

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

# TD62783AFN, TD62784AFN

## 8ch HIGH-VOLTAGE HIGH SOURCE-CURRENT DRIVER

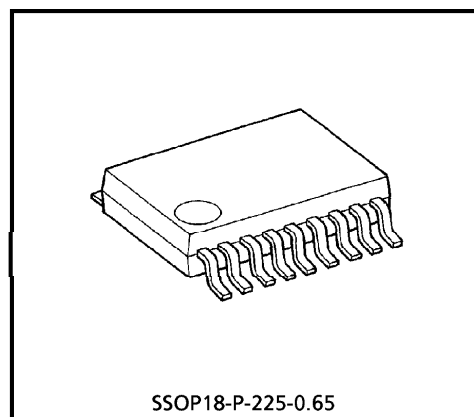
The TD62783AFN, TD62784AFN are comprised of eight source current Transistor Array.

These drivers are specifically designed for fluorescent display applications.

Applications include relay, hammer and lamp and display (LED) drivers.

### FEATURES

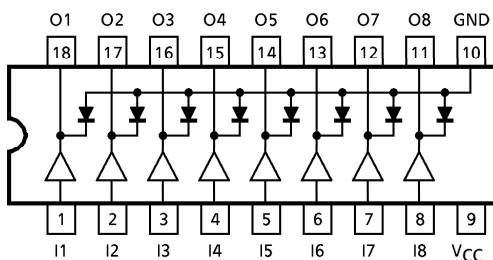
- Package Type : SSOP18 PIN
- High Output Voltage :  $V_{CE(SUS)} = 50V$  (MIN.)
- Output Current (Single Output) :  $I_{OUT} = -500mA$  (MAX.)
- Output Clamp Diodes
- Single Supply Voltage
- Input Compatible with Various Types of Logic



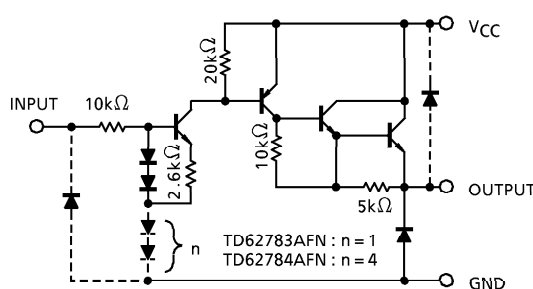
Weight : 0.09g (Typ.)

TYPE	DESIGNATION
TD62783AFN	TTL, 5V CMOS
TD62784AFN	6~15V PMOS, CMOS

### 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	V <sub>CC</sub>	50	V
Output Current	I <sub>OUT</sub>	- 500	mA / ch
Input Voltage	V <sub>IN</sub> (*1)	15	V
	V <sub>IN</sub> (*2)	30	
Clamp Diode Reverse Voltage	V <sub>R</sub>	50	V
Clamp Diode Forward Current	I <sub>F</sub>	500	mA
Power Dissipation	P <sub>D</sub> (*3)	0.96	W
Operating Temperature	T <sub>opr</sub>	- 40~85	°C
Storage Temperature	T <sub>stg</sub>	- 55~150	°C

(\*1) TD62783AFN

(\*2) TD62784AFN

(\*3) On Glass Epoxy PCB (50 × 50 × 1.6mm Cu 40%)

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

CHARACTERISTIC		SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage		V <sub>CC</sub>		—	—	50	V
Output Current	(*3)	I <sub>OUT</sub>	DC 1 Circuit	—	—	- 350	mA / ch
			T <sub>pw</sub> = 25ms, T <sub>j</sub> = 120°C Ta = 85°C, 8 Circuits	Duty = 10%	—	—	
			Duty = 50%	—	—	- 38	
Input Voltage	(*1)	V <sub>IN</sub>		—	—	12	V
	(*2)			—	—	24	
Input Voltage	Output ON	(*1)	V <sub>IN</sub> (ON)	2.0	5.0	15	V
		(*2)		4.5	12.0	30	
	Output OFF	(*1)	V <sub>IN</sub> (OFF)	0	—	0.8	
		(*2)		0	—	2.0	
Clamp Diode Reverse Voltage		V <sub>R</sub>		—	—	50	V
Clamp Diode Forward Current		I <sub>F</sub>		—	—	400	mA
Power Dissipation	(*3)	P <sub>D</sub>		—	—	0.4	W

(\*1) TD62783AFN

(\*2) TD62784AFN

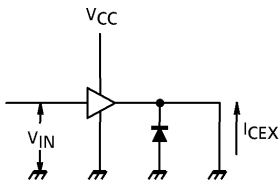
(\*3) On Glass Epoxy PCB (50 × 50 × 1.6mm Cu 40%)

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

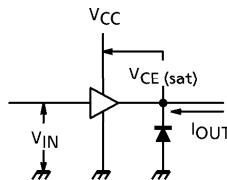
CHARACTERISTIC		SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current		$I_{CEX}$	1	$V_{CC} = V_{CC\ MAX}$ , $V_{IN} = 0.4V$ $T_a = 25^\circ C$	—	—	100	$\mu A$
Output Saturation Voltage		$V_{CE\ (sat)}$	2	$V_{IN} = V_{IN\ (ON)}$ , $I_{OUT} = -350mA$	—	—	2.0	V
				$V_{IN} = V_{IN\ (ON)}$ , $I_{OUT} = -225mA$	—	—	1.9	
				$V_{IN} = V_{IN\ (ON)}$ , $I_{OUT} = -100mA$	—	—	1.8	
Input Current	TD62783AFN	$I_{IN\ (ON)}$	3	$V_{IN} = 2.4V$	—	36	52	$\mu A$
	TD62784AFN			$V_{IN} = 3.85V$	—	180	260	
				$V_{IN} = 5V$	—	92	130	
				$V_{IN} = 12V$	—	790	1130	
Input Voltage	TD62783AFN	$V_{IN\ (ON)}$	4	$V_{CE} = 2.0V$	—	—	2.0	V
	TD62784AFN			$I_{OUT} = -350mA$	—	—	4.5	
	TD62783AFN	$V_{IN\ (OFF)}$		$I_{OUT} = -500\mu A$	0.8	—	—	
	TD62784AFN				2.0	—	—	
Supply Current		$I_{CC\ (ON)}$	3	$V_{IN} = V_{IN\ (ON)}$ , $V_{CC} = -50V$	—	—	2.5	mA/ch
Clamp Diode Reverse Current		$I_R$	5	$V_R = 50V$	—	—	50	$\mu A$
Clamp Diode Forward Voltage		$V_F$	6	$I_F = 350mA$	—	—	2.0	V
Turn-On Delay		$t_{ON}$	7	$V_{CC} = V_{CC\ MAX}$ , $R_L = 125\Omega$ $C_L = 15pF$	—	0.15	—	$\mu s$
Turn-Off Delay		$t_{OFF}$			—	3.0	—	

**TEST CIRCUIT**

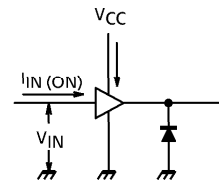
1.  $I_{CEX}$



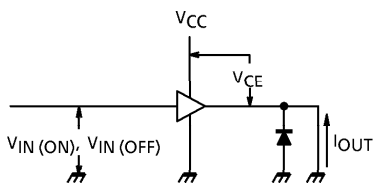
2.  $V_{CE(sat)}$



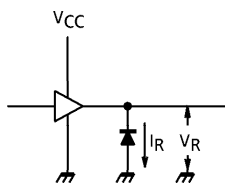
3.  $I_{IN(ON)}, I_{CC}$



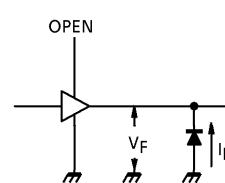
4.  $V_{IN(ON)}, V_{IN(OFF)}$



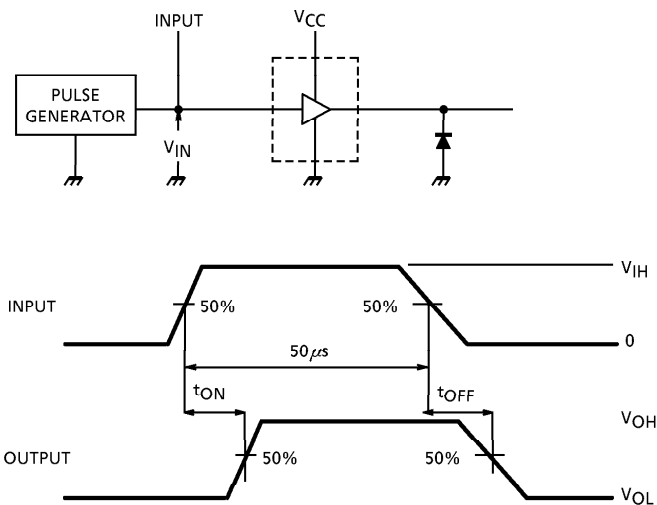
5.  $I_R$



6.  $V_F$



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

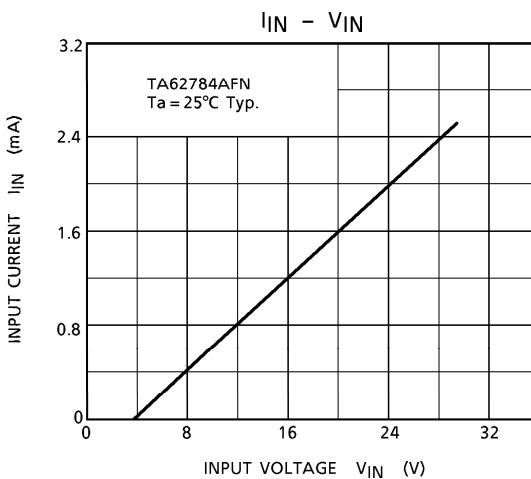
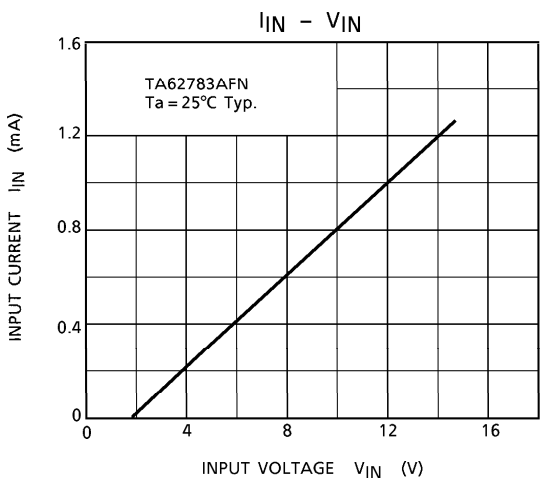
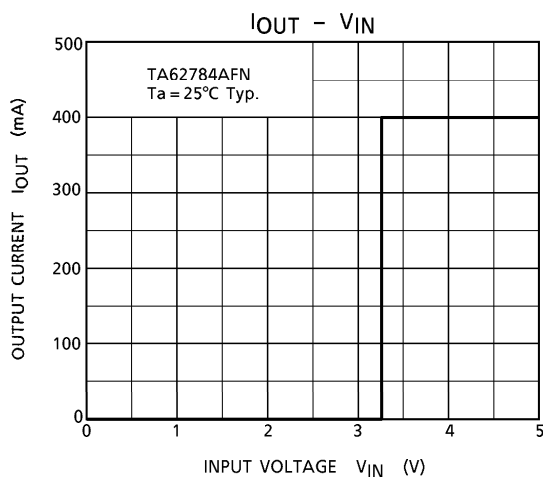
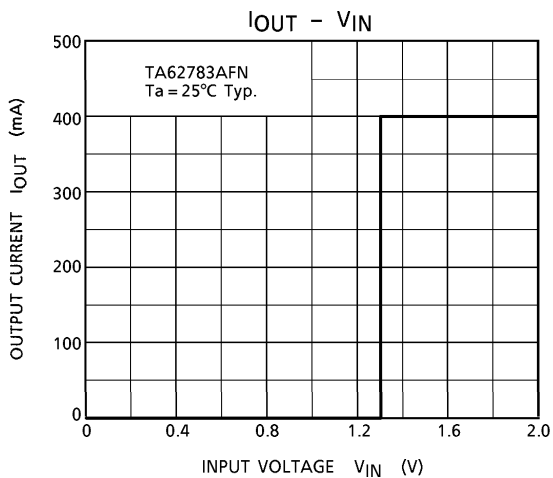


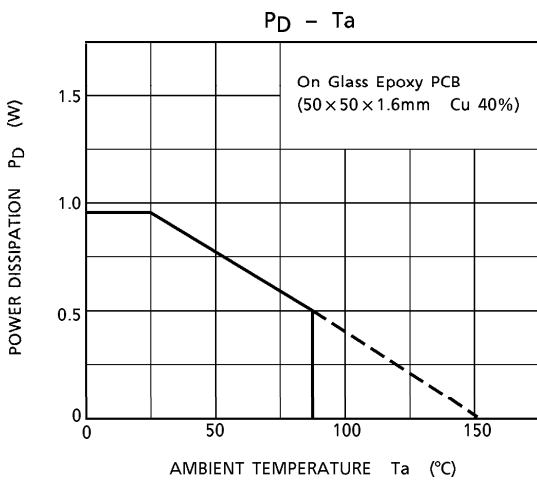
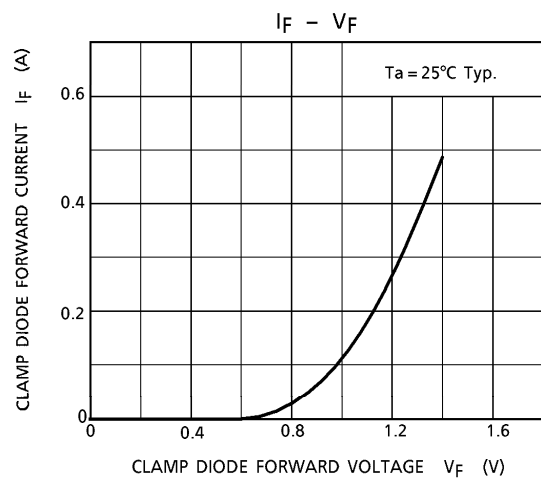
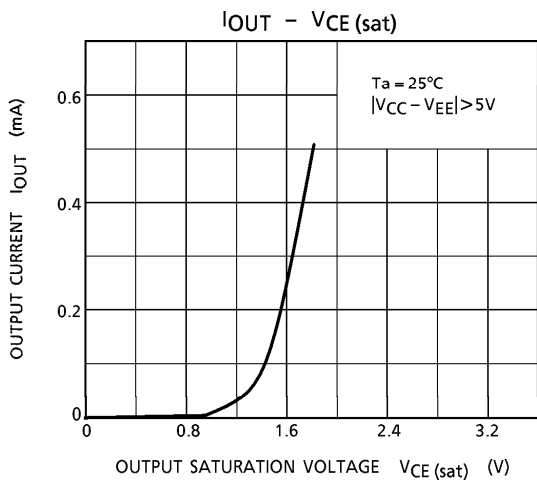
(Note 1) Pulse Width  $50\mu s$ , Duty Cycle 10%  
 Output Impedance  $50\Omega$ ,  $t_r \leq 5ns$ ,  $t_f \leq 10ns$

(Note 2) CL includes probe and jig capacitance.

**PRECAUTIONS for USING**

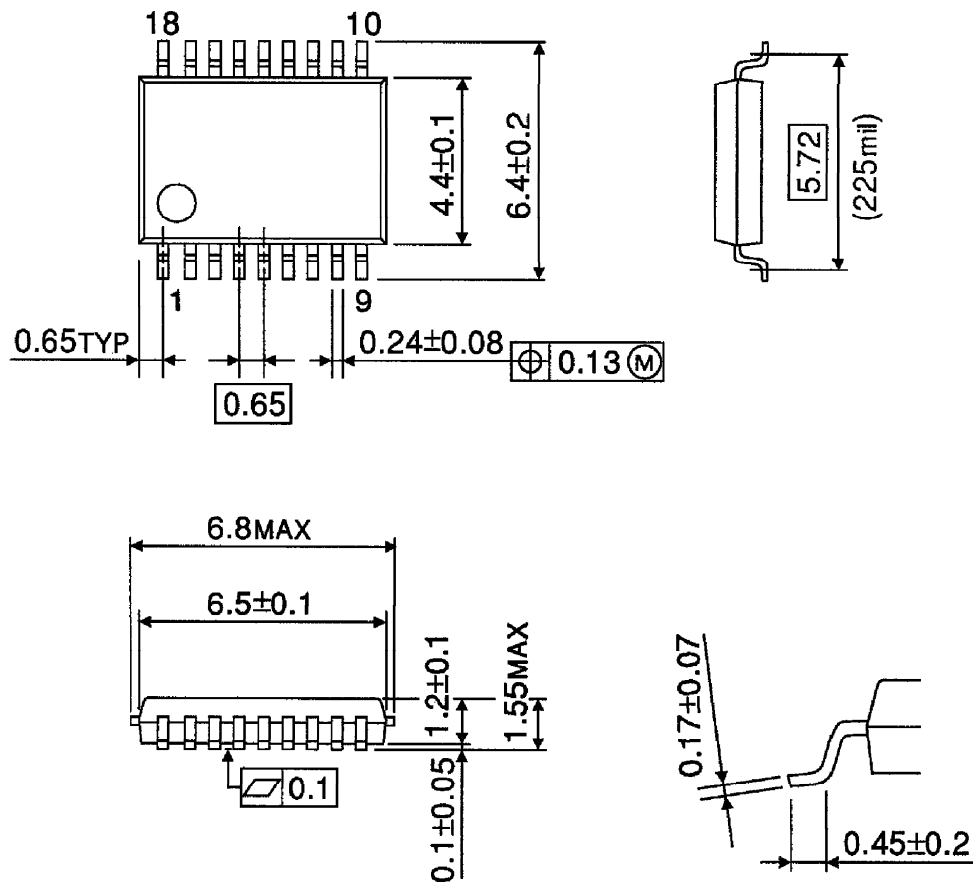
Utmost care is necessary in the design of the output line,  $V_{CC}$  and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.





**OUTLINE DRAWING**  
SSOP18-P-225-0.65

Unit : mm



Weight : 0.09g (Typ.)