

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62308APA

4CH LOW INPUT ACTIVE HIGH-CURRENT DARLINGTON SINK DRIVER

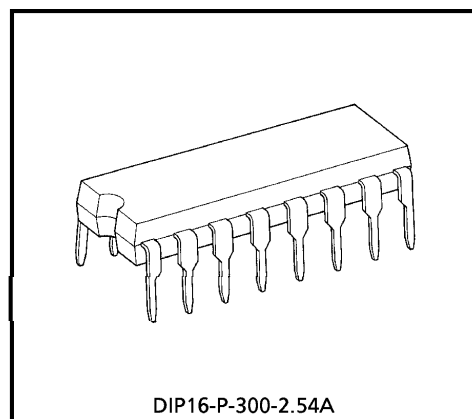
The TD62308APA is non-inverting transistor array which is comprised of four NPN darlington output stages and PNP input stages.

This device is low level input active driver and is suitable for operation with TTL, 5V CMOS and 5V Microprocessor which have sink current output drivers.

Applications include relay, hammer, lamp and stepping moter drivers.

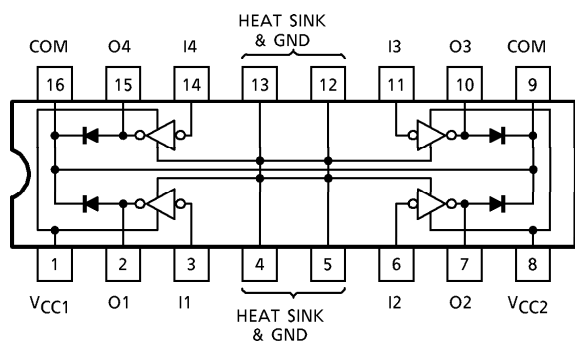
FEATURES

- Output current (single output) 1.5A (Max.)
- High sustaining voltage output 50V (Min.)
- Output clamp diodes
- Input compatible with TTL and 5V CMOS
- Low level active inputs
- Standard supply voltage
- Two V_{CC} terminals V_{CC1}, V_{CC2} (Separated)
- GND and SUB terminal = Heat Sink
- Package type-APA : DIP-16 pin

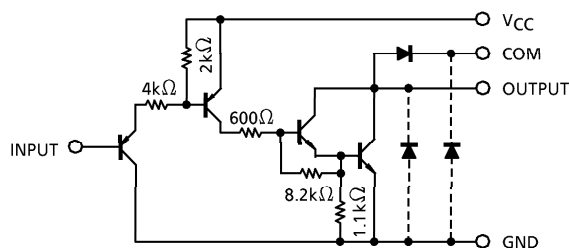


Weight : 1.11g (Typ.)

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
Supply Voltage	V _{CC}	-0.5~10	V
Output Sustaining Voltage	V _{CE(SUS)}	-0.5~50	V
Output Current	I _{OUT}	1.5	A / ch
Input Current	I _{IN}	-10	mA
Input Voltage	V _{IN}	-0.5~30	V
Clamp Diode Reverse Voltage	V _R	50	V
Clamp Diode Forward Current	I _F	1.5	A
Power Dissipation	P _D (Note)	1.47 / 2.7	W
Operating Temperature	T _{opr}	-40~85	°C
Storage Temperature	T _{stg}	-55~150	°C

(Note) On Glass Epoxy PCB (50×50×1.6mm Cu 50%)

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

CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	
Supply Voltage	V _{CC}		4.5	—	5.0	V	
Output Sustaining Voltage	V _{CE(SUS)}		0	—	50	V	
Output Current	I _{OUT}	DC 1 Circuit Ta = 25°C	0	—	1250	mA / ch	
		T _{pw} = 25ms 4 Circuits Ta = 85°C T _j = 120°C	Duty = 10%	0	—		1250
			Duty = 50%	0	—		700
Input Voltage	V _{IN}		0	—	25	V	
	Output On	V _{IN(ON)}	0	—	V _{CC} -3.6		
	Output Off	V _{IN(OFF)}	V _{CC} -1.0	—	V _{CC}		
Clamp Diode Reverse Voltage	V _R		—	—	50	V	
Clamp Diode Forward Current	I _F		—	—	1.25	A	
Power Dissipation	P _D	Ta = 85°C (Note)	—	—	1.4	W	

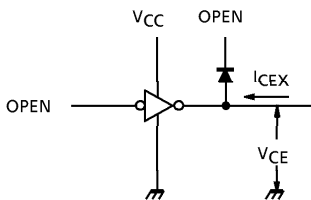
(Note) On Glass Epoxy (50×50×1.6mm Cu 50%)

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

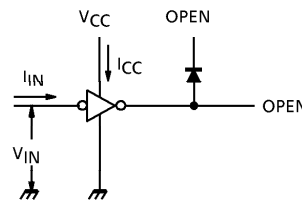
CHARACTERISTIC		SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current		I _{CEX}	1	V _{CE} = 50V, Ta = 25°C	—	—	50	μA
				V _{CE} = 50V, Ta = 85°C	—	—	100	
Output Saturation Voltage		V _{CE (sat)}	3	I _{OUT} = 1.25A	—	—	1.8	V
				I _{OUT} = 0.7A	—	—	1.3	
Input Voltage	"H" Level	V _{IH}	—		V _{CC} - 1.6	—	25	V
	"L" Level	V _{IL}						
Input Current	"H" Level	I _{IH}	2		—	—	10	μA
	"L" Level	I _{IL}						
Clamp Diode Reverse Current		I _R	4	V _R = 50V, Ta = 25°C	—	—	50	μA
				V _R = 50V, Ta = 85°C	—	—	100	
Clamp Diode Forward Voltage		V _F	5	I _F = 1.25A	—	1.5	2.0	V
Supply Current	Output On	I _{CC (ON)}	2	V _{CC} = 5.5V, V _{IN} = 0V	—	8.5	12.5	mA / ch
	Output Off	I _{CC (OFF)}		V _{CC} = 5.5V, V _{IN} = V _{CC}	—	—	10	μA
Turn-On Delay		t _{ON}	6	C _L = 15pF, V _{OUT} = 50V R _L = 40Ω	—	0.2	—	μs
Turn-Off Delay		t _{OFF}			—	5.0	—	

TEST CIRCUIT

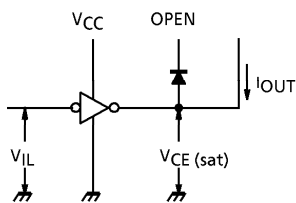
1. I_{CEX}



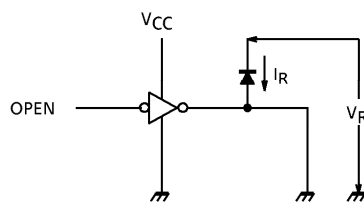
2. I_{CC}



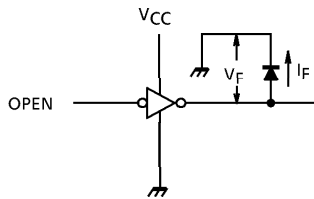
3. V_{CE (sat)}



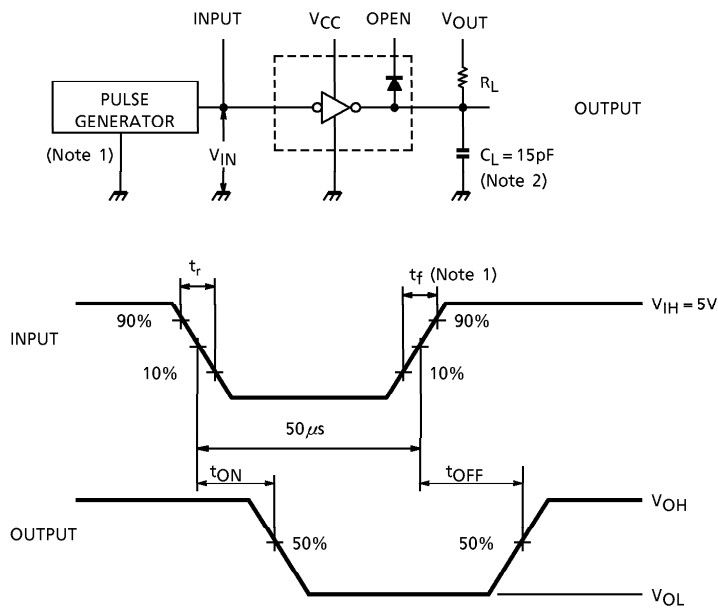
4. I_R



5. V_F



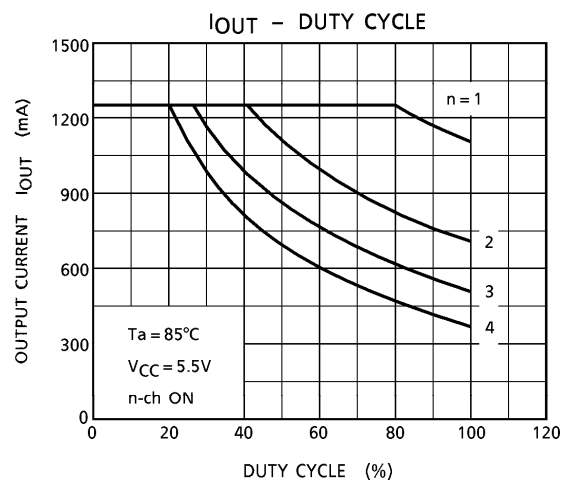
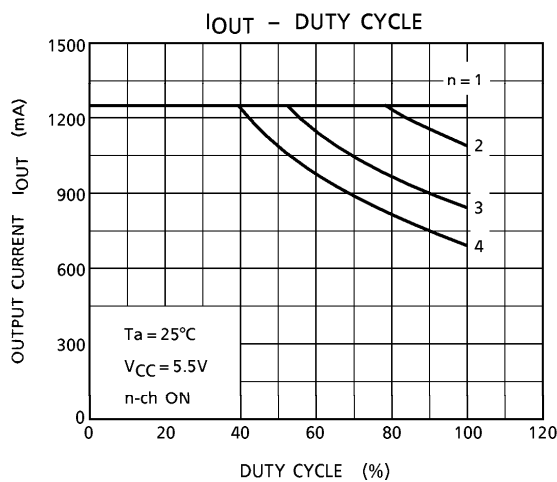
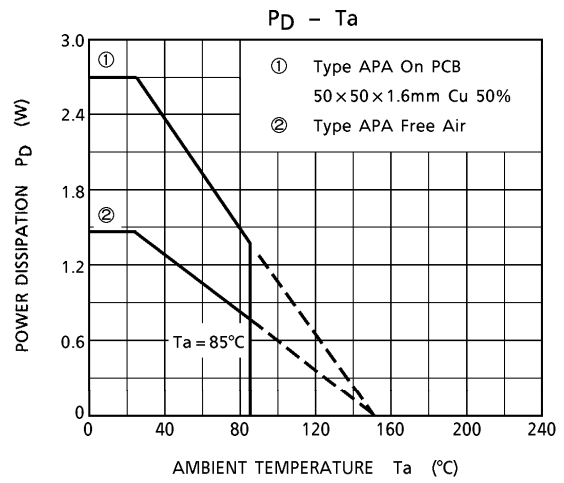
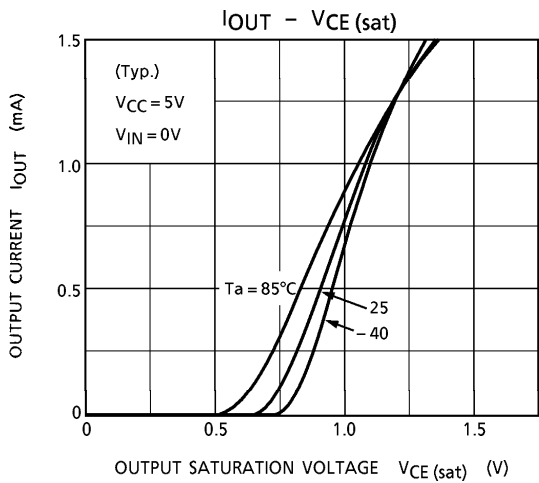
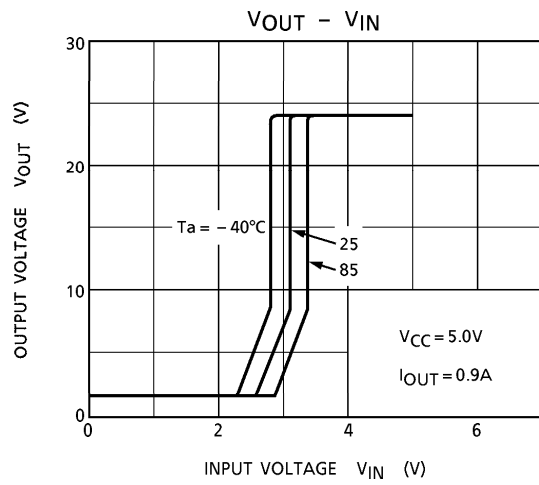
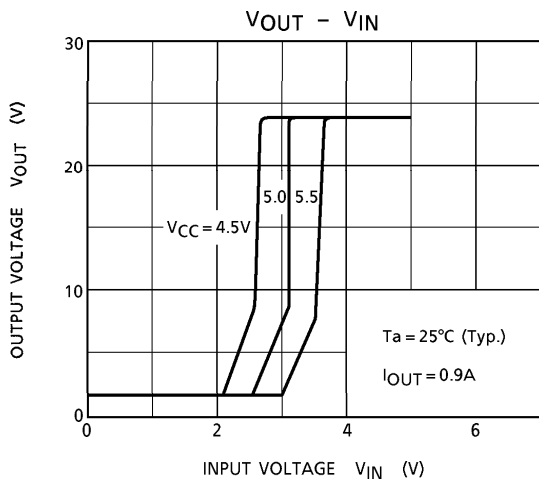
6. t_{ON} , t_{OFF}



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

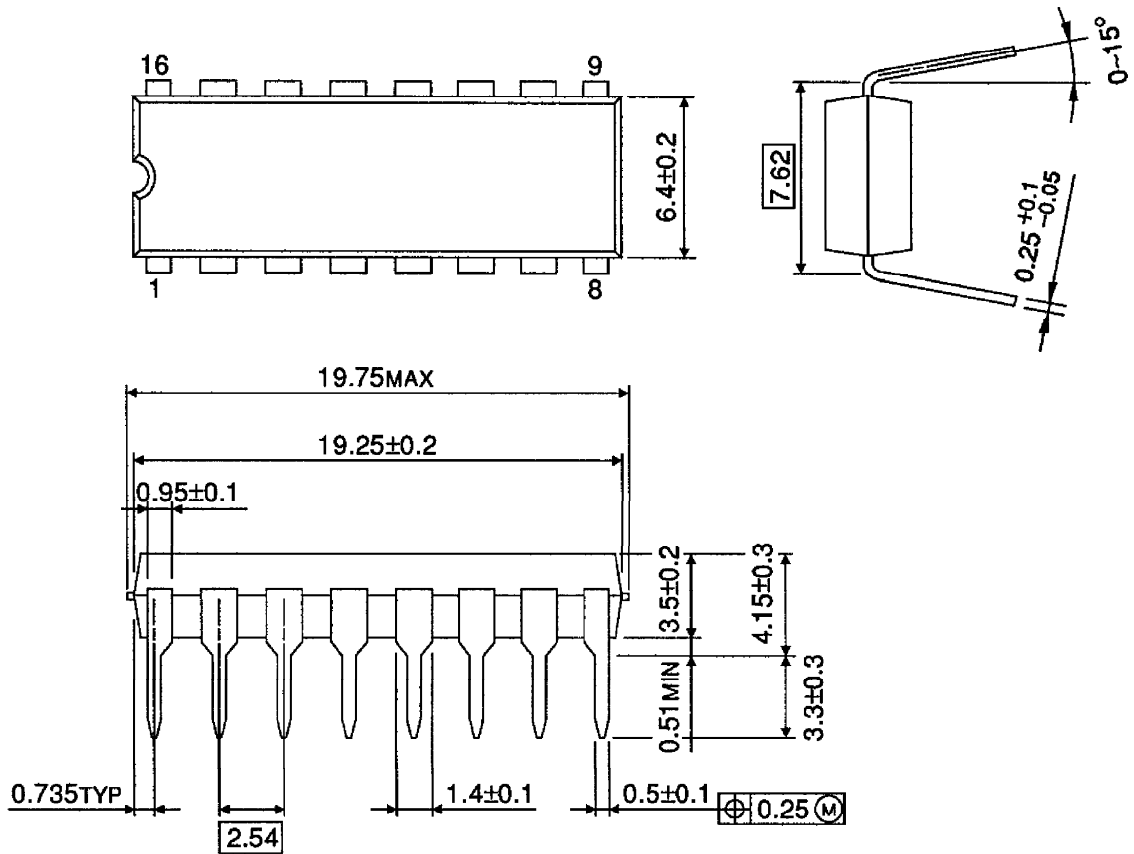
PRECAUTIONS for USING

Utmost care is necessary in the design of the output line, V_{CC} , 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
DIP16-P-300-2.54A

Unit : mm



Weight : 1.11g (Typ.)