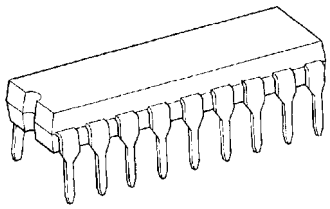
TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62783APA

8CH HIGH−VOLTAGE SOURCE DRIVER

The TD62783APA is comprised of eight source current transistor array.
These drivers are specifically designed for fluorescent display applications.
Applications include relay, hammer and lamp drivers.



DIP18-P-300-2.54F

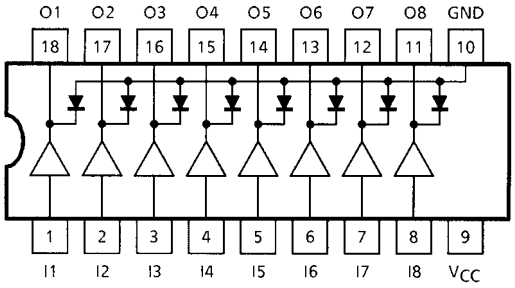
Weight: 1.478 g (Typ.)

FEATURES

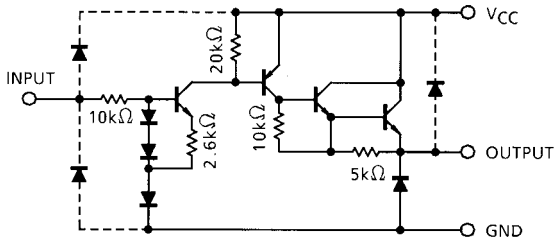
- High output voltage type−APA : $V_{CE\ (SUS)}$ = 50 V (Min)
- Output current (single output) : I_{OUT} = −500 mA / ch (Max)
- Output clamp diodes
- Single supply voltage
- Input compatible with TTL, 5 V CMOS
- Package type : DIP−18 pin

TYPE	DESIGNATION
TD62783APA	TTL, 5 V 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}	15	V
Clamp Diode Reverse Voltage	V_R	50	V
Clamp Diode Forward Current	I_F	500	mA
Power Dissipation	P_D (Note)	1.47	W
Operating Temperature	T_{opr}	−40~85	°C
Storage Temperature	T_{stg}	−55~150	°C

Note: Delated above 25°C in the proportion of 11.7 mW / °C.

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

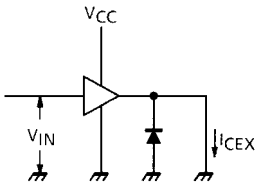
CHARACTERISTIC		SYMBOL	CONDITION	MIN	TYP.	MAX	UNIT
Supply Voltage		V_{CC}	—	—	—	50	V
Output Current		I_{OUT}	T_{pw} = 25 ms, Duty = 8% 8 Circuits	—	—	−400	mA / ch
			T_{pw} = 25 ms, Duty = 25% 8 Circuits	—	—	−200	
Input Voltage		V_{IN}	—	—	—	12	V
Input Voltage	Output On	$V_{IN\ (ON)}$	—	2.0	5.0	15	V
	Output Off	$V_{IN\ (OFF)}$	—	0	—	0.8	V
Clamp Diode Reverse Voltage		V_R	—	—	—	50	V
Clamp Diode Forward Current		I_F	—	—	—	400	mA
Power Disspation		P_D	—	—	—	0.52	W

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

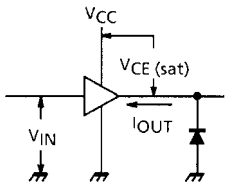
CHARACTERISTIC	SYMBOL	TEST CIR−CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Output Leakage Current	I_{CEX}	1	V_{CC} = V_{CC} MAX., V_{IN} = 0.4 V Ta = 25°C	—	—	100	μA
Output Saturation Voltage	$V_{CE\ (sat)}$	2	V_{IN} = $V_{IN\ (ON)}$, I_{OUT} = −350 mA	—	—	2.0	V
			V_{IN} = $V_{IN\ (ON)}$, I_{OUT} = −225 mA	—	—	1.9	
			V_{IN} = $V_{IN\ (ON)}$, I_{OUT} = −100 mA	—	—	1.8	
Input Current	$I_{IN\ (ON)}$	3	V_{IN} = 2.4 V	—	36	52	μA
			V_{IN} = 3.85 V	—	180	260	
Input Voltage	$V_{IN\ (ON)}$	4	V_{CE} = 2.0 V, I_{OUT} = −350 mA	—	—	2.0	V
	$V_{IN\ (OFF)}$		I_{OUT} = −500 μA	0.8	—	—	
Supply Current	$I_{CC\ (ON)}$	3	V_{IN} = $V_{IN\ (ON)}$, V_{CC} = 50 V	—	—	2.5	mA / ch
Clamp Diode Leakage Current	I_R	5	V_R = 50 V	—	—	50	μA
Clamp Diode Forward Voltage	V_F	6	I_F = 350 mA	—	—	2.0	V
Turn−On Delay	t_{ON}	7	V_{CC} = $V_{CC\ MAX.}$, R_L = 125 Ω C_L = 15 pF	—	0.15	—	μs
Turn−Off Delay	t_{OFF}			—	1.8	—	

TEST CIRCUIT

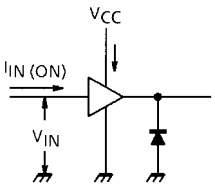
1. I_{CEX}



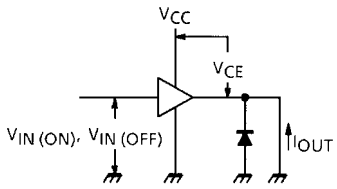
2. $V_{CE\ (sat)}$



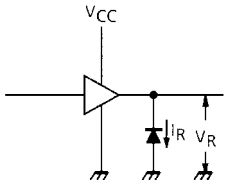
3. $I_{IN\ (ON)}$, I_{CC}



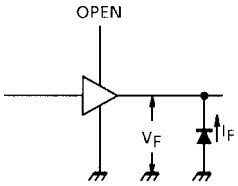
4. $V_{IN\ (ON)}$, $V_{IN\ (OFF)}$



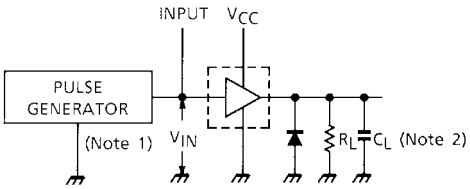
5. I_R

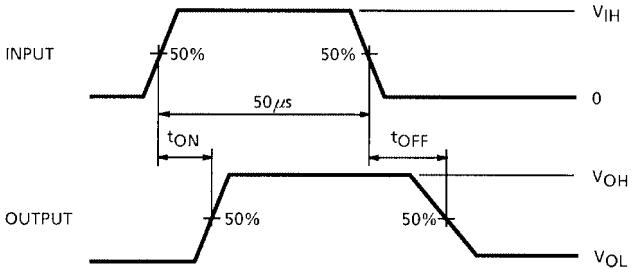


6. V_F



7. t_{ON}, t_{OFF}



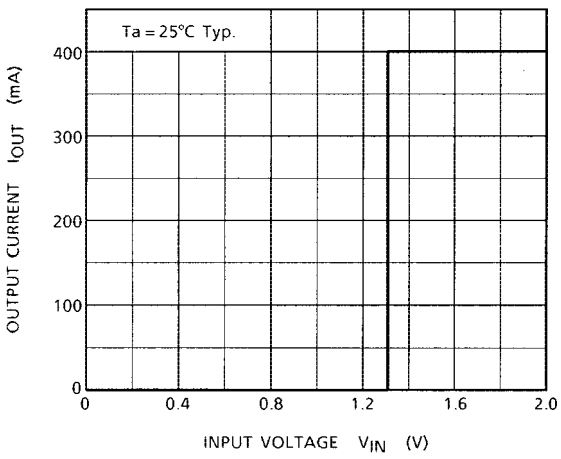


Note 1: Pulse Width 50 μs, Duty Cycle 10%
Output Impedance 50 Ω, $t_r \leq 5$ ns, $t_f \leq 10$ ns
Note 2: C_L includes probe and jig capacitance.

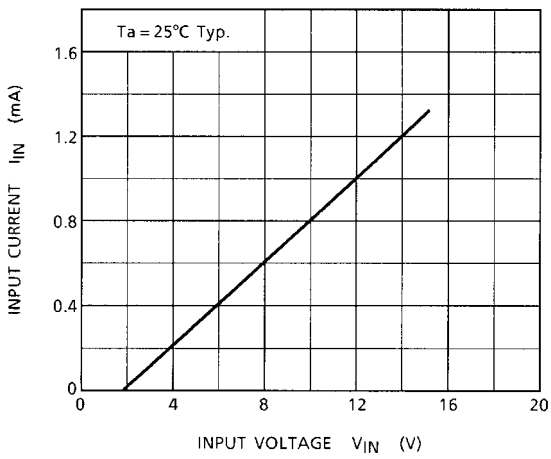
PRECAUTIONS for USING

This IC does not integrate protection circuits such as overcurrent and overvoltage protectors.
Thus, if excess current or voltage is applied to the IC, the IC may be damaged. Please design the IC so that excess current or voltage will not be applied to the IC.
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.

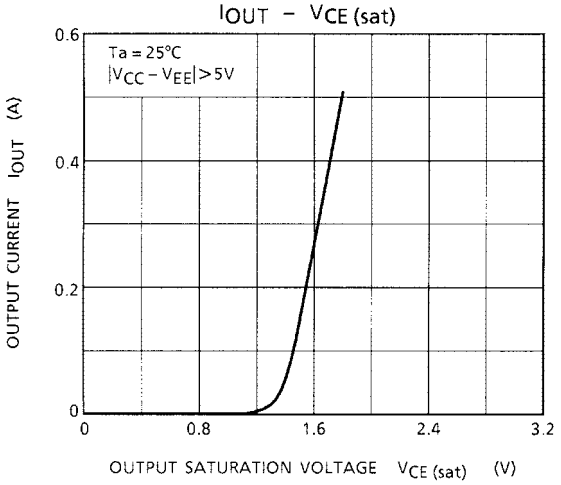
I_{OUT} – V_{IN}



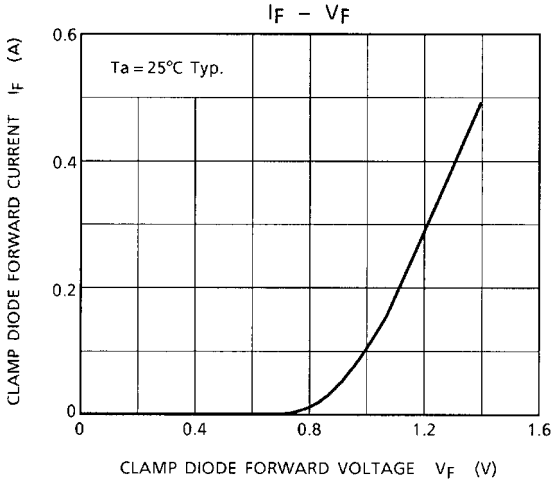
I_{IN} – V_{IN}



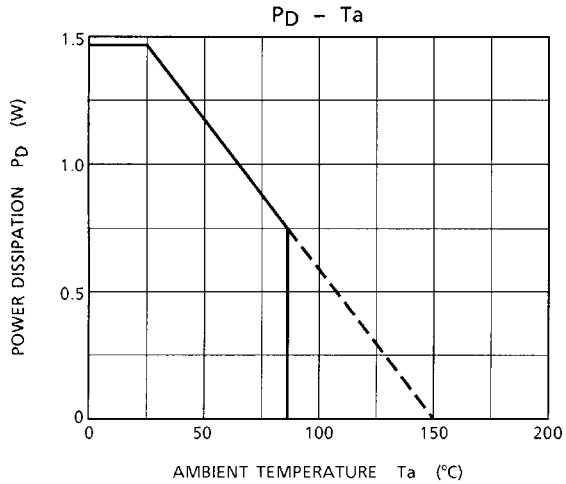
I_{OUT} – $V_{CE\ (sat)}$



I_F – V_F

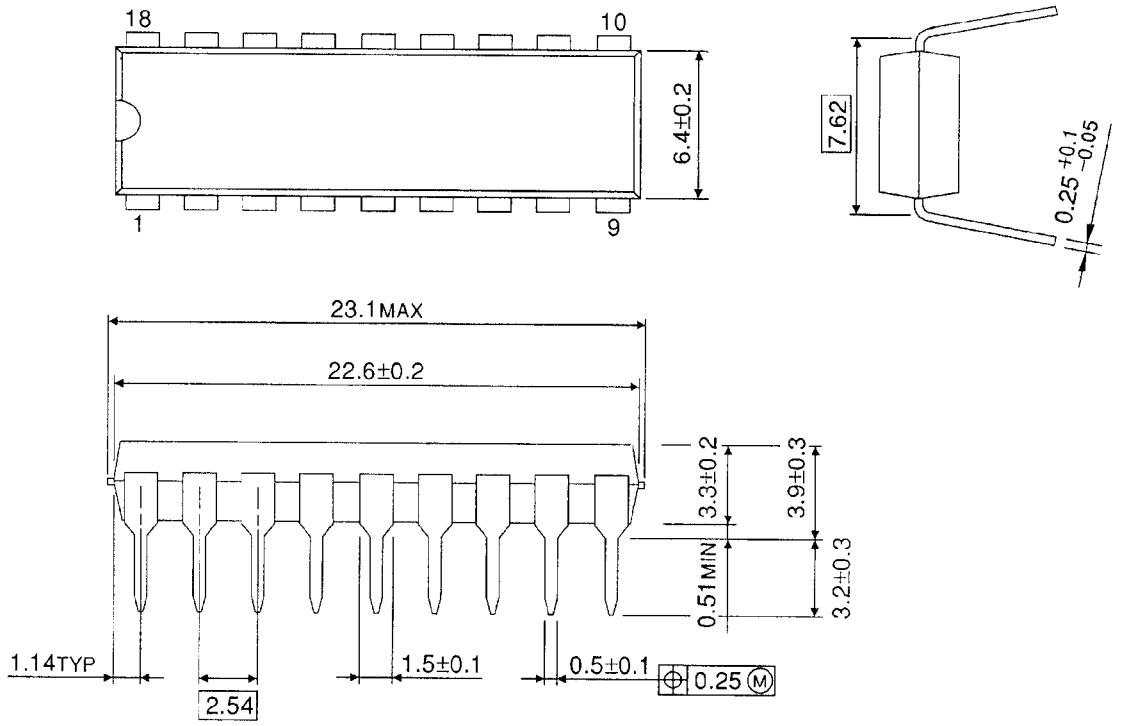


P_D – Ta



PACKAGE DIMENSIONS

DIP18−P−300−2.54F Unit: mm



Weight: 1.478 g (Typ.)

RESTRICTIONS ON PRODUCT USE

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