

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62707AP

4CH HIGH-VOLTAGE SOURCE DRIVER WITH ENABLE

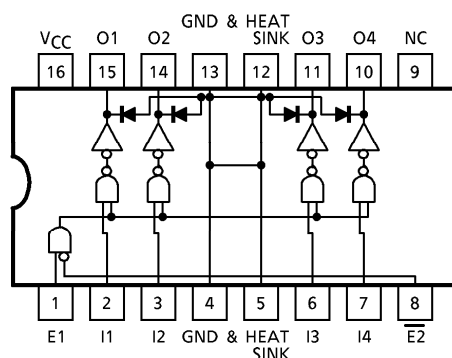
The TD62707AP is comprised of four source current output stages and enable inputs which can gate the outputs. All outputs feature integral clamp diodes for switching inductive loads.

Applications include relay, hammer and lamp drivers.

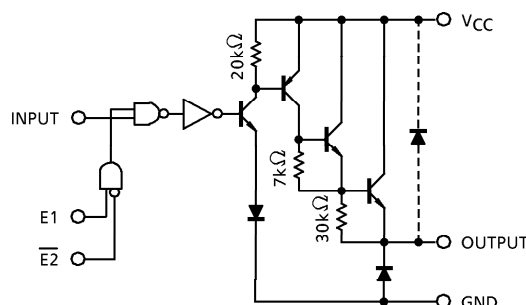
FEATURES

- High output voltage $V_{CC}-V_{OUT}=50V$ MIN.
- Output current (single output) $I_{OUT} = -750mA$ MIN.
- Input compatible with TTL, 5V CMOS
- Output clamp diodes
- Enable inputs $E1, \bar{E2}$
- GND terminal = HEAT SINK
- Package type-AP : DIP-16pin

PIN CONNECTION (TOP VIEW)



SCHEMATICS (EACH DRIVER)



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

961001EBA2

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TRUTH TABLE

E1	$\overline{E2}$	IN1~4	OUT1~4
H	H	H	OFF
H	L	H	ON
L	H	H	OFF
H	H	L	OFF
L	L	H	OFF
L	L	L	OFF
H	L	L	OFF

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V _{CC}	50	V
Output Voltage	V _{OUT}	– 50	V
Output Current	I _{OUT}	– 0.75	A / ch
Input Voltage	V _{IN1}	– 0.5~15	V
	V _{IN2} (Note 1)	– 0.5~V _{CC}	
Clamp Diode Reverse Voltage	V _R	50	V
Clamp Diode Forward Current	I _F	– 0.75	A
Power Dissipation	P _D	1.47 / 2.7 (Note 2)	W
Operating Temperature	T _{opr}	– 40~85	°C
Storage Temperature	T _{stg}	– 55~150	°C

(Note 1) V_{CC} ≤ 15V

(Note 2) On 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}	—	—	—	50	V
Output Voltage	V _{OUT}	—	0	—	– 50	V
Output Current	I _{OUT} (Note)	DC 1 Circuits, Ta = 25°C	0	—	– 600	mA / ch
		T _{pw} = 25ms, 4 Circuits	0	—	– 600	
		Ta = 85°C, T _j = 120°C	0	—	– 160	
Input Voltage	"H" level	V _{IN}	0	—	15	V
		V _{IH1}	2.0	—	15	
		V _{IH2}	2.0	—	V _{CC}	
		V _{IL}	0	—	0.8	
Clamp Diode Reverse Voltage	V _R	—	—	—	50	V
Clamp Diode Forward Current	I _F	—	—	—	600	mA
Power Dissipation	P _D	Ta = 85°C (Note)	—	—	1.2	W

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

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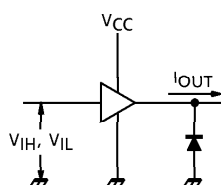
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ELECTRICAL CHARACTERISTICS (Ta = 25°C unless otherwise noted V_{CC} = 50V, "H" = V_{IH}, "L" = V_{IL})

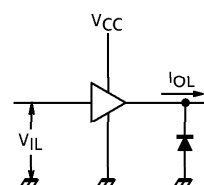
CHARACTERISTIC			SYMBOL	TEST CIR- CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Voltage	“H” level		V _{IH}	1	—	2.0	—	—	V
	“L” level		V _{IL}			—	—	0.8	
Input Current	“H” level	I _N	I _{IH}	4	V _I N = H	—	70	100	μA
		E1			V _E 1 = H	—	0	10	
		E2			V _E 2 = H	—	66	100	
Input Current	“L” level	I _N	I _{IL}	5	V _I N = L	—	− 40	− 100	μA
		E1			V _E 1 = L	—	− 20	− 50	
		E2			V _E 2 = H	—	− 40	− 100	
Output Leakage Current			I _{OL}	2	V _{CC} = 50V, OUTPUT OFF	—	—	100	μA
Supply Current			I _{CCH}	4	V _I N = H, V _E 1 = H V _E 2 = L, OUTPUT OPEN	—	5.5	7.0	mA
			I _{CCL}	5	V _I N = L, V _E 1 = H V _E 2 = L, OUTPUT OFF	—	5.5	7.0	
Output Voltage	“H” level		V _{OH}	3	V _I N = H, V _E 1 = “H” V _E 2 = L, I _{OUT} = − 500mA	V _{CC} − 2.5	V _{CC} − 2.0	—	V
Clamp Diode Reverse Current			I _R	6	V _R = 50V	—	—	100	μA
Clamp Diode Forward Voltage			V _F	7	I _F = 500mA	—	1.5	2.0	V
Turn-On Delay			t _{ON}	8	V _{CE} = 50V, R _L = 83Ω	—	0.5	—	μs
Turn-Off Delay			t _{OFF}			—	6.0	—	

TEST CIRCUIT

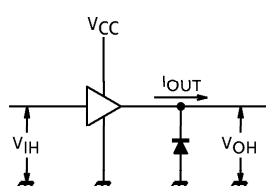
1. V_{IH} , V_{IL}



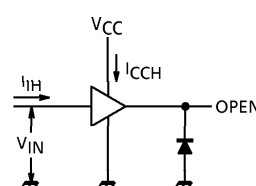
2. I_{OL}



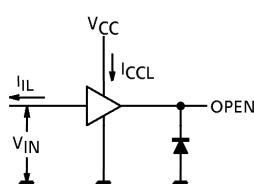
3. V_{OH}



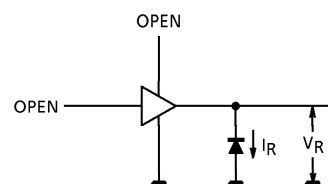
4. I_{IH} , I_{CCH}



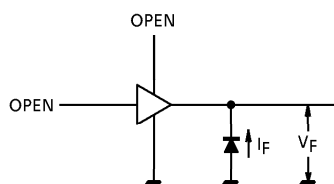
5. I_{IL} , I_{CCL}



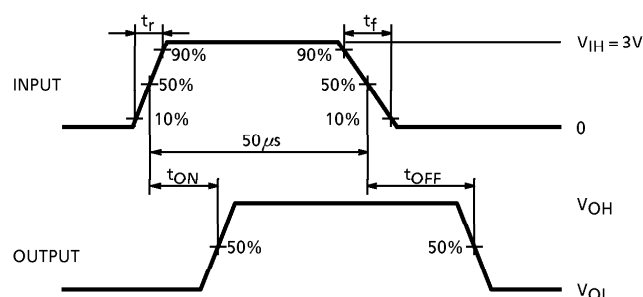
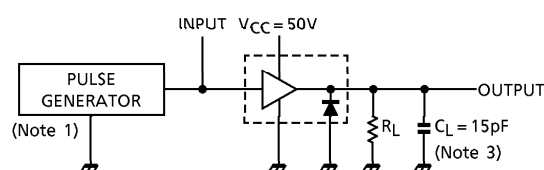
6. I_R



7. V_F



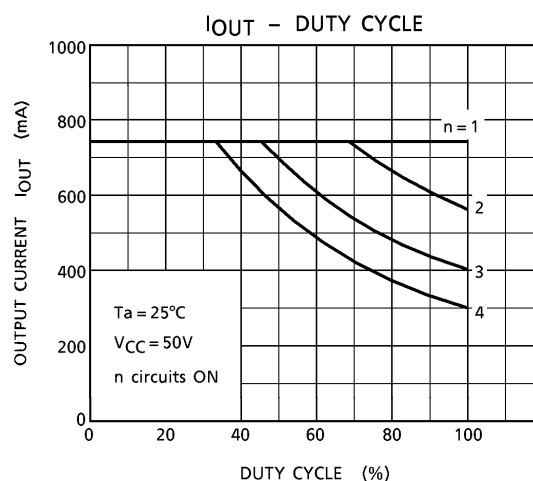
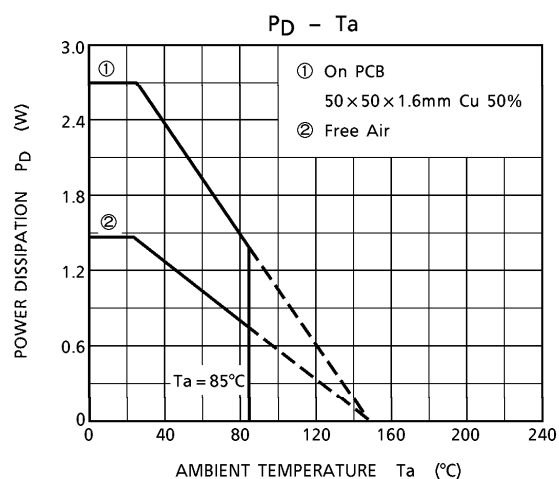
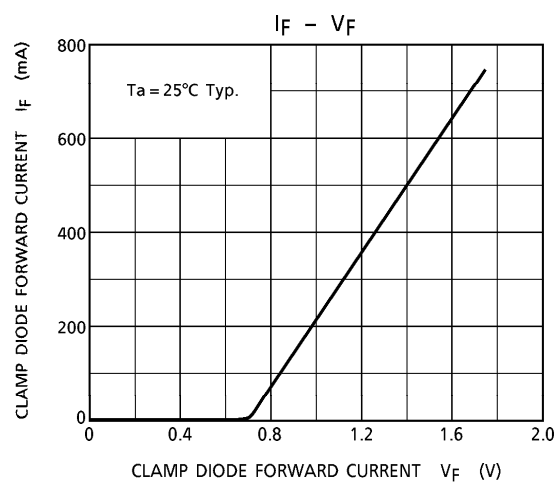
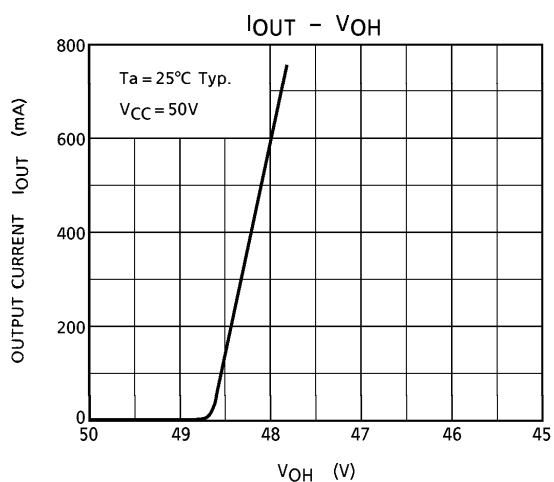
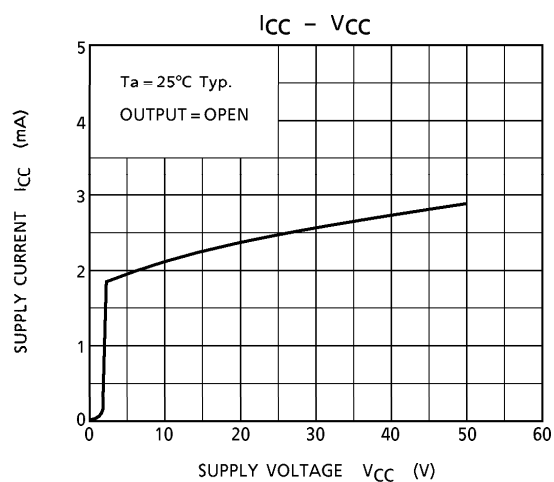
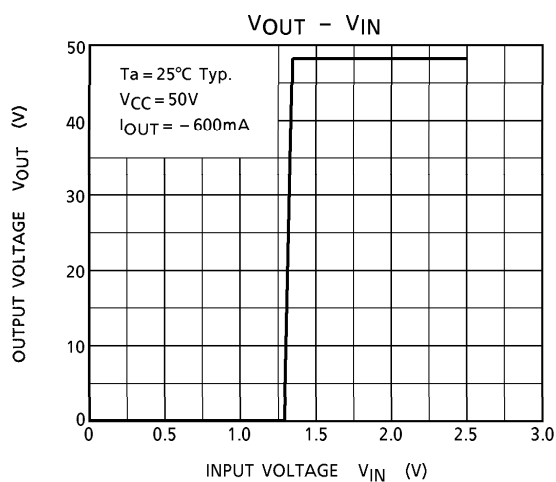
8. t_{ON} , t_{OFF}

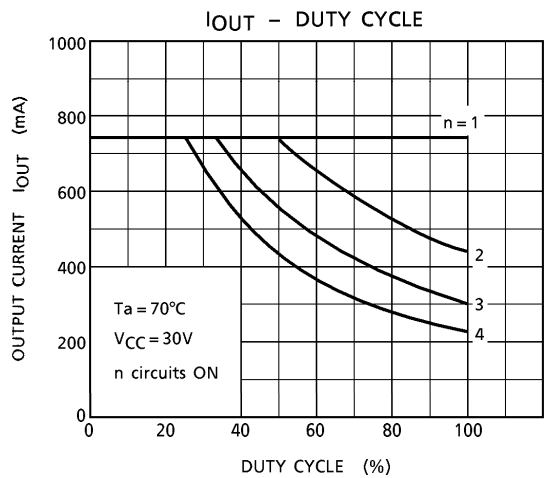
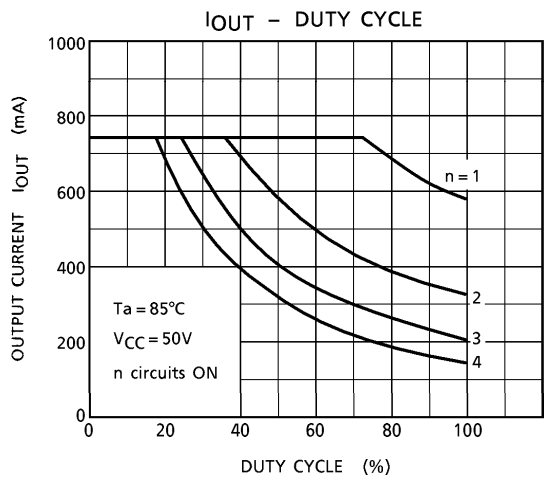


- (Note 1) Pulse Width $50\mu s$, Duty Cycle 10%
Output Impedance 50Ω , $t_r \leq 5ns$, $t_f \leq 10ns$
(Note 2) $V_{IH} = 3V$, $E1 = V_{IH}$, $\overline{E2} = GND$, $V_{CC} = 50V$
(Note 3) C_L includes probe and jig capacitance

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.

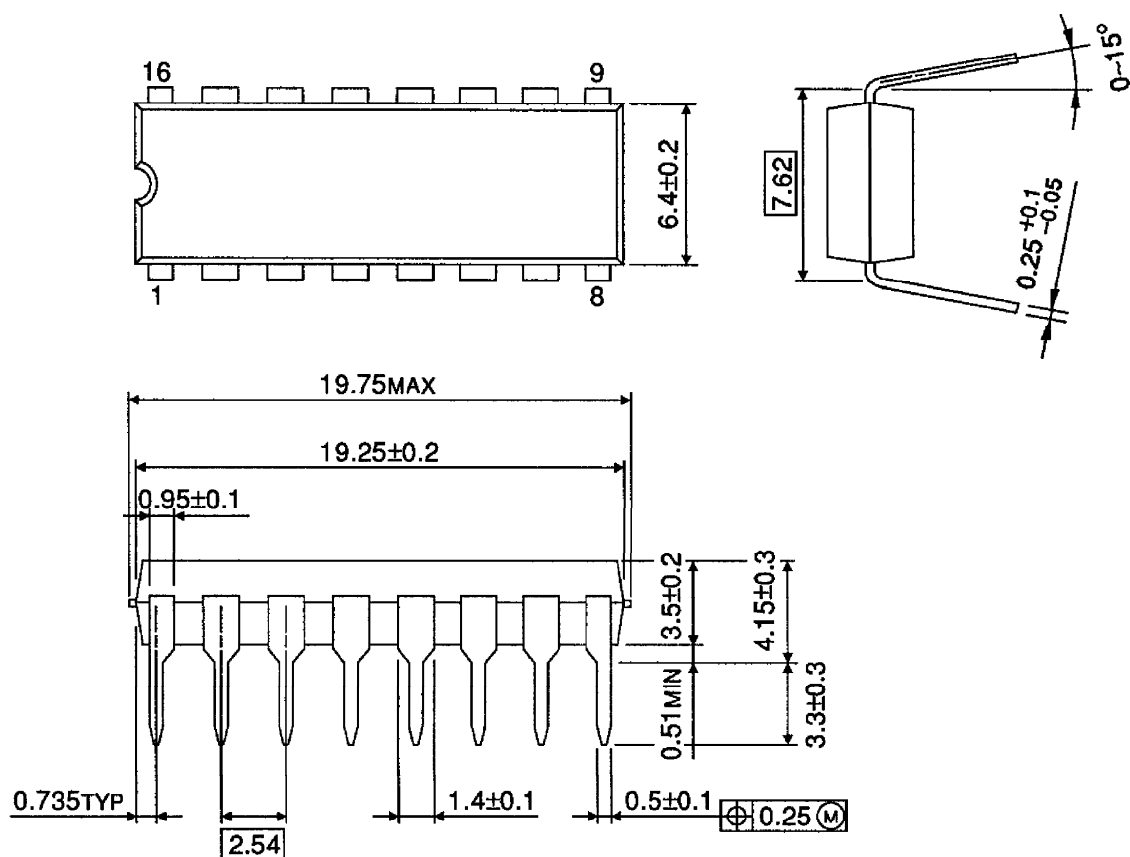




OUTLINE DRAWING

DIP16-P-300-2.54A

Unit : mm



Weight : 1.11g (Typ.)