

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

**TD62786AP, TD62786F, TD62786AF
TD62787AP, TD62787F, TD62787AF**

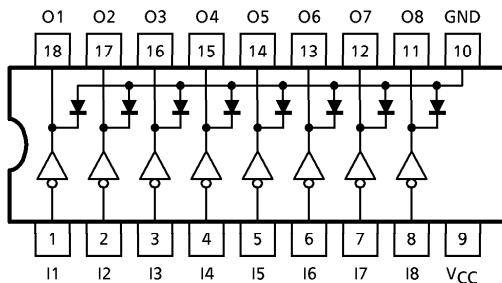
8CH HIGH-VOLTAGE SOURCE DRIVER

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

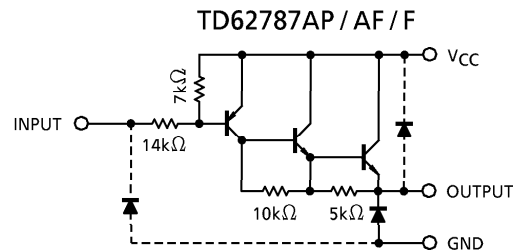
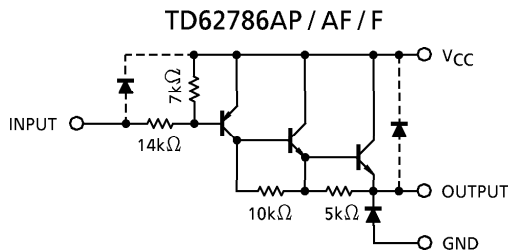
FEATURES

- 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

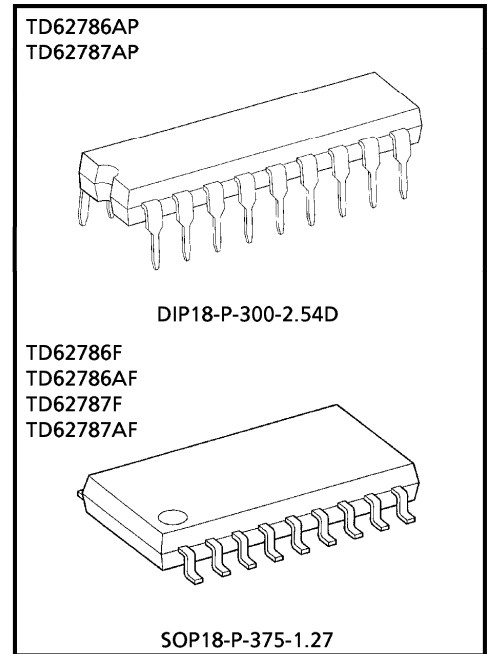
PIN CONNECTION (TOP VIEW)



SCHEMATICS (EACH DRIVER)



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



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} ~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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- The information contained herein is subject to change without notice.

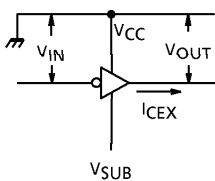
ELECTRICAL CHARACTERISTICS (Ta = 25°C, VCC = 0V)

CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current		ICEX	1	VOUT = VGND = -50V Ta = 85°C	—	—	-100	μA
Output Saturation Voltage		VCE (sat)	2	VIN = VIL MAX. IOUT = -100mA	—	—	-1.8	V
				VIN = VIL MAX. IOUT = -350mA	—	—	-2.0	
DC Current transfer Ratio		hFE	2	VCC = 0V, VCE = 3V IOUT = -350mA	1000	—	—	—
Input Voltage	"H" Level	TD62786	VIN	—	-1.2	—	0	V
		TD62787			-1.6	—	5.5	
	"L" Level	TD62786			-30	—	-2.8	
		TD62787			VGND	—	-3.7	
Input Current		IIL	—	VCC = 5.5V, VIN = 0.4V	—	—	-0.4	mA
Clamp Diode Reverse Current		IR	—	VR = VR MAX., Ta = 85°C	—	—	100	μA
Clamp Diode Forward Voltage		VF	—	—	—	—	2.0	V
Turn-On Delay		tON	5	VOUT = -50V, RL = 163Ω CL = 15pF (Note)	—	0.2	—	μs
Turn Off Delay		tOFF			—	1.0	—	

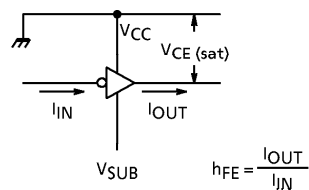
(Note) VOUT = -35V, RL = 116Ω for Type-F

TEST CIRCUIT

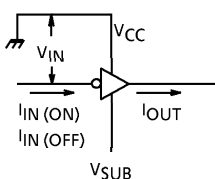
1. I_{CEX}



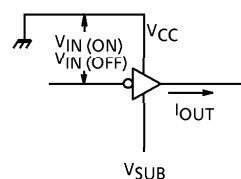
2. $V_{CE(sat)}$, h_{FE}



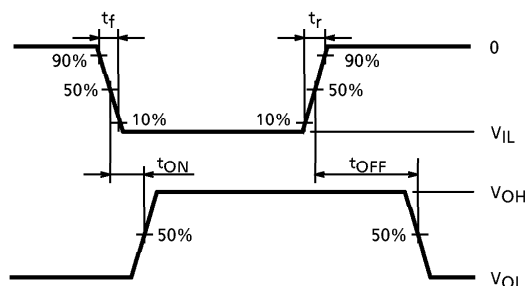
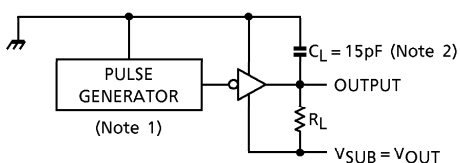
3. $I_{IN(ON)}$, $I_{IN(OFF)}$



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



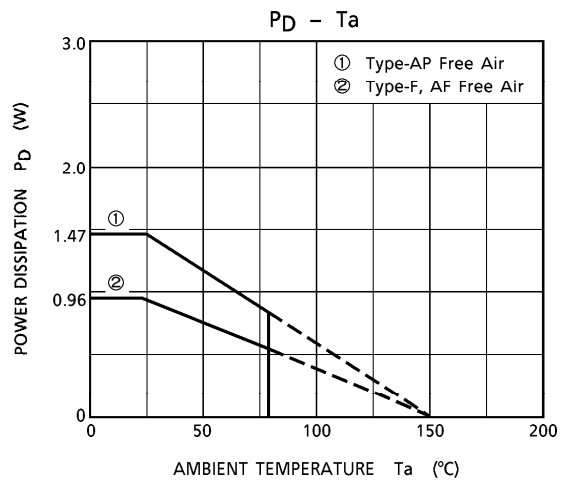
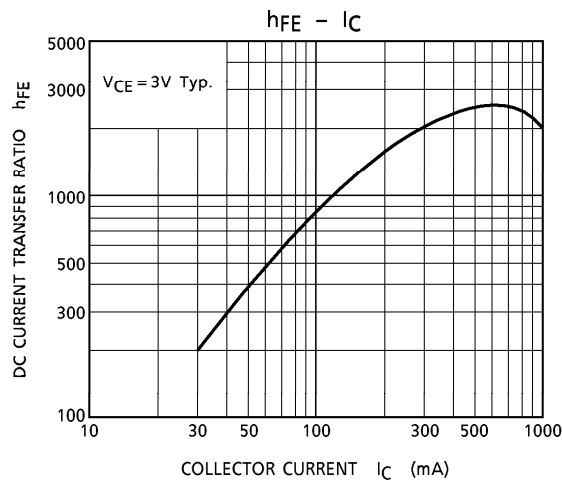
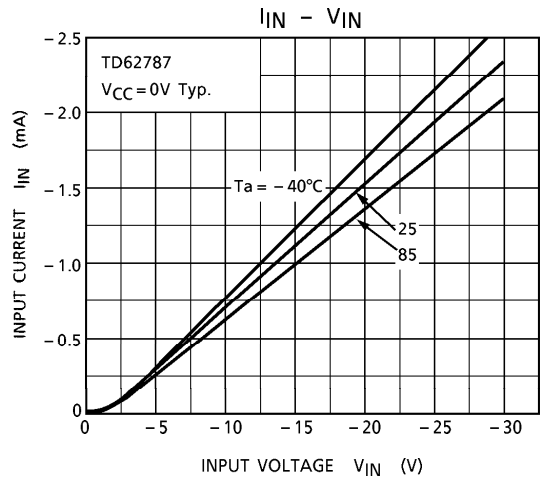
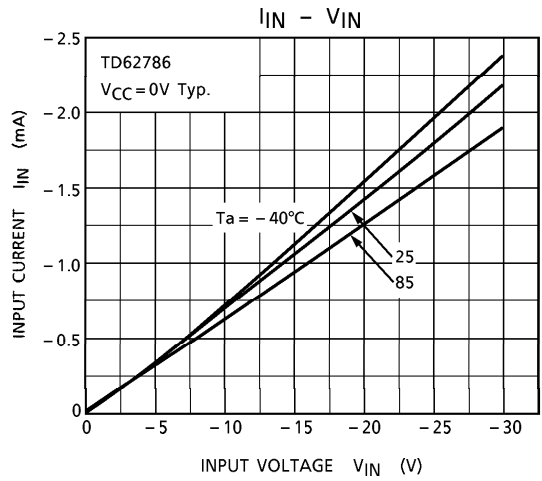
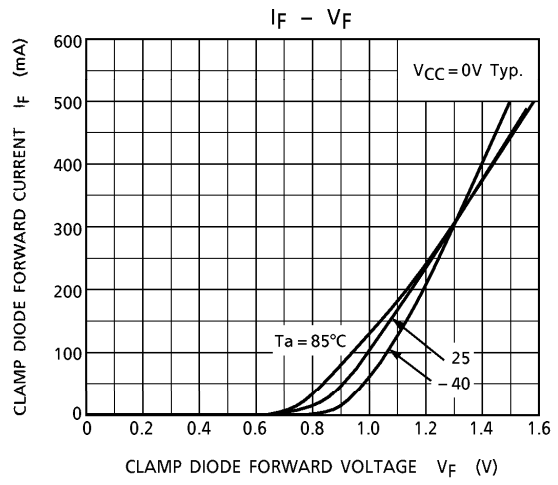
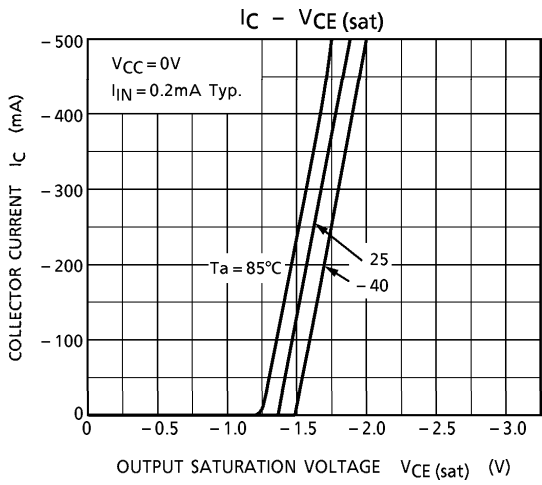
5. t_{ON} , t_{OFF}



- (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.

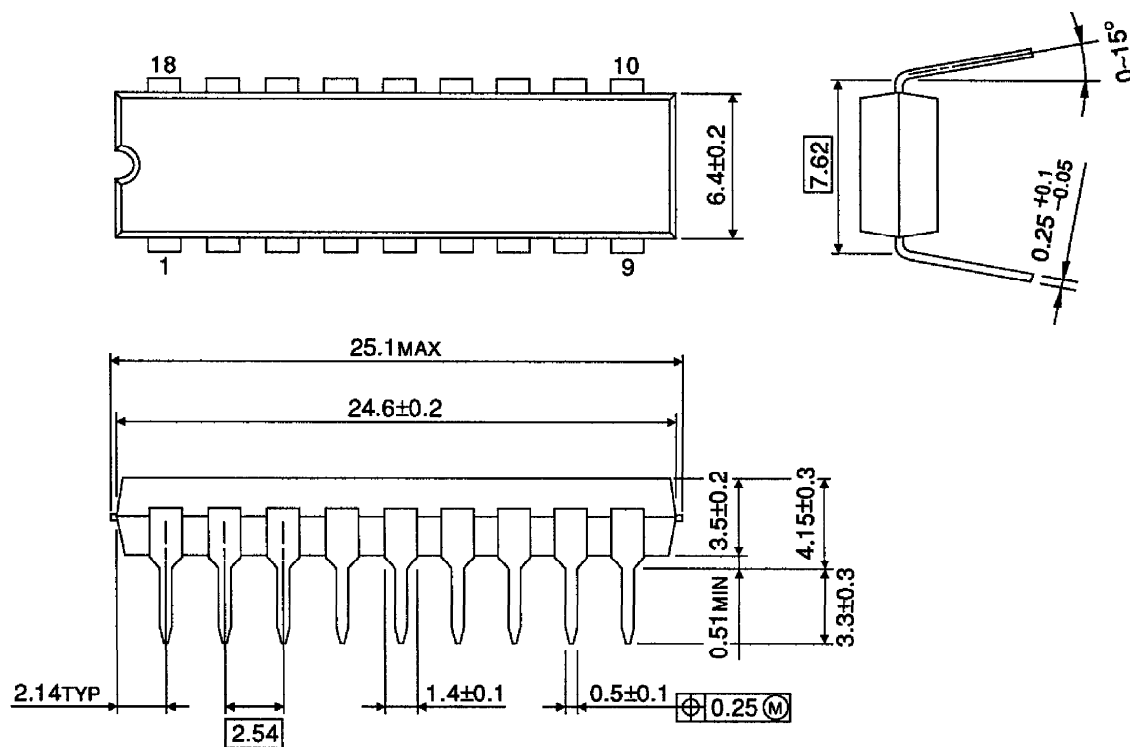
PRECAUTIONS for USING

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

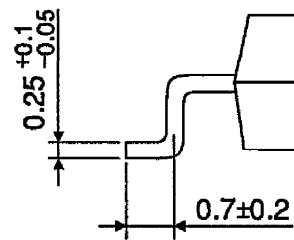
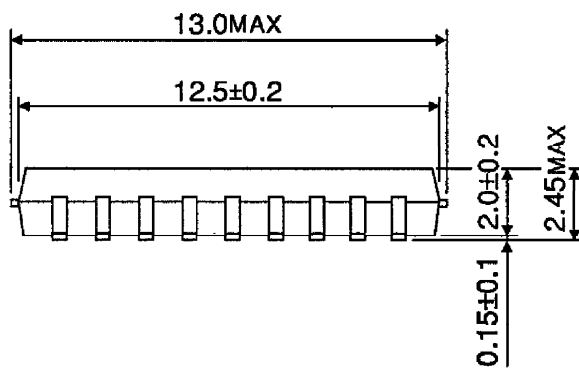
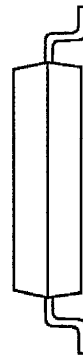
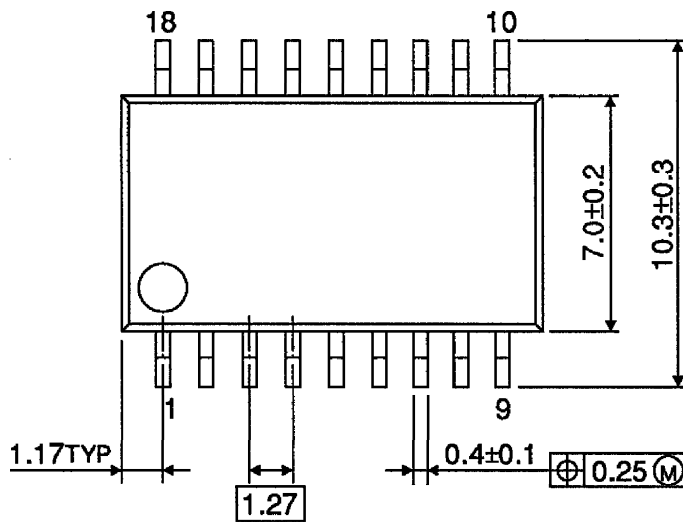
Unit : mm



Weight : 1.47g (Typ.)

OUTLINE DRAWING
SOP18-P-375-1.27

Unit : mm



Weight : 0.41g (Typ.)