

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62786AP, TD62786F, TD62786AF TD62787AP, TD62787F, TD62787AF

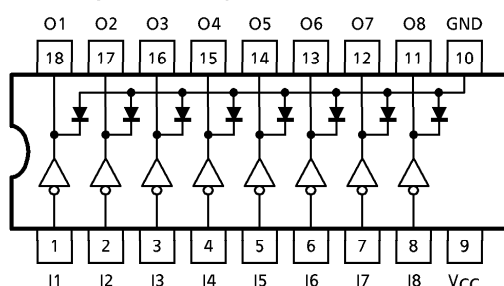
8CH HIGH-VOLTAGE SOURCE DRIVER

The TD62786AP/F/AF series are eight channel hux non-inverting source current transistor array. All units feature integral clamp diodes for switching inductive loads. Applications include relay, hammer and lamp drivers.

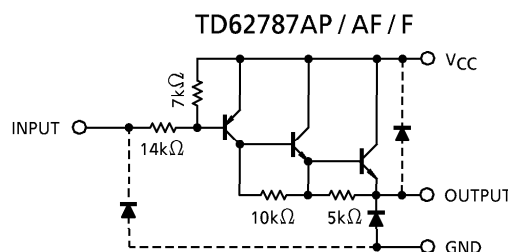
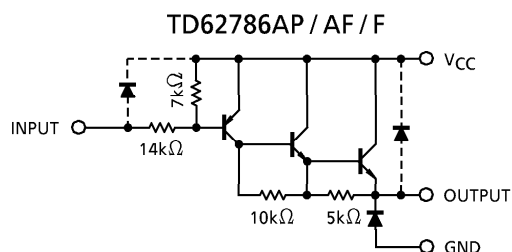
FEATURES

- High output voltage type-AP, AF : $V_{CE(SUS)} = 50V$ (Min.)
type-F : $V_{CE(SUS)} = 35V$ (Min.)
- Output current (single output) : $I_{OUT} = -500mA/ch$ (Max.)
- Output clamp diodes
- Single supply voltage
- Input compatible with TTL, 5V CMOS
- Low level active input
- Package type-AP : DIP-18 pin
- Package type-F, AF : SOP-18 pin

PIN CONNECTION (TOP VIEW)

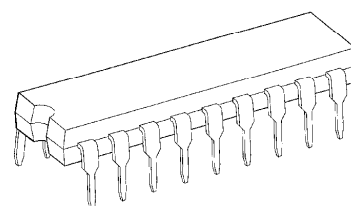


SCHEMATICS (EACH DRIVER)



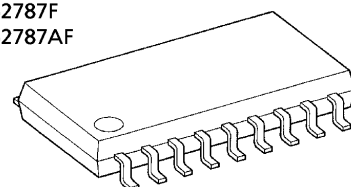
(Note) The input and output parasitic diodes cannot be used as clamp diodes.

TD62786AP
TD62787AP



DIP18-P-300-2.54D

TD62786F
TD62786AF
TD62787F
TD62787AF



SOP18-P-375-1.27

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

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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Supply Voltage	AP / AF	$V_{CC} - V_{GND}$	50	V
	F		35	
Output Sustaining Voltage	AP / AF	V_{OUT}	- 50	V
	F		- 35	
Output Current		I_{OUT}	- 500	mA / ch
Input Voltage		V_{IN} (Note 1)	- 30~0.5	V
Input Voltage		V_{IN} (Note 2)	$V_{GND} \sim 7$	V
Clamp Diode Forward Current	AP / AF	V_R	50	V
	F		35	
Clamp Diode Forward Current		I_F	500	mA
Power Dissipation	AP	P_D (Note 3)	1.47	W
	F / AF		0.96	
Operating Temperature		T_{opr}	- 40~85	°C
Storage Temperature		T_{stg}	- 55~150	°C

(Note 1) Only TD62786AP / F / AF

(Note 2) Only TD62787AP / F / AF

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

RECOMMENDED OPERATING CONDITIONS (Ta = - 40~85°C, $V_{CC} = 0V$)

CHARACTERISTIC		SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage	AP / AF	$V_{CC} - V_{GND}$	—	—	—	50	V
	F		—	—	—	35	
Output Voltage	AP / AF	V_{OUT}	—	—	—	- 50	V
	F		—	—	—	- 35	
Output Current		I_{OUT}	—	—	—	- 350	mA / ch
Input Voltage	TD62786	V_{IN}	—	- 30	—	0	V
	TD62787		—	V_{GND}	—	7	
Clamp Diode Reverse Voltage	AP / AF	V_R	—	—	—	50	V
	F		—	—	—	35	
Clamp Diode Forward Current		I_F	—	—	—	350	mA
Power Dissipation	AP	P_D	—	—	—	0.52	W
	AF / F		—	—	—	0.35	

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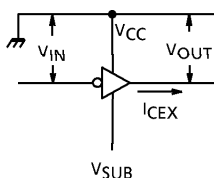
ELECTRICAL CHARACTERISTICS (Ta = 25°C, V_{CC} = 0V)

CHARACTERISTIC			SYMBOL	TEST CIR- CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current			I _{CEX}	1	V _{OUT} = V _{GND} = - 50V Ta = 85°C	—	—	- 100	μA
Output Saturation Voltage			V _{CE (sat)}	2	V _{IN} = V _{IL} MAX. I _{OUT} = - 100mA	—	—	- 1.8	V
					V _{IN} = V _{IL} MAX. I _{OUT} = - 350mA	—	—	- 2.0	
DC Current transfer Ratio			h _{FE}	2	V _{CC} = 0V, V _{CE} = 3V I _{OUT} = - 350mA	1000	—	—	—
Input Voltage	“H” Level	TD62786	V _{IN}	4	—	- 1.2	—	0	V
		TD62787				- 1.6	—	5.5	
	“L” Level	TD62786				- 30	—	- 2.8	
		TD62787				V _{GND}	—	- 3.7	
Input Current			I _{IL}	—	V _{CC} = 5.5V, V _{IN} = 0.4V	—	—	- 0.4	mA
Clamp Diode Reverse Current			I _R	—	V _R = V _R MAX., Ta = 85°C	—	—	100	μA
						—	—		
Clamp Diode Forward Voltage			V _F	—	—	—	—	2.0	V
Turn-On Delay			t _{ON}	5	V _{OUT} = - 50V, R _L = 163Ω C _L = 15pF (Note)	—	0.2	—	μs
Turn Off Delay			t _{OFF}			—	1.0	—	

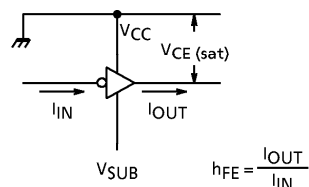
(Note) V_{OUT} = -35V, R_L = 116Ω for Type-F

TEST CIRCUIT

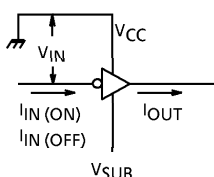
1. I_{CEX}



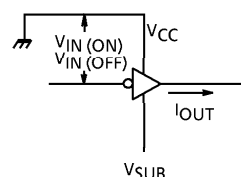
2. $V_{CE(sat)}$, h_{FE}



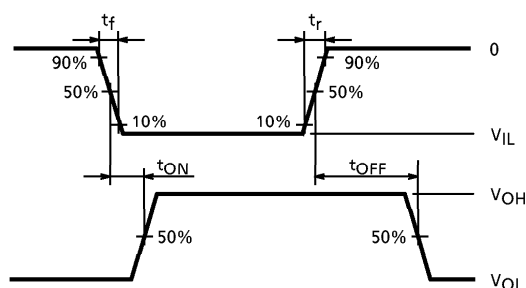
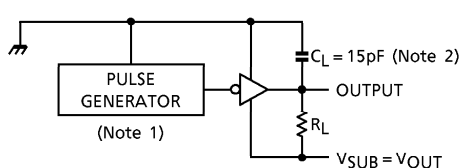
3. $I_{IN(ON)}$, $I_{IN(OFF)}$



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



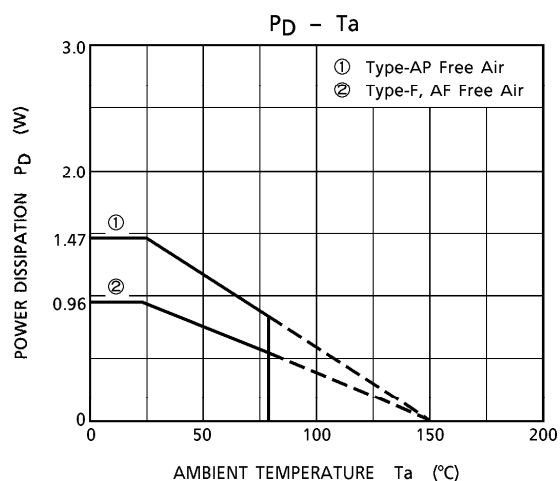
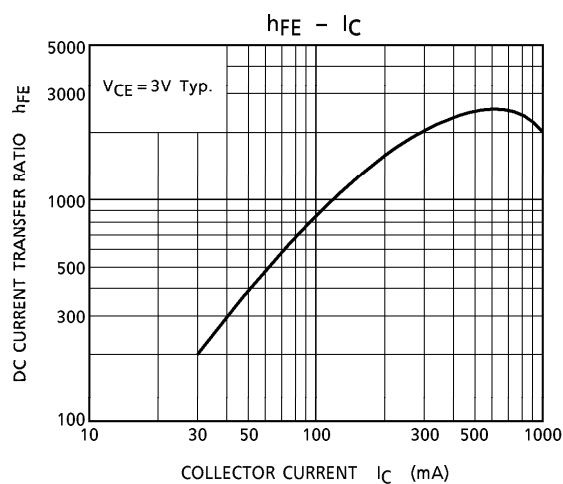
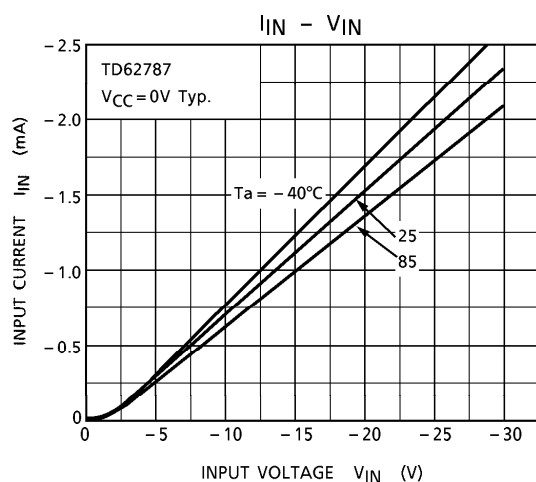
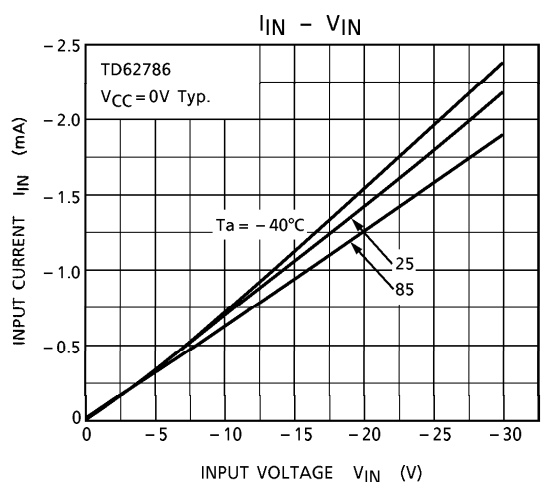
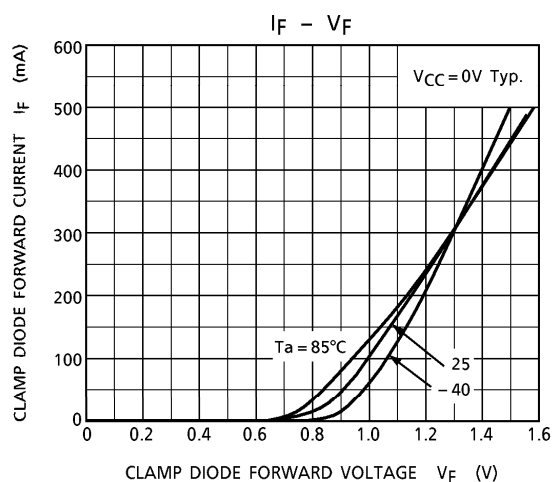
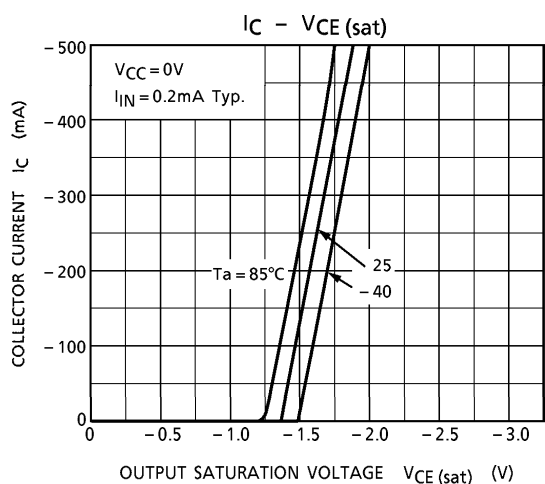
5. t_{ON} , t_{OFF}



- (Note 1) Pulse Width $50\mu s$, Duty Cycle 10%
Output Impedance 50Ω , $t_r \leq 10ns$, $t_f \leq 5ns$
(Note 2) C_L includes probe and jig capacitance.

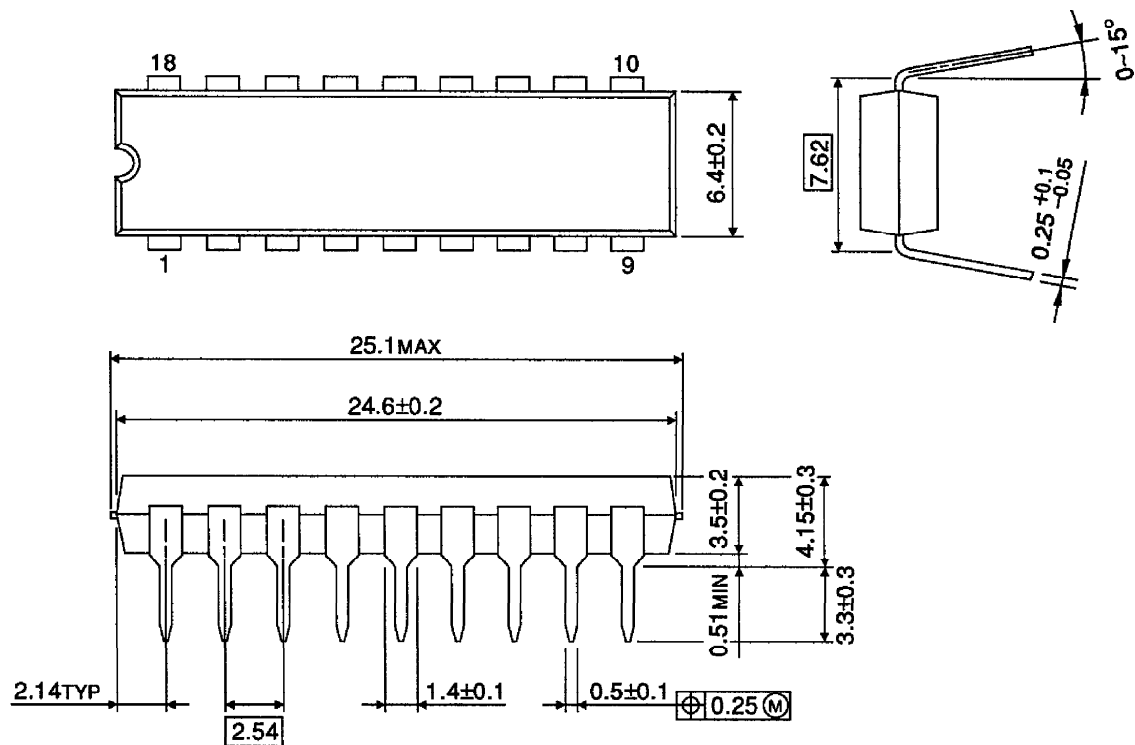
PRECAUTIONS for USING

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
DIP18-P-300-2.54D

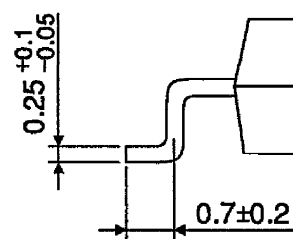
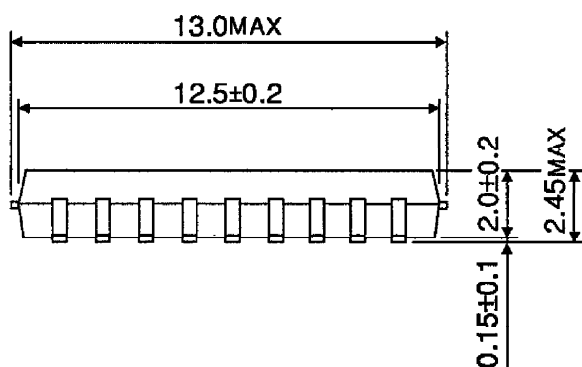
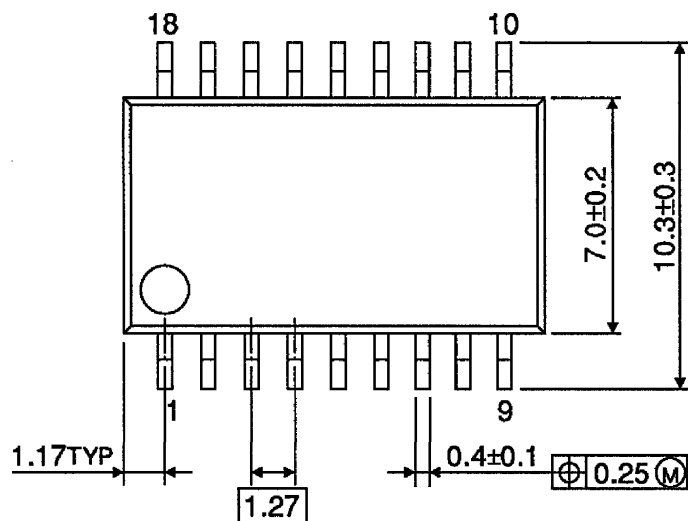
Unit : mm



Weight : 1.47g (Typ.)

OUTLINE DRAWING
SOP18-P-375-1.27

Unit : mm



Weight : 0.41g (Typ.)