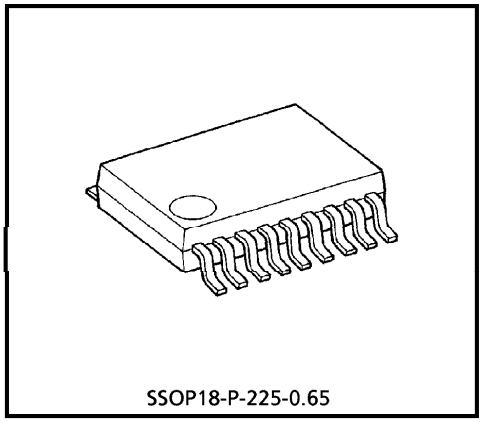
TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

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.



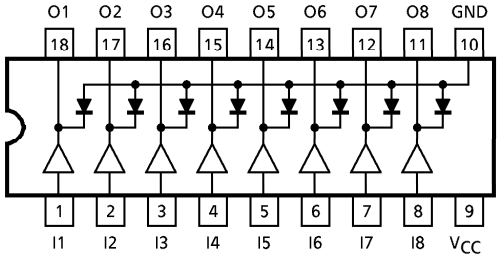
Weight : 0.09g (Typ.)

FEATURES

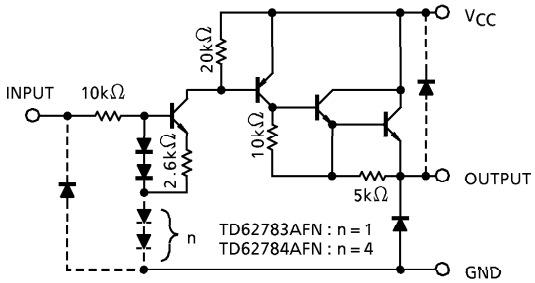
- Package Type : SSOP18 PIN
- High Ouptut Voltage : $V_{CE\ (SUS)}$ = 50V (MIN.)
- Output Current (Single Output) : I_{OUT} = − 500mA (MAX.)
- Output Clamp Diodes
- Single Supply Voltage
- Input Compatible with Various Types of Logic

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.

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	50	V
Output Current	I_{OUT}	−500	mA / ch
Input Voltage	V_{IN} (*1)	15	V
	V_{IN} (*2)	30	
Clamp Diode Reverse Voltage	V_R	50	V
Clamp Diode Forward Current	I_F	500	mA
Power Dissipation	P_D (*3)	0.96	W
Operating Temperature	T_{opr}	−40~85	°C
Storage Temperature	T_{stg}	−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_{CC}			—	—	50	V
Output Current		(*3)	I_{OUT}	DC 1 Circuit		—	—	−350	mA / ch
				T_{pw} = 25ms, T_j = 120°C Ta = 85°C, 8 Circuits	Duty = 10%	—	—	−180	
					Duty = 50%	—	—	−38	
Input Voltage		(*1)	V_{IN}			—	—	12	V
		(*2)				—	—	24	
Input Voltage	Output ON	(*1)	$V_{IN (ON)}$			2.0	5.0	15	V
		(*2)				4.5	12.0	30	
	Output OFF	(*1)	$V_{IN(OFF)}$			0	—	0.8	
		(*2)				0	—	2.0	
Clamp Diode Reverse Voltage			V_R			—	—	50	V
Clamp Diode Forward Current			I_F			—	—	400	mA
Power Dissipation		(*3)	P_D			—	—	0.4	W

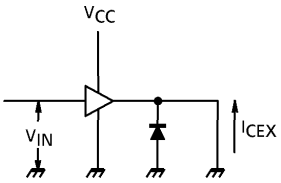
(*1) TD62783AFN
(*2) TD62784AFN
(*3) On Glass Epoxy PCB (50 × 50 × 1.6mm Cu 40%)

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

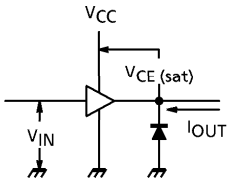
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current		I_{CEX}	1	$V_{CC} = V_{CC}$ MAX, $V_{IN} = 0.4V$ Ta = 25°C	—	—	100	μA
Output Saturation Voltage		$V_{CE (sat)}$	2	$V_{IN} = V_{IN (ON)}$, $I_{OUT} = -350mA$	—	—	2.0	V
				$V_{IN} = V_{IN (ON)}$, $I_{OUT} = -225mA$	—	—	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	μA
				$V_{IN} = 3.85V$	—	180	260	
	TD62784AFN			$V_{IN} = 5V$	—	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	μA
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	—	μs
Turn-Off Delay		t_{OFF}			—	3.0	—	

TEST CIRCIT

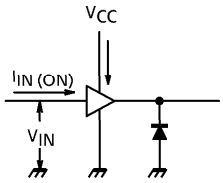
1. I_{CEX}



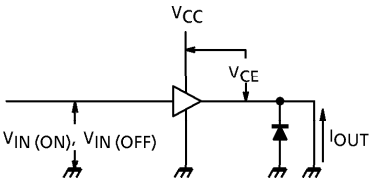
2. $V_{CE\ (sat)}$



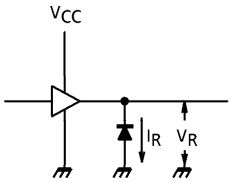
3. $I_{IN\ (ON)}$, I_{CC}



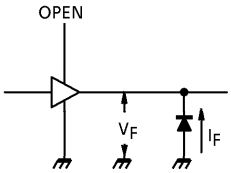
4. $V_{IN\ (ON)}$, $V_{IN\ (OFF)}$



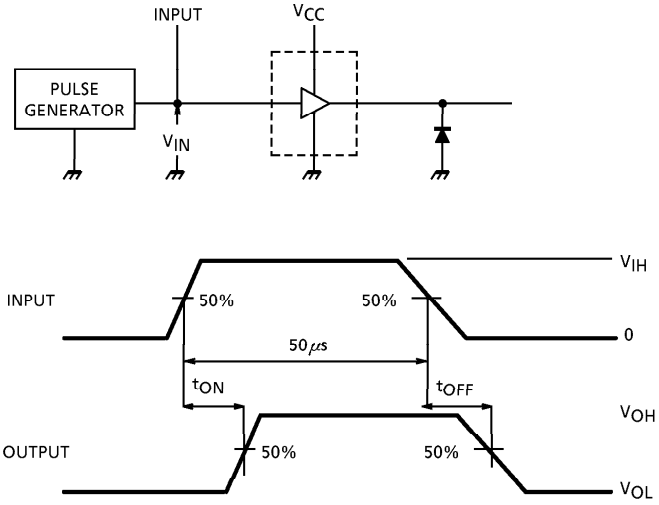
5. I_R



6. V_F



7. t_{ON}, t_{OFF}



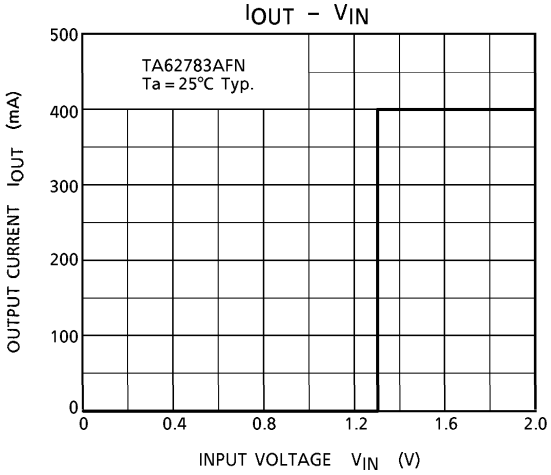
(Note 1) Pulse Width 50μs, Duty Cycle 10%
Ouptut Impedance 50Ω, $t_r \leqq$ 5ns, $t_f \leqq$ 10ns

(Note 2) CL includes probe and jig capacitance.

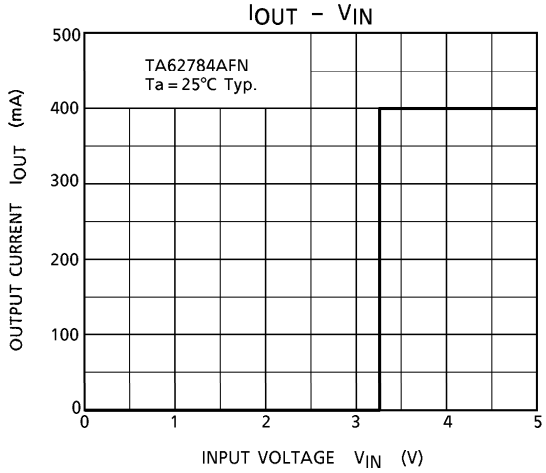
PRECAUTIONS for USING

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.

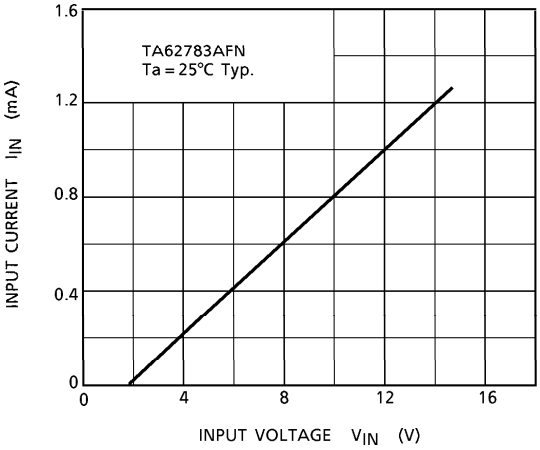
I_{OUT} – V_{IN}



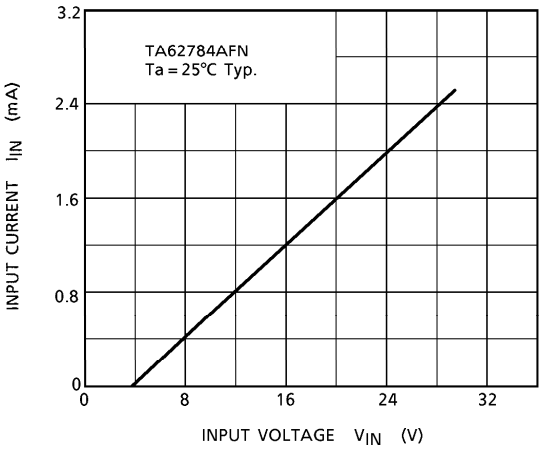
I_{OUT} – V_{IN}



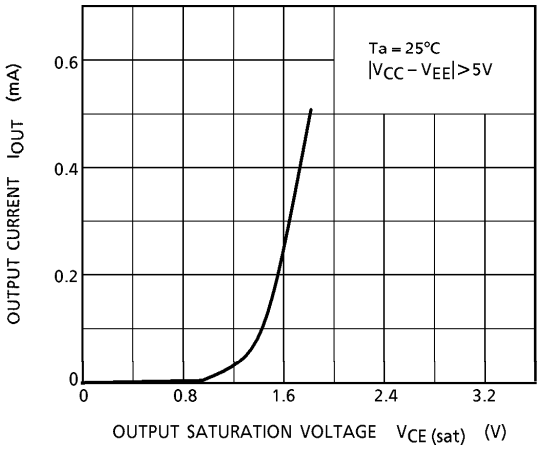
I_{IN} – V_{IN}



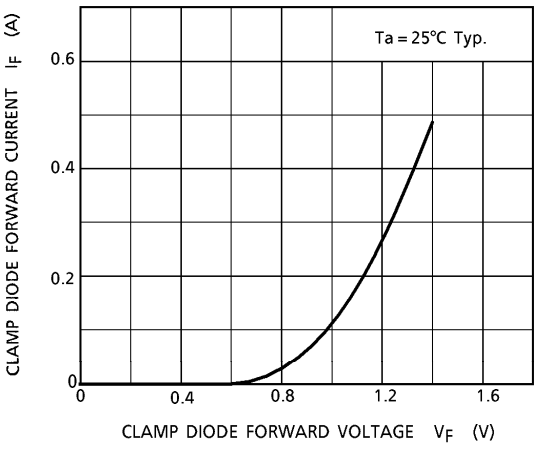
I_{IN} – V_{IN}



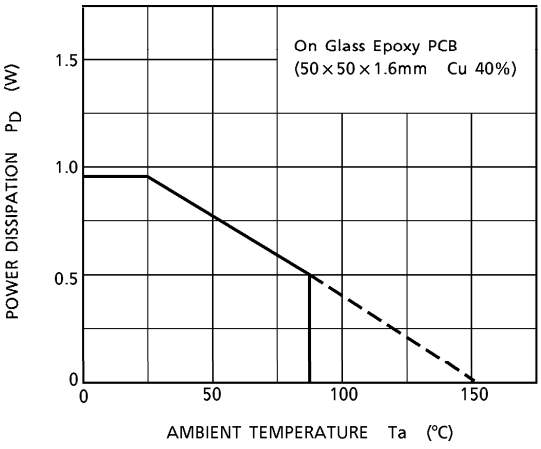
I_{OUT} – $V_{CE\ (sat)}$



I_F – V_F

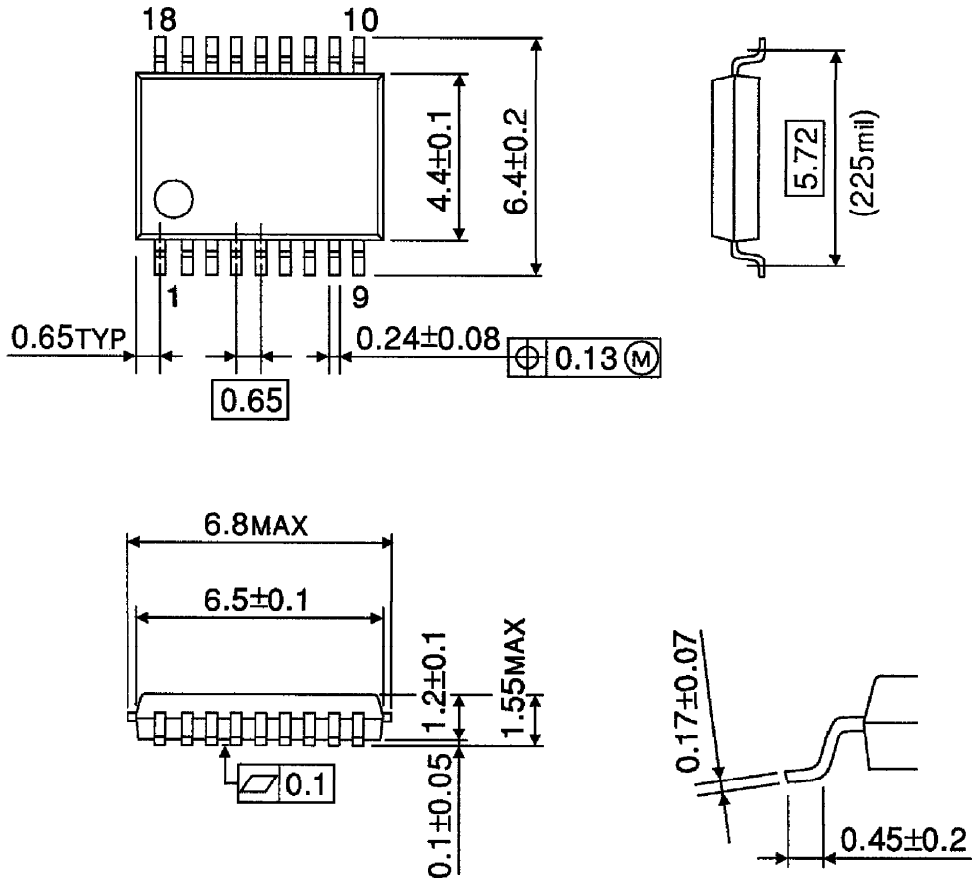


P_D – Ta



OUTLINE DRAWING

SSOP18-P-225-0.65 Unit : mm



Weight : 0.09g (Typ.)