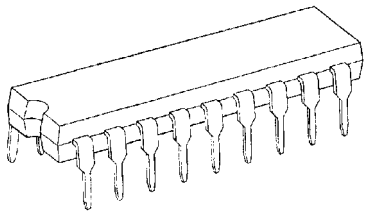
TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62781AP,TD62781F,TD62781AF
TD62782AP,TD62782F,TD62782AF

8CH HIGH−VOLTAGE SOURCE DRIVER

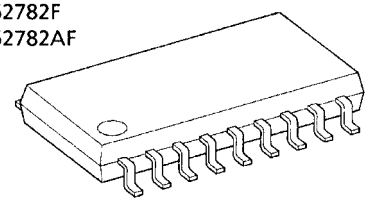
The TD62781AP / F / AF Series are comprised of eight source current Transistor Array.
These drivers are specifically designed for fluorescent display applications.
Applications include relay, hammer and lamp drivers.

TD62781AP
TD62782AP



DIP18-P-300-2.54D

TD62781F
TD62781AF
TD62782F
TD62782AF



SOP18-P-375-1.27

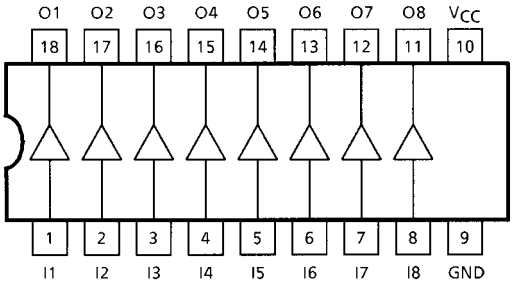
Weight
DIP18−P−300−2.54D : 1.47 g (Typ.)
SOP18−P−375−1.27 : 0.41 g (Typ.)

FEATURES

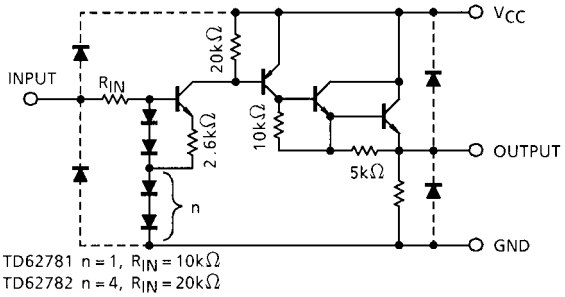
- High output voltage Type−AP, AF: V_{OUT} = 60 V (Min)
  Type−F : V_{OUT} = 35 V (Min)
- Output current (single output) I_{OUT} = −50 mA / ch (Max)
- Pull−down resistors / each output
- Single supply voltage
- Input compatible with various types of logic

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.

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	

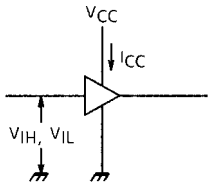
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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 V	—	40	75	μA
		TD62782			V_{IN} = 7.5 V	—	170	250	
Output Current		"H" Level	I_{OL}	3	—	—	200	—	μA
Output Voltage		"H" Level	V_{OH}	4	I_{OUT} = −40 mA, V_{IN} = $V_{IH\ MIN.}$	V_{CC} −2.5	V_{CC} −1.7	—	V
		"L" Level	V_{OL}		I_{OUT} = 0, V_{IN} = $V_{IL\ MIN.}$	—	50	250	mV
Supply Current			$I_{CC\ (ON)}$	1	V_{CC} = 55 V, V_{IN} = $V_{IH\ MIN.}$ (Note)	—	—	20	mA
			$I_{CC\ (OFF)}$		V_{CC} = 55 V, V_{IN} = $V_{IL\ MAX.}$ (Note)	—	—	1	
Turn−On Delay			t_{ON}	5	V_{CC} = 55 V, C_L = 15 pF (Note)	—	0.2	—	μs
Turn−Off Delay			t_{OFF}			—	6.0	—	

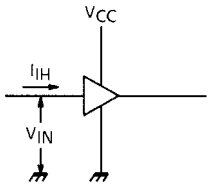
Note: V_{CC} = 35 V for Type−F

TEST CIRCUIT

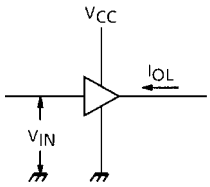
1. V_{IH}, V_{IL}, I_{CC}



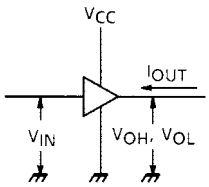
2. I_{IH}



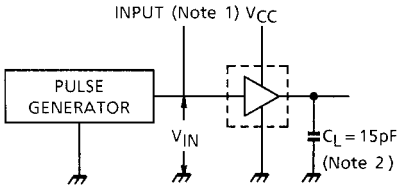
3. I_{OL}

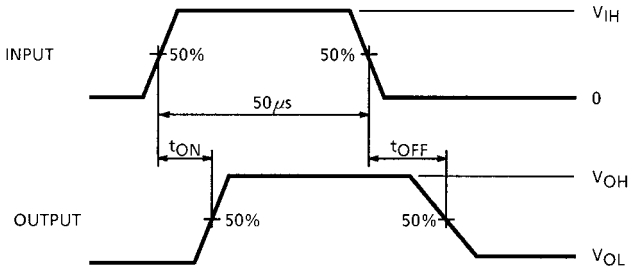


4. V_{OH}, V_{OL}



5. t_{ON}, t_{OFF}



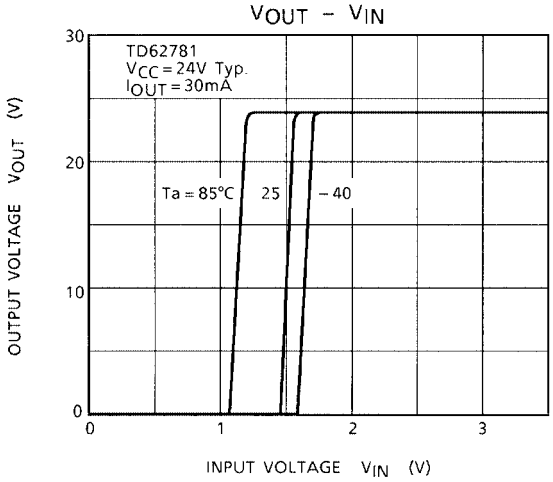


Note 1: Pulse Width 50 μs, Duty Cycle 10%
Output Impedance 50 Ω, $t_r \leq 100$ ns, $t_f \leq 100$ ns
Note 2: C_L includes probe and jig capacitance.

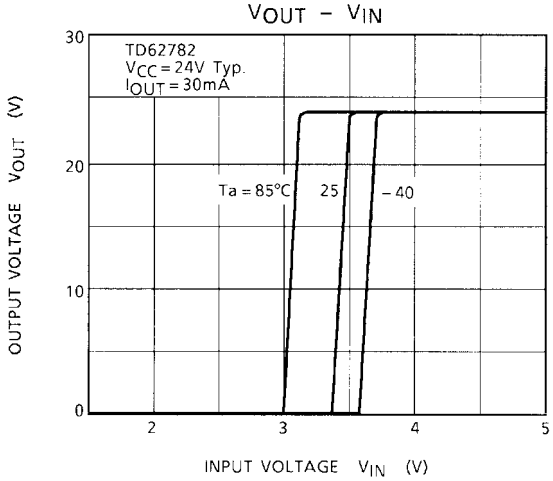
PRECAUTIONS for USING

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.

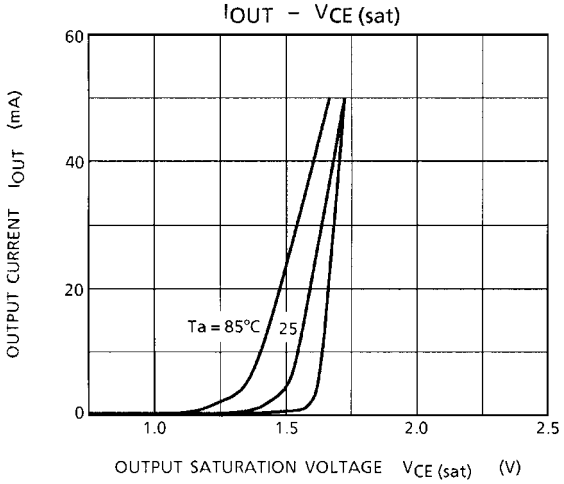
V_{OUT} – V_{IN}



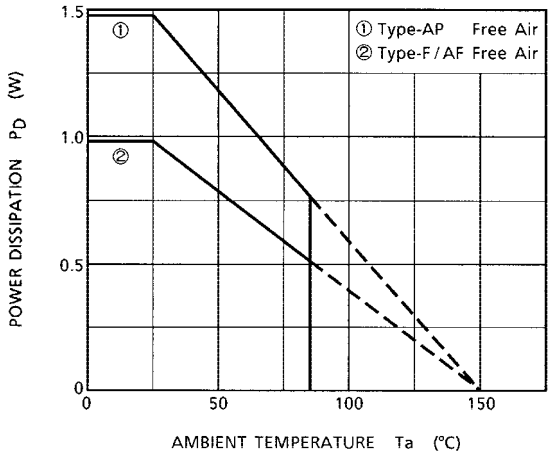
V_{OUT} – V_{IN}



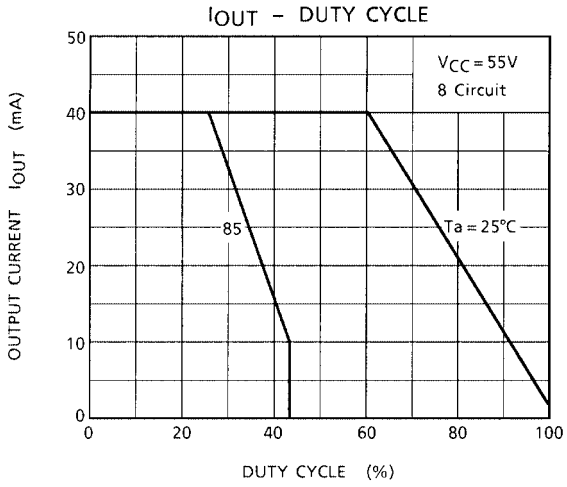
I_{OUT} – $V_{CE\ (sat)}$



P_D – Ta

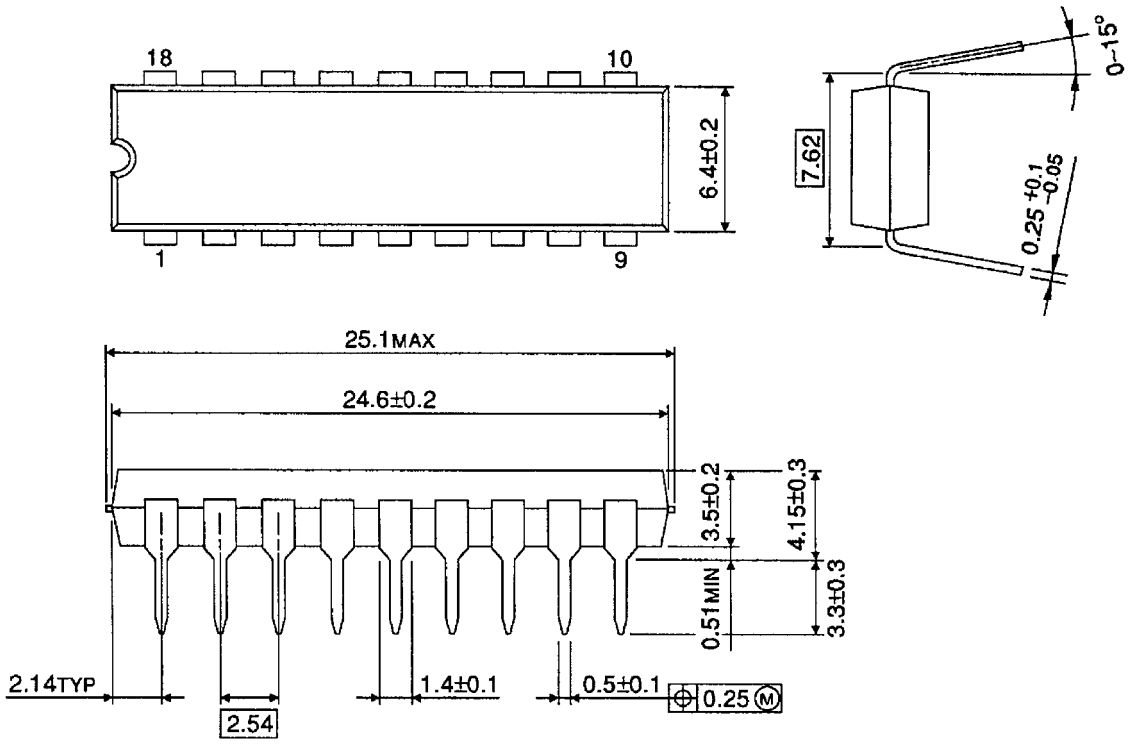


I_{OUT} – DUTY CYCLE



PACKAGE DIMENSIONS

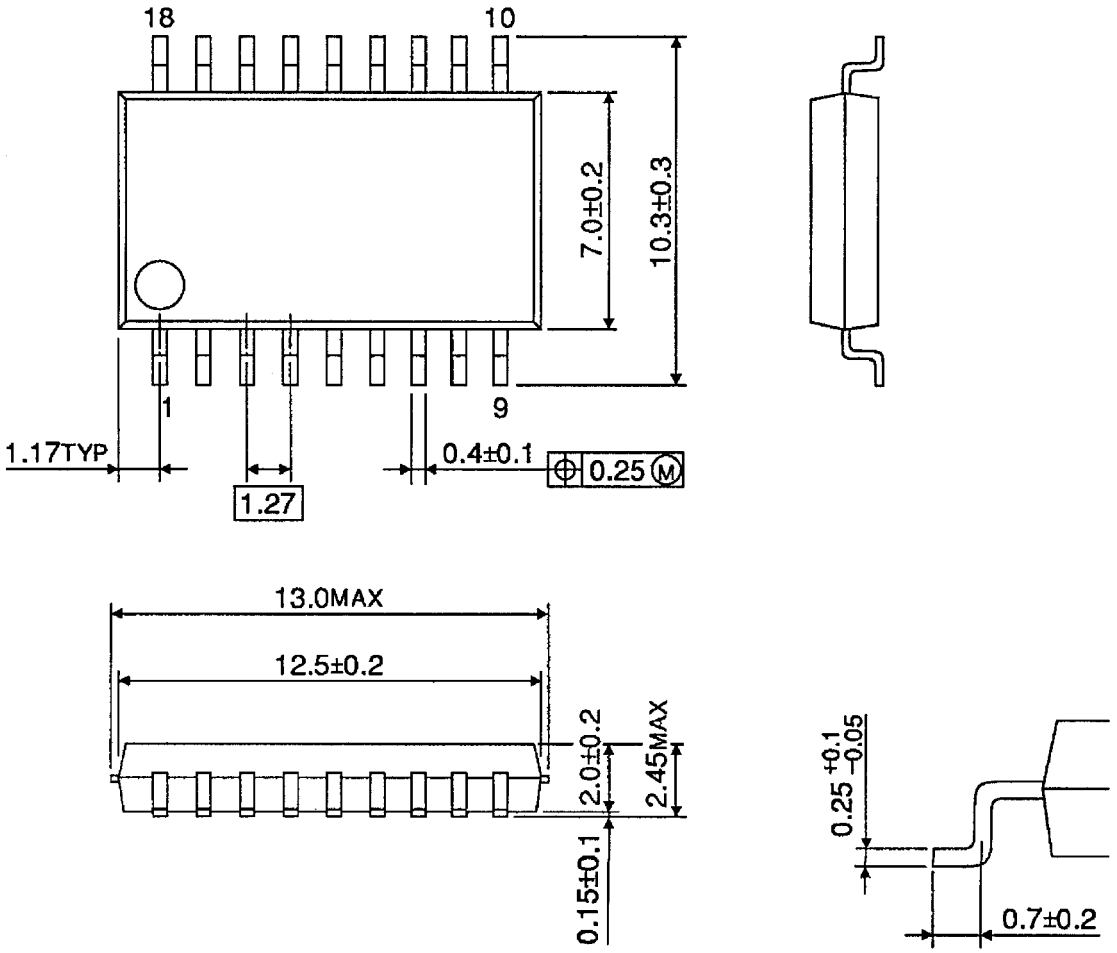
DIP18−P−300−2.54D Unit: mm



Weight: 1.47 g (Typ.)

PACKAGE DIMENSIONS

SOP18−P−375−1.27 Unit: mm



Weight: 0.41 g (Typ.)

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000707EBA

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