

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62083APA

8CH DARLINGTON SINK DRIVER

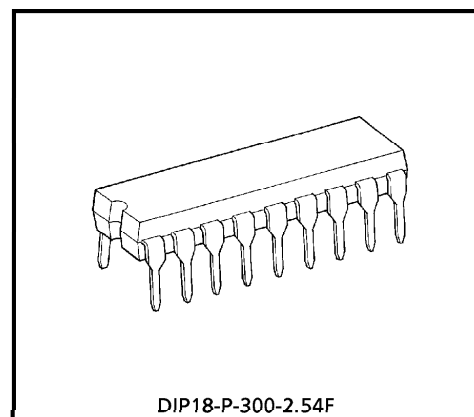
The TD62083APA is high-voltage, high-current darlington drivers comprised of eight NPN darlington pairs.

All units feature integral clamp diodes for switching inductive loads.

Applications include relay, hammer, lamp and display (LED) drivers.

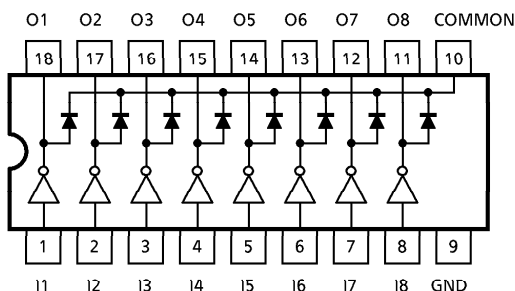
FEATURES

- Output current (single output) 500mA MAX.
- High sustaining voltage output 50V MIN.
- Output clamp diodes
- Inputs resistor : $R_{IN} = 2.7k\Omega$ Typ.
- Inputs compatible with TTL, 5V CMOS
- Package Type-AP : DIP-18pin

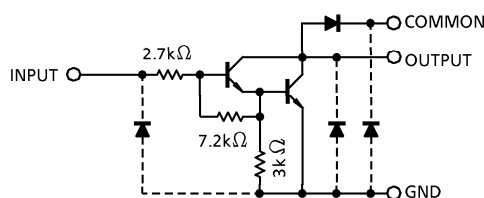


Weight : 1.478g (Typ.)

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 RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Output Sustaining Voltage	V _{CE(SUS)}	-0.5~50	V
Output Current	I _{OUT}	500	mA / ch
Input Voltage	V _{IN}	-0.5~30	V
Clamp Diode Reverse Voltage	V _R	50	V
Clamp Diode Forward Current	I _F	500	mA
Power Dissipation	P _D	1.47	W
Operating Temperature	T _{opr}	-40~85	°C
Storage Temperature	T _{stg}	-55~150	°C

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

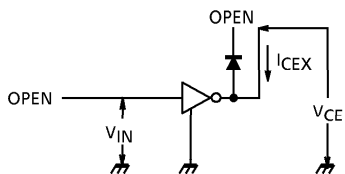
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Output Sustaining Voltage	V _{CE(SUS)}		0	—	50	V	
Output Current	I _{OUT}	DC 1 Circuit, Ta = 25°C	0	—	400	mA / ch	
		T _{pw} = 25ms, 8 Circuits Ta = 85°C, T _j = 120°C	Duty = 10%	0	—		347
			Duty = 50%	0	—		123
Input Voltage	V _{IN}		0	—	30	V	
Input Voltage	Output On	V _{IN(ON)}	2.5	—	30	V	
	Output Off	V _{IN(OFF)}	0	—	0.5		
Clamp Diode Reverse Voltage	V _R		—	—	50	V	
Clamp Diode Forward Current	I _F		—	—	400	mA	
Power Dissipation	P _D		—	—	0.52	W	

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

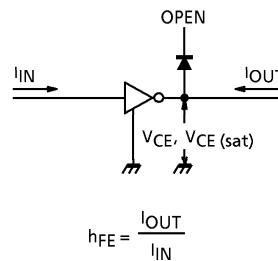
CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Output Leakage Current	I _{CEX}	1	V _{CE} = 50V, Ta = 25°C	—	—	50	μA	
			V _{CE} = 50V, Ta = 85°C	—	—	100		
Collector-Emitter Saturation Voltage	V _{CE (sat)}	2	I _{OUT} = 350mA, I _{IN} = 500μA	—	1.3	1.6	V	
			I _{OUT} = 200mA, I _{IN} = 350μA	—	1.1	1.3		
			I _{OUT} = 100mA, I _{IN} = 250μA	—	0.9	1.1		
DC Current Transfer Ratio	h _{FE}	2	V _{CE} = 2V, I _{OUT} = 350mA	1000	—	—		
Input Current	Output On	I _{IN (ON)}	3	V _{IN} = 3.85V	—	0.93	1.35	mA
	Output Off	I _{IN (OFF)}	4	I _{OUT} = 500μA, Ta = 85°C	50	65	—	μA
Input Voltage	Output On	V _{IN (ON)}	5	V _{CE} = 2V, I _{OUT} = 250mA	—	—	2.7	V
			V _{CE} = 2V, I _{OUT} = 300mA	—	—	3.0		
Clamp Diode Reverse Current	I _R	6	V _R = 50V, Ta = 25°C	—	—	50	μA	
			V _R = 50V, Ta = 85°C	—	—	100		
Clamp Diode Forward Voltage	V _F	7	I _F = 350mA	—	—	2.0	V	
Input Capacitance	C _{IN}	—		—	15	—	pF	
Turn-On Delay	t _{ON}	8	V _{OUT} = 50V, R _L = 125Ω,	—	0.1	—	μs	
Turn-Off Delay	t _{OFF}	8	C _L = 15pF	—	0.2	—		

TEST CIRCUIT

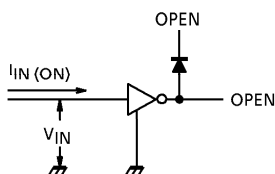
1. I_{CEX}



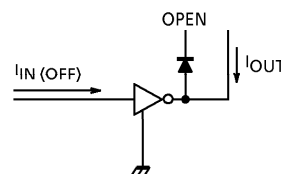
2. V_{CE (sat)}, h_{FE}



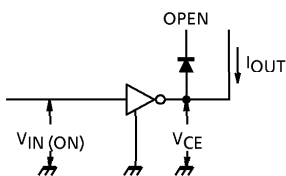
3. I_{IN (ON)}



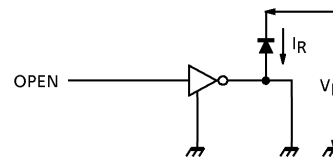
4. I_{IN (OFF)}



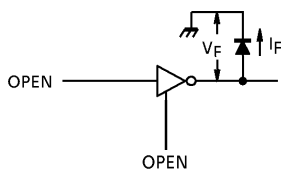
5. $V_{IN(ON)}$



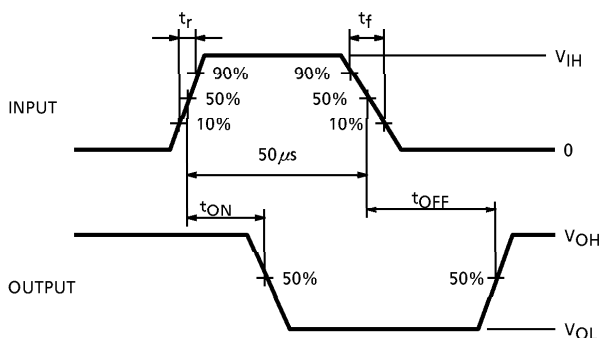
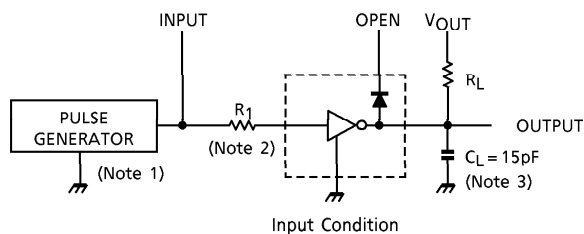
6. I_R



7. V_F



8. t_{ON}, t_{OFF}



(Note 1) Pulse width $50\mu s$, duty cycle 10%
Output impedance 50Ω , $t_r \leq 5ns$, $t_f \leq 10ns$

(Note 2) See below

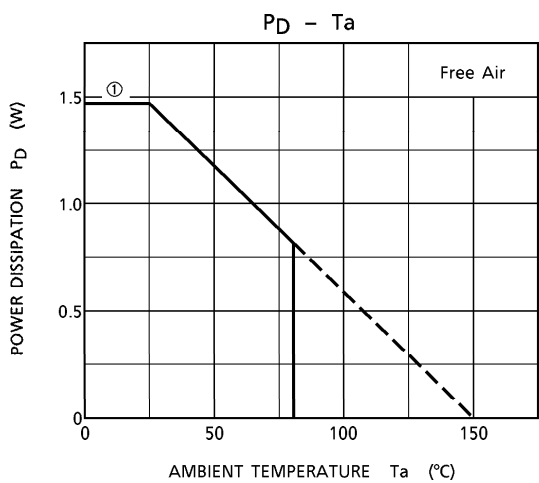
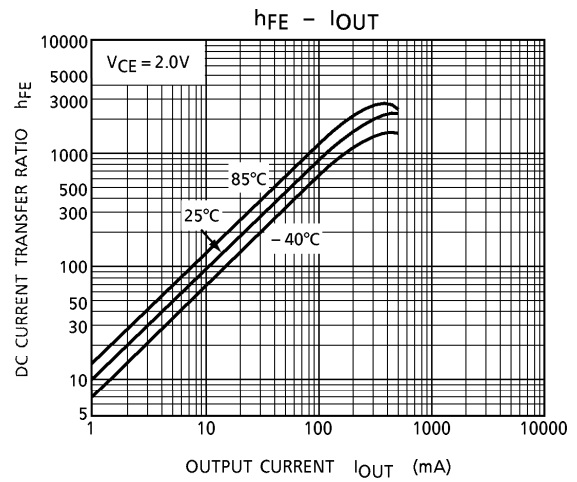
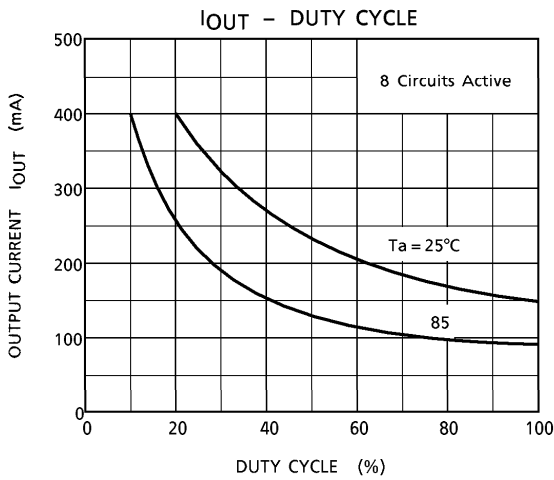
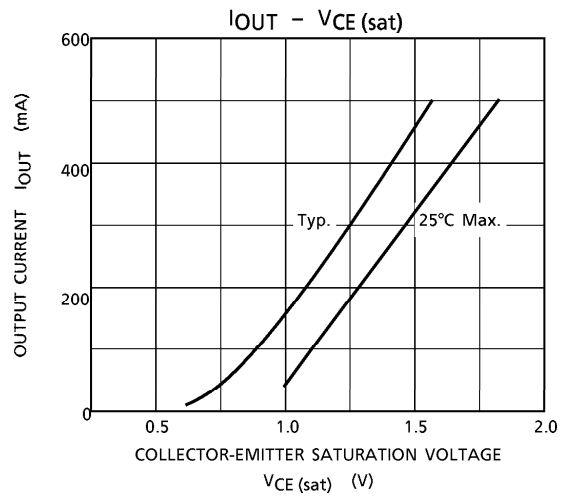
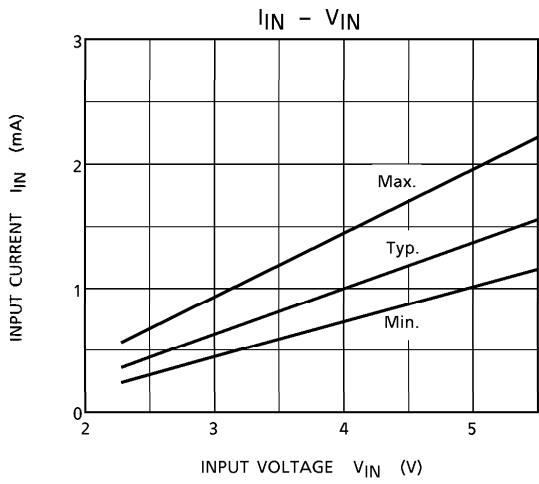
INPUT CONDITION

TYPE NUMBER	R_{IN}	V_{IH}
TD62083APA	0	3V

(Note 3) C_L includes probe and jig capacitance.

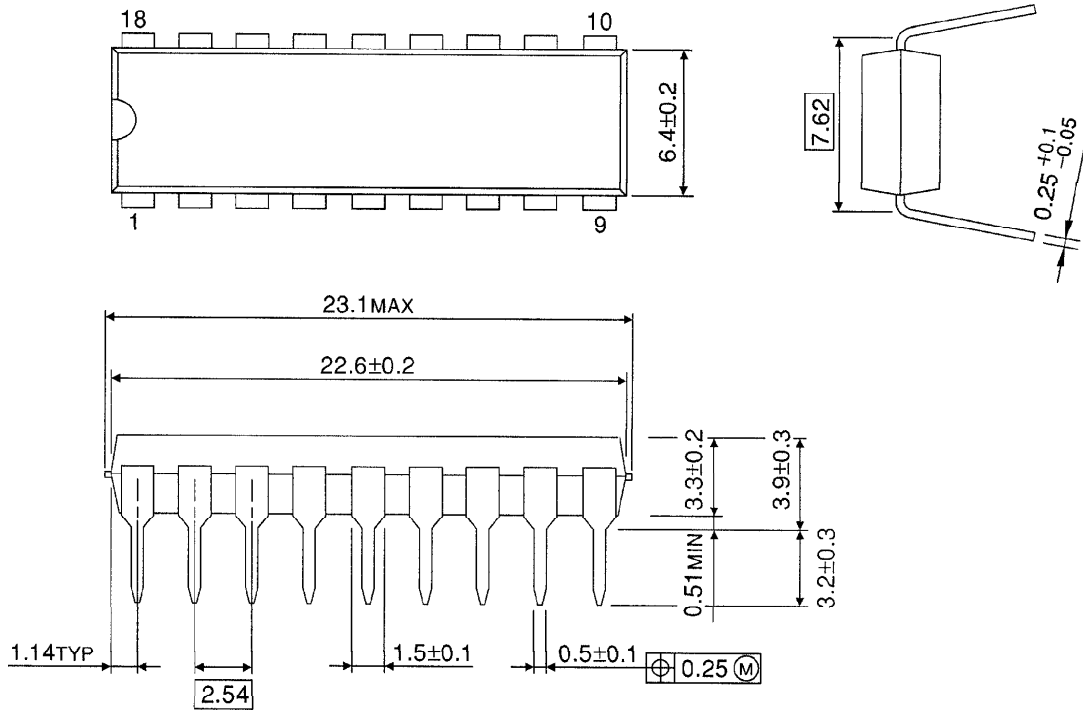
PRECAUTIONS for USING

Utmost care is necessary in the design of the output line, COMMON 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-300-2.54F

Unit : mm



Weight : 1.478g (Typ.)