

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

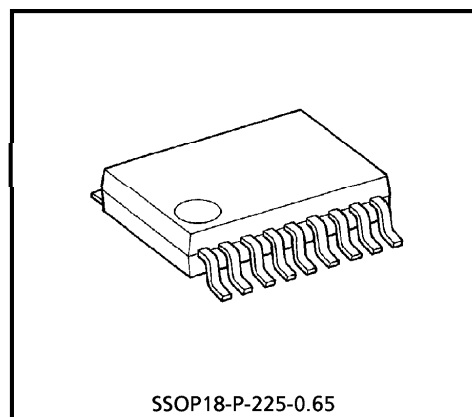
# TD62786AFN

## 8ch HIGH-VOLTAGE SOURCE-CURRENT DRIVER

The TD62786AFN is eight Channel Non-Inverting Source current Transistor Array. All units feature integral clamp diodes for switching inductive loads. Applications include relay, hammer and lamp drivers.

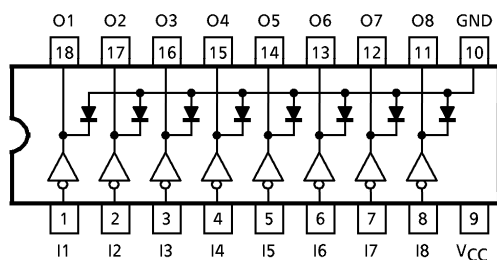
### FEATURES

- Package Type : SSOP18 PIN
- High Output Voltage :  $V_{CE(SUS)} = 50V$  (Min.)
- Output Current (Single Output) :  $I_{OUT} = -500mA / ch$  (Max.)
- Low Level Active Input
- Output Clamp Diodes
- Input Compatible with TTL, 5V CMOS
- Single Supply Voltage

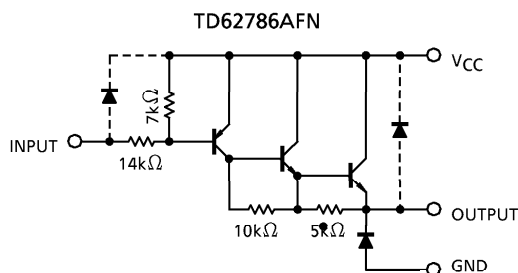


Weight : 0.09g (Typ.)

### 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 RATING** ( $T_a = 25^\circ\text{C}$ ,  $V_{CC} = 0\text{V}$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	$V_{CC} - V_{GND}$	50	V
Output Sustaining Voltage	$V_{CE(SUS)}$	- 50	V
Output Current	$I_{OUT}$	- 500	mA / ch
Input Voltage	$V_{IN}$	- 30 ~ 0.5	V
Clamp Diode Reverse Voltage	$V_R$	50	V
Clamp Diode Forward Current	$I_F$	500	mA
Power Dissipation	$P_D (*)$	0.96	W
Operating Temperature	$T_{opr}$	- 40 ~ 85	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	- 55 ~ 150	$^\circ\text{C}$

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

**RECOMMENDED OPERATING CONDITIONS** ( $T_a = -40 \sim 85^\circ\text{C}$ ,  $V_{CC} = 0\text{V}$ )

CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	
Supply Voltage	$V_{CC} - V_{GND}$		—	—	50	V	
Output Sustaining Voltage	$V_{CE(SUS)}$		—	—	- 50	V	
Output Current	$I_{OUT} (*)$	DC 1 Circuit	—	—	- 350	mA / ch	
		$T_{pw} = 25\text{ms}$ , $T_j = 120^\circ\text{C}$ , $T_a = 85^\circ\text{C}$ , 8 Circuits	Duty = 10%	0	—		- 180
			Duty = 50%	0	—		- 38
Input Voltage	$V_{IN}$		- 30	—	0	V	
Clamp Diode Reverse Voltage	$V_R$		—	—	50	V	
Clamp Diode Forward Current	$I_F$		—	—	350	mA	
Power Dissipation	$P_D (*)$		—	—	0.4	W	

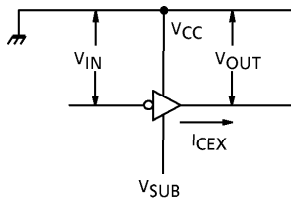
(\*) On Class Epoxy PCB (50 × 50 × 1.6mm Cu 40%)

ELECTRICAL CHARACTERISTICS (Ta = 25°C, V<sub>CC</sub> = 0V)

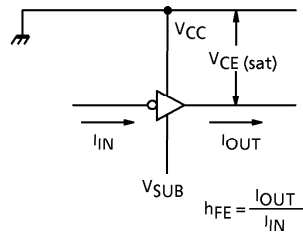
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current	I <sub>CEX</sub>	1	V <sub>OUT</sub> = V <sub>GND</sub> = -50V Ta = 85°C	—	—	-100	μA
Output Saturation Voltage	V <sub>CE (sat)</sub>	2	V <sub>IN</sub> = V <sub>IL</sub> MAX. I <sub>OUT</sub> = -100mA	—	—	-1.8	V
			V <sub>IN</sub> = V <sub>IL</sub> MAX. I <sub>OUT</sub> = -350mA	—	—	-2.0	
DC Current transfer Ratio	h <sub>FE</sub>	2	V <sub>CC</sub> = 0V, V <sub>CE</sub> = 3V I <sub>OUT</sub> = -350mA	1000	—	—	
Input Voltage	"H" Level	V <sub>IN</sub>	4	-1.2	—	0	V
	"L" Level			-30	—	-2.8	
Input Current	I <sub>IN (ON)</sub>	3	V <sub>CC</sub> = 5.5V, V <sub>IN</sub> = 0.4V	—	—	-0.4	mA
Clamp Diode Reverse Current	I <sub>R</sub>	—	V <sub>R</sub> = V <sub>R</sub> MAX., Ta = 85°C	—	—	100	μA
Clamp Diode Forward Voltage	V <sub>F</sub>	—		—	—	2.0	V
Turn-On Delay	t <sub>ON</sub>	5	V <sub>OUT</sub> = -50V, R <sub>L</sub> = 125Ω C <sub>L</sub> = 15pF	—	0.2	—	μs
Turn-Off Delay	t <sub>OFF</sub>			—	1.0	—	

**TEST CIRCUIT**

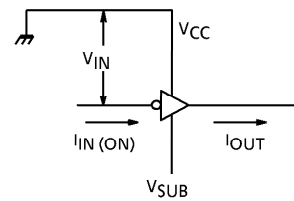
1.  $I_{CEX}$



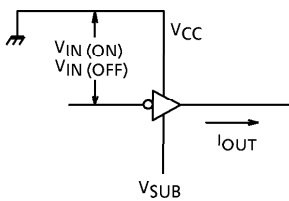
2.  $V_{CE(sat)}$ ,  $h_{FE}$



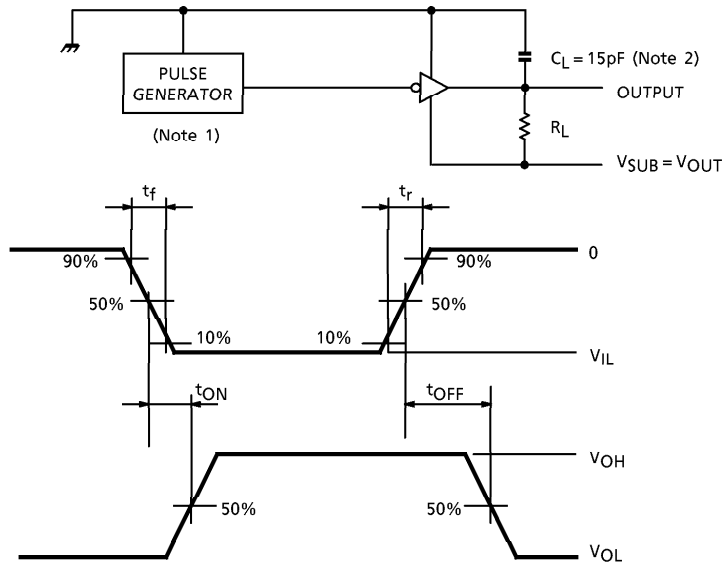
3.  $I_{IN(ON)}$



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



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

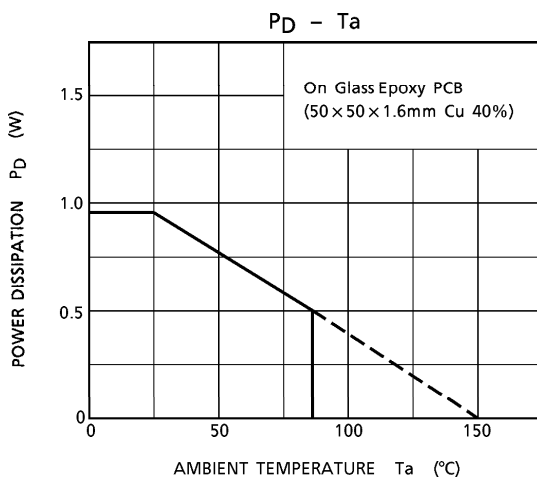
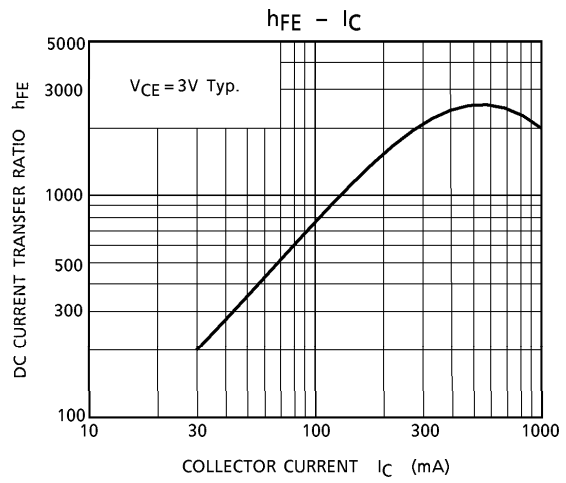
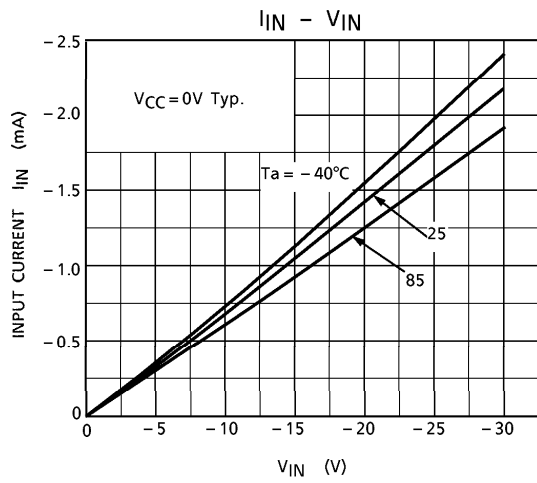
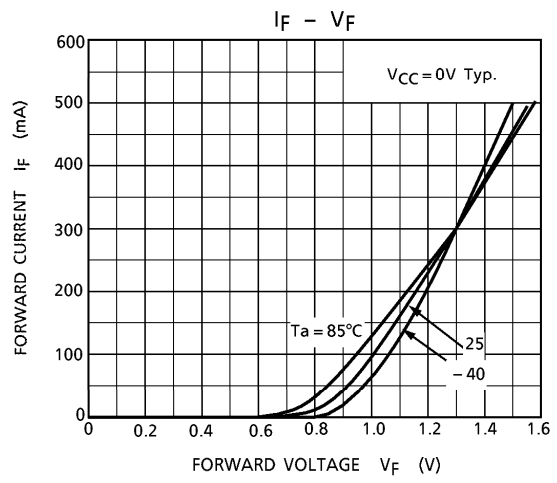
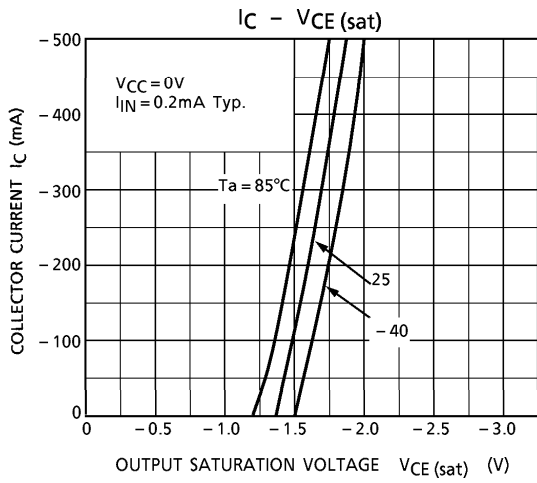


(Note 1) Pulse Width  $50\mu s$ , Duty Cycle 10%  
Output Impedance  $50\Omega$ ,  $t_r \leq 10ns$ ,  $t_f \leq 5ns$

(Note 2)  $C_L$  includes probe and jig capacitance

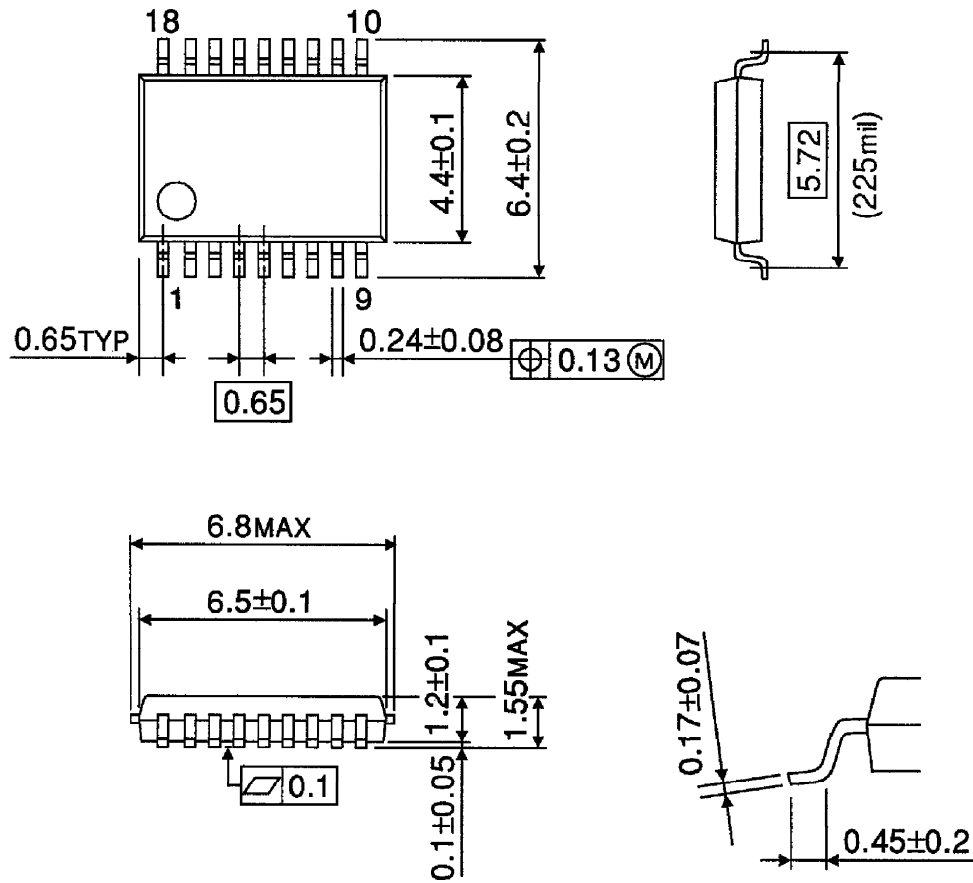
**PRECAUTIONS for USING**

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**  
SSOP18-P-225-0.65

Unit : mm



Weight : 0.09g (Typ.)