

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

**TD62783AP, TD62783F, TD62783AF  
TD62784AP, TD62784F, TD62784AF**

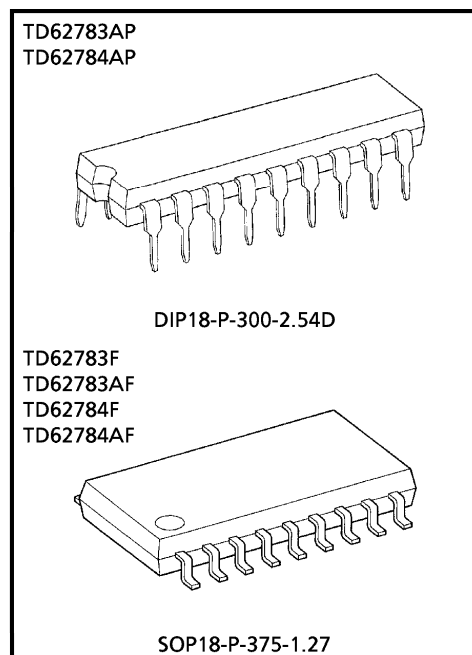
**8CH HIGH-VOLTAGE SOURCE DRIVER**

The TD62783AP/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**

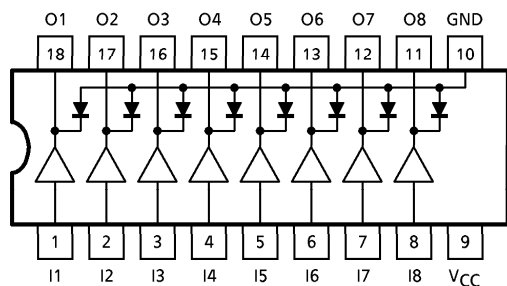
- High output voltage Type-AP, AF :  $V_{CC} = 50V$  MIN.  
Type-F :  $V_{CC} = 35V$  MIN.
- Output current (single output)  $I_{OUT} = -500mA$  MIN.
- Output clamp diodes
- Single supply voltage
- Input compatible with various types of logic
- Package Type-AP : DIP-18pin
- Package Type-F, AF : SOP-18pin

TYPE	DESIGNATION
TD62783AP/F/AF	TTL, 5V CMOS
TD62784AP/F/AF	6~15V PMOS, CMOS

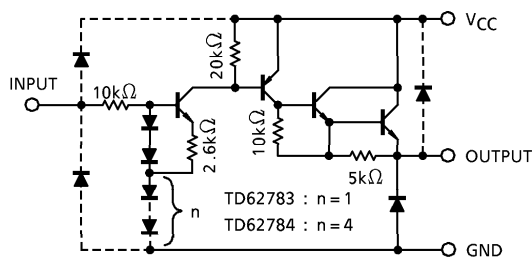


Weight  
DIP18-P-300-2.54D : 1.47g (Typ.)  
SOP18-P-375-1.27 : 0.41g (Typ.)

**PIN CONNECTION (TOP VIEW)**



**SCHEMATICS (EACH DRIVER)**



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

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**MAXIMUM RATINGS (Ta = 25°C)**

CHARACTERISTIC		SYMBOL	RATING	UNIT
Supply Voltage	AP, AF	V <sub>CC</sub>	50	V
	F		35	
Output Current		I <sub>OUT</sub>	- 500	mA / ch
Input Voltage		V <sub>IN</sub> (Note 1)	15	V
		V <sub>IN</sub> (Note 2)	30	
Clamp Diode Reverse Voltage	AP, AF	V <sub>R</sub>	50	V
	F		35	
Clamp Diode Forward Current		I <sub>F</sub>	500	mA
Power Dissipation	AP	P <sub>D</sub> (Note 3)	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 1) Only TD62783AP / F / AF

(Note 2) Only TD62784AP / F / AF

(Note 3) Delated above 25°C in the proportion of 11.7W/°C (AP Type), 7.7W/°C (F, AF Type).

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

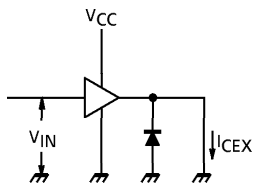
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Supply Voltage	AP, AF	V <sub>CC</sub>	—	—	—	50	V	
	F		—	—	—	35		
Output Current		I <sub>OUT</sub>	Ta = 85°C Tj = 120°C T <sub>pw</sub> = 25ms	Duty = 10% 8 Circuits	—	—	- 260	mA / ch
				Duty = 50% 8 Circuits	—	—	- 59	
	Duty = 10% 8 Circuits			—	—	- 180		
	Duty = 50% 8 Circuits			—	—	- 38		
Input Voltage	TD62783AP / F / AF		V <sub>IN</sub>	—	—	12	V	
	TD62784AP / F / AF			—	—	24		
Input Voltage	Output On	TD62783AP / F / AF		V <sub>IN</sub> (ON)	—	2.0	5.0	V
		TD62784AP / F / AF			—	4.5	12.0	
	Output Off	TD62783AP / F / AF		V <sub>IN</sub> (OFF)	—	0	—	V
		TD62784AP / F / AF			—	0	—	
Clamp Diode Reverse Voltage	AP	V <sub>R</sub>	—	—	—	50	V	
	F, AF		—	—	—	35		
Clamp Diode Forward Current		I <sub>F</sub>	—	—	—	400	mA	
Power Dissipation	AP	P <sub>D</sub>	—	—	—	0.52	W	
	F, AF		—	—	—	0.35		

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

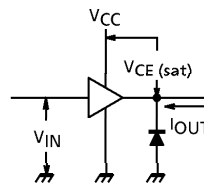
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current		I <sub>CEX</sub>	1	V <sub>CC</sub> = V <sub>CC</sub> MAX. V <sub>IN</sub> = 0.4V Ta = 25°C	—	—	100	μA
Output Saturation Voltage		V <sub>CE</sub> (sat)	2	V <sub>IN</sub> = V <sub>IN</sub> (ON), I <sub>OUT</sub> = - 350mA	—	—	2.0	V
				V <sub>IN</sub> = V <sub>IN</sub> (ON), I <sub>OUT</sub> = - 225mA	—	—	1.9	
				V <sub>IN</sub> = V <sub>IN</sub> (ON), I <sub>OUT</sub> = - 100mA	—	—	1.8	
Input Current	TD62783AP / F / AF	I <sub>IN</sub> (ON)	3	V <sub>IN</sub> = 2.4V	—	36	52	μA
	TD62784AP / F / AF			V <sub>IN</sub> = 3.85V	—	180	260	
				V <sub>IN</sub> = 5V	—	92	130	
				V <sub>IN</sub> = 12V	—	790	1130	
Input Voltage	TD62783AP / F / AF	V <sub>IN</sub> (ON)	4	V <sub>CE</sub> = 2.0V	—	—	2.0	V
	TD62784AP / F / AF			I <sub>OUT</sub> = - 350mA	—	—	4.5	
	TD62783AP / F / AF	V <sub>IN</sub> (OFF)		I <sub>OUT</sub> = - 500μA	0.8	—	—	
	TD62784AP / F / AF			I <sub>OUT</sub> = - 500μA	2.0	—	—	
Supply Current		I <sub>CC</sub> (ON)	3	V <sub>IN</sub> = V <sub>IN</sub> (ON), V <sub>CC</sub> = 50V	—	—	2.5	mA / ch
Clamp Diode Reverse Current	AP, AF	I <sub>R</sub>	5	V <sub>R</sub> = 50V	—	—	50	μA
	F			V <sub>R</sub> = 35V	—	—	50	
Clamp Diode Forward Voltage		V <sub>F</sub>	6	I <sub>F</sub> = 350mA	—	—	2.0	V
Turn-On Delay		t <sub>ON</sub>	7	V <sub>CC</sub> = V <sub>CC</sub> MAX. R <sub>L</sub> = 125Ω C <sub>L</sub> = 15pF, R <sub>L</sub> = 88Ω (F)	—	0.15	—	μs
Turn-Off Delay		t <sub>OFF</sub>			—	1.8	—	

**TEST CIRCUIT**

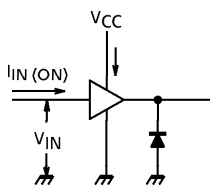
1.  $I_{CEX}$



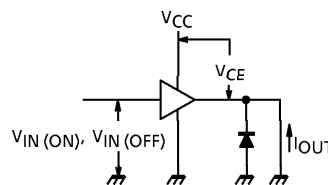
2.  $V_{CE(sat)}$



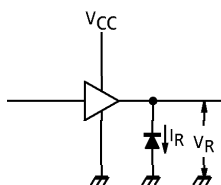
3.  $I_{IN(ON)}, I_{CC}$



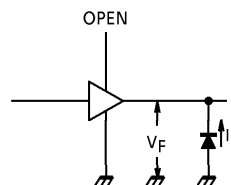
4.  $V_{IN(ON)}, V_{IN(OFF)}$



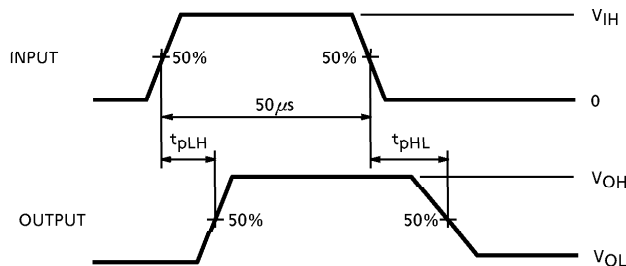
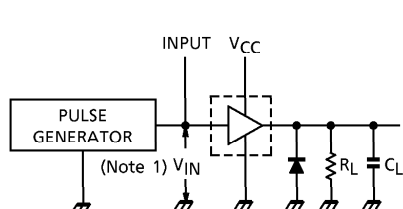
5.  $I_R$



6.  $V_F$



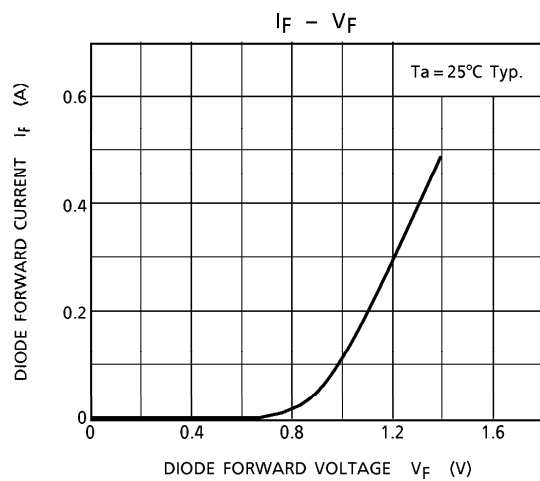
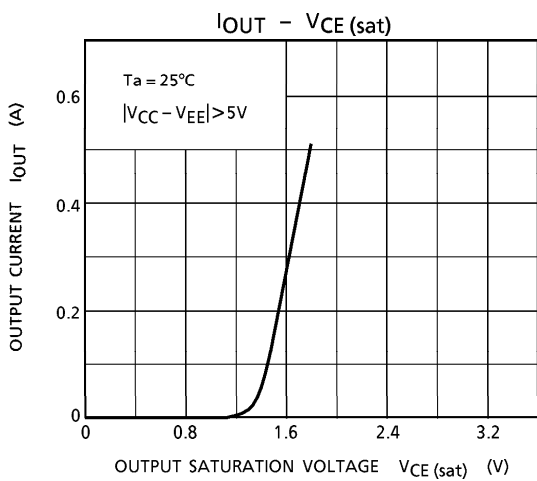
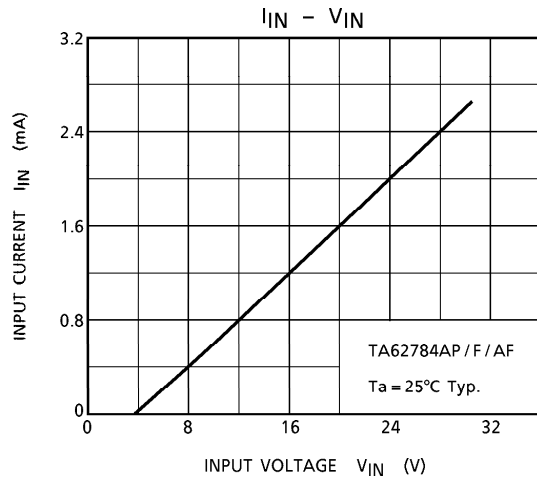
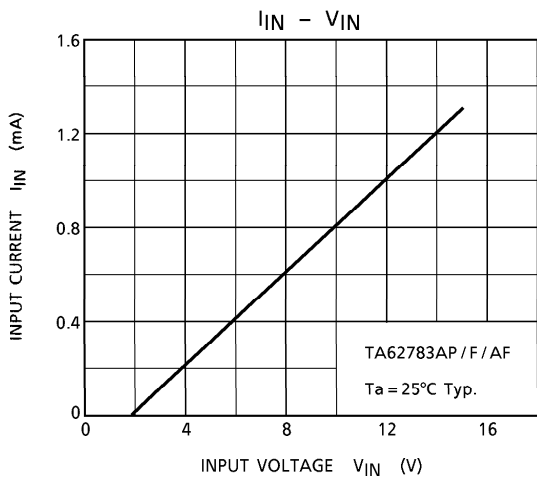
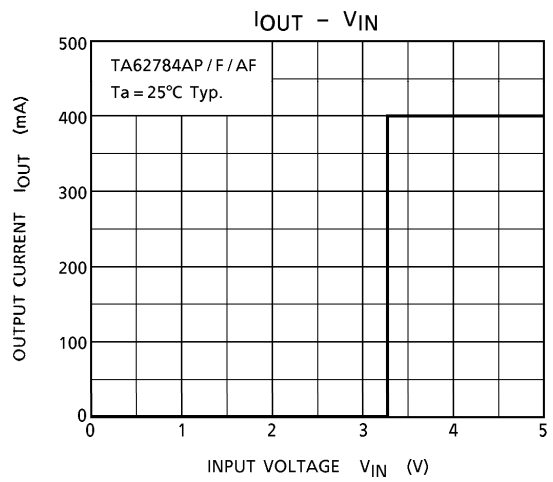
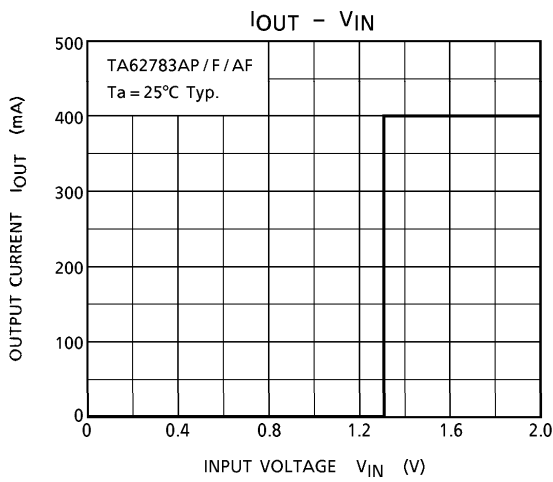
7.  $t_{ON}, t_{OFF}$

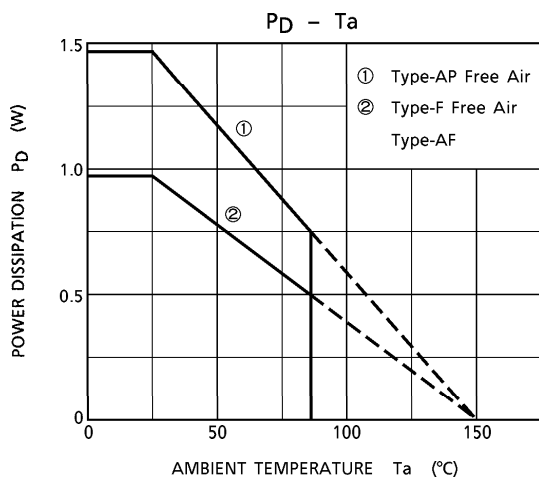


- (Note 1) Pulse width  $50\mu s$ , duty cycle 10%  
Output impedance  $50\Omega$ ,  $t_r \leq 5ns$ ,  $t_f \leq 10ns$
- (Note 2)  $C_L$  includes probe and jig capacitance

**PRECAUTIONS for USING**

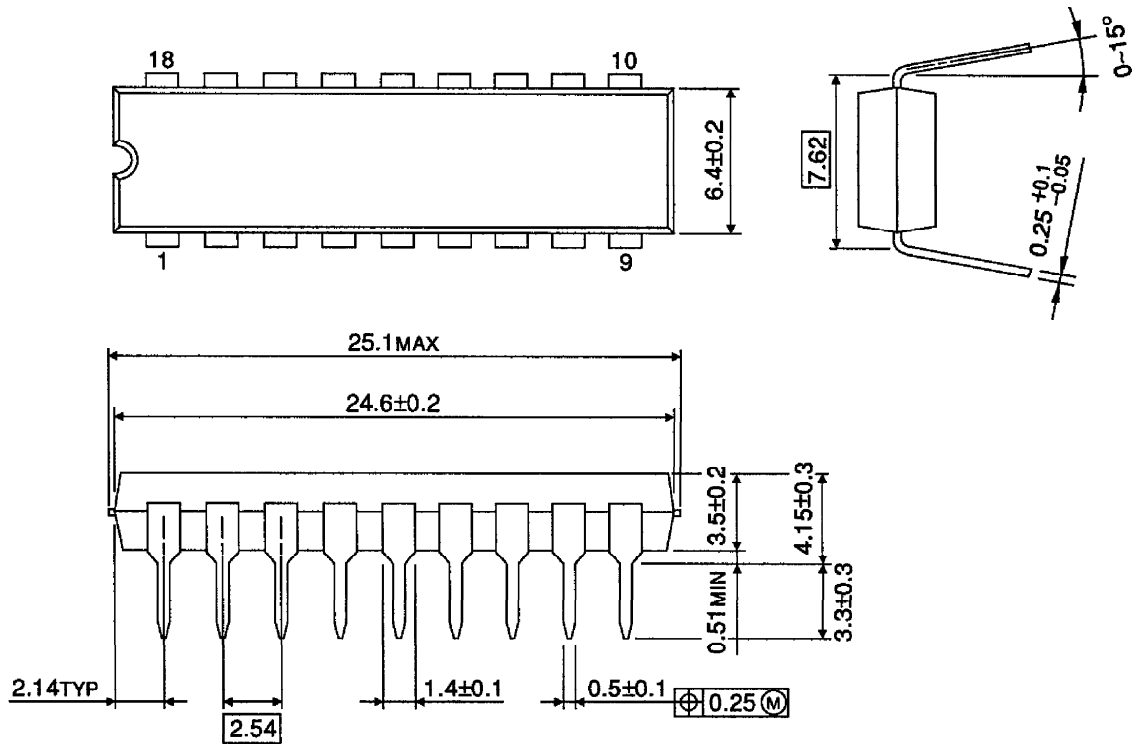
Utmost care is necessary in the design of the output line,  $V_{CC}$  and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.





**OUTLINE DRAWING**  
DIP18-P-300-2.54D

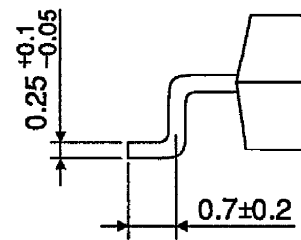
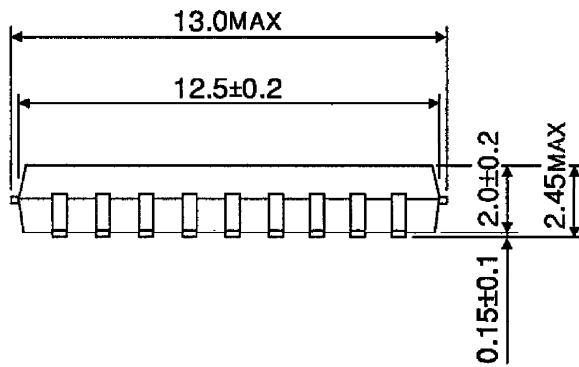
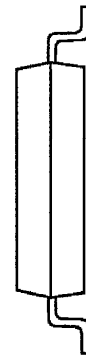
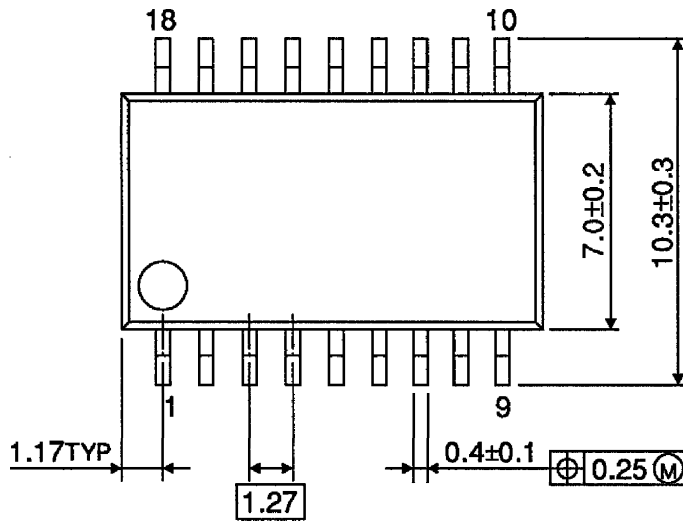
Unit : mm



Weight : 1.47g (Typ.)

**OUTLINE DRAWING**  
SOP18-P-375-1.27

Unit : mm



Weight : 0.41g (Typ.)