

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

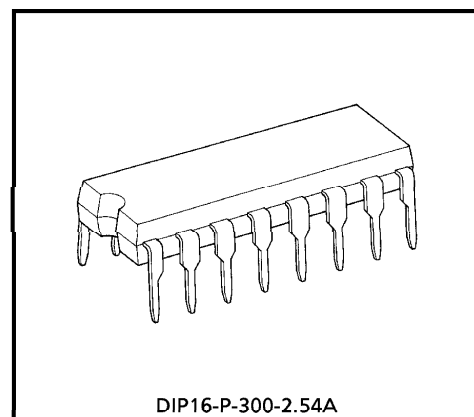
TD62504P-H**7ch SINGLE DRIVER : COMMON EMITTER**

The TD62504P-H is comprised of seven or five NPN Transistor Arrays.

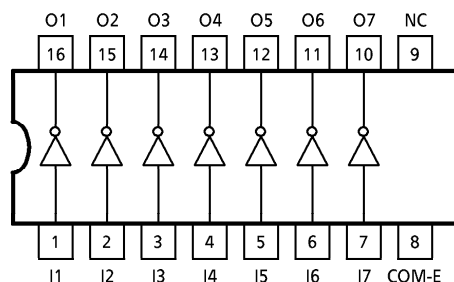
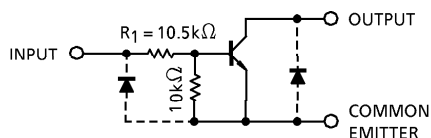
Applications include relay, hammer, lamp and display (LED) drivers.

FEATURES

- Package Type : DIP16 pin
- $R_{IN} = 10.5k\Omega$
- High Sustaining Voltage Output : $V_{CEO} = 35V$ (Min.)
- Output Current (Single Output) : 200mA (Max.)
- Low Saturation Voltage : $V_{ce(sat)} = 0.8V$ @ $I_{out} = 150mA$
- Inputs Compatible with Various Types of Logic.
- Wide operating temperature range



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
Collector-Emitter Voltage	V _{CEO}	35	V
Collector-Base Voltage	V _{CBO}	50	V
Collector Current	I _C	200	mA / ch
Input Voltage	V _{IN}	– 0.5~30	V
Power Dissipation	P _D	1.0	W
Operating Temperature	T _{opr}	– 40~105	°C
Storage Temperature	T _{stg}	– 55~150	°C

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector-Emitter Voltage	V _{CEO}	—	0	—	35	V
Collector-Base Voltage	V _{CBO}	—	0	—	50	V
Collector Current	I _C	—	0	—	150	mA / ch
Input Voltage	V _{IN}	—	0	—	25	V
	V _{IN} (ON)	I _{IN} = 1mA	15.0	—	25	
Power Dissipation	P _D	Ta = 85°C	—	—	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 _{CE} = 35V, V _{IN} = 0V	—	—	10	μA
Collector-Emitter Saturation Voltage	V _{CE} (sat)	2	I _{IN} = 1mA, I _C = 10mA	—	—	0.2	V
			I _{IN} = 3mA, I _C = 150mA	—	—	0.8	
DC Current Transfer Ratio	h _{FE}	2	V _{CE} = 10V, I _C = 10mA	50	—	—	—
Input Voltage	V _{IN} (ON)	3	I _{IN} = 1mA, I _C = 10mA	7.5	11.5	15.0	V
Turn-On Delay	t _{ON}	4	V _{CEO} = 35V, R _L = 220Ω C _L = 15pF	—	50	—	ns
Turn-Off Delay	t _{OFF}			—	200	—	

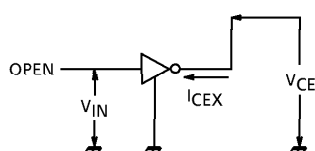
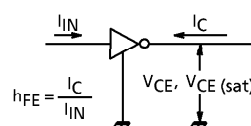
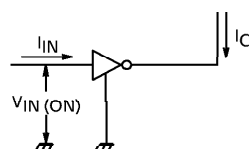
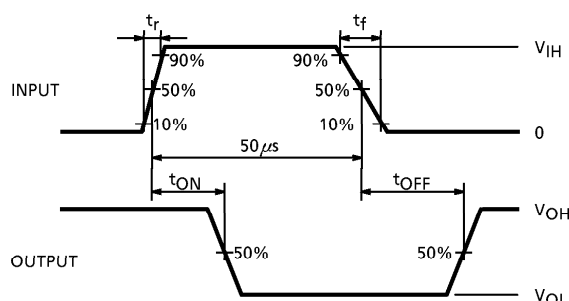
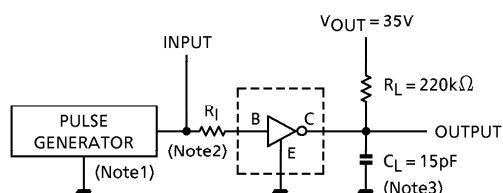
RECOMMENDED OPERATING CONDITIONS (Ta = – 40~105°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector-Emitter Voltage	V _{CEO}	—	0	—	35	V
Collector-Base Voltage	V _{CBO}	—	0	—	50	V
Collector Current	I _C	DC 1 circuits	0	—	150	mA / ch
		7 circuits	0	—	100	
Input Voltage	V _{IN}	—	0	—	25	V
	V _{IN} (ON)	I _{IN} = 1mA	15.0	—	25	
	V _{IN} (OFF)	—	0	—	0.50	
Power Dissipation	P _D	Ta = 105°C	—	—	0.36	W

ELECTRICAL CHARACTERISTICS (Ta = 105°C)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current	I_{CEX}	1	$V_{CE} = 35V, V_{IN} = 0V$	—	—	300	μA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	2	$I_{IN} = 1mA, I_C = 10mA$	—	—	0.3	V
			$I_{IN} = 3mA, I_C = 150mA$	—	—	0.9	
DC Current Transfer Ratio	h_{FE}	2	$V_{CE} = 10V, I_C = 10mA$	50	—	—	—
Input Voltage	$V_{IN(ON)}$	3	$I_{IN} = 1mA, I_C = 10mA$	6.5	11.5	16.0	V
Turn-On Delay	t_{ON}	4	$V_{CEO} = 35V, R_L = 220\Omega$ $C_L = 15pF$	—	100	—	ns
Turn-Off Delay	t_{OFF}			—	500	—	

TEST CIRCUIT

1. I_{CEX} 2. $h_{FE}, V_{CE(sat)}$ 3. $V_{IN(ON)}$ 4. t_{ON}, t_{OFF} 

(Note1) Pulse Width 50 μs , Duty Cycle 10%
Output Impedance 50 Ω , $t_r \leq 5ns$, $t_f \leq 10ns$

(Note2)

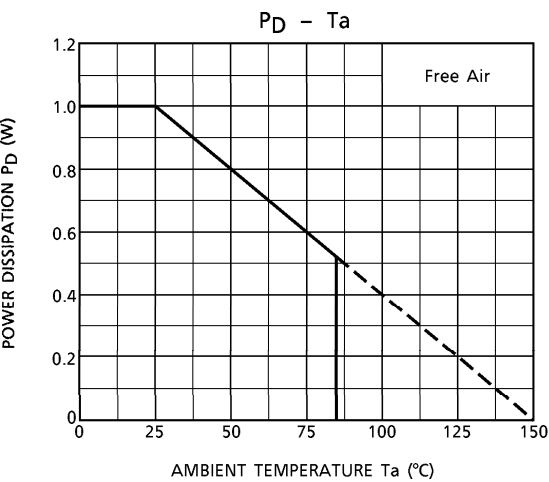
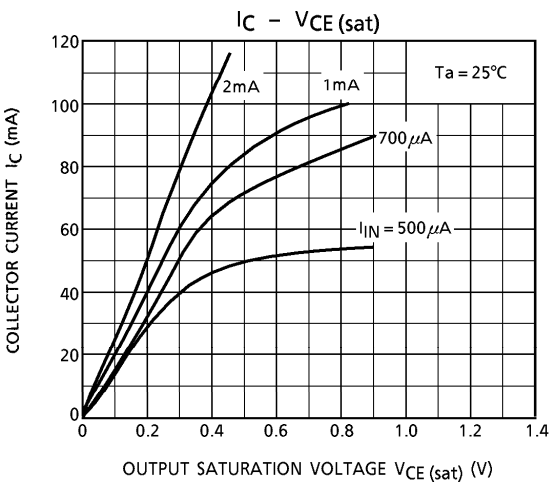
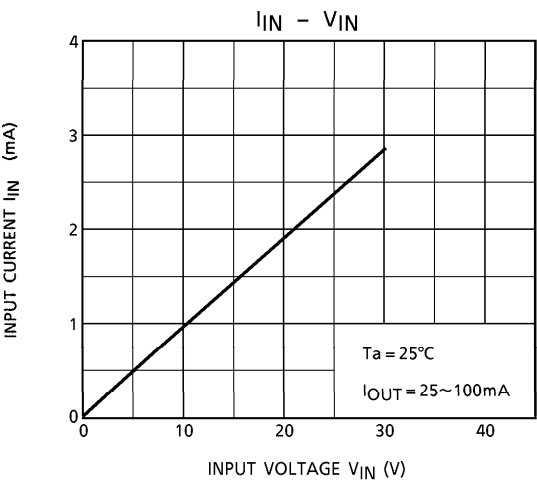
Input Condition

TYPE NUMBER	R_I	V_{IH}
TD62504P-H	0 Ω	10V

(Note3) C_L includes probe and jig capacitance

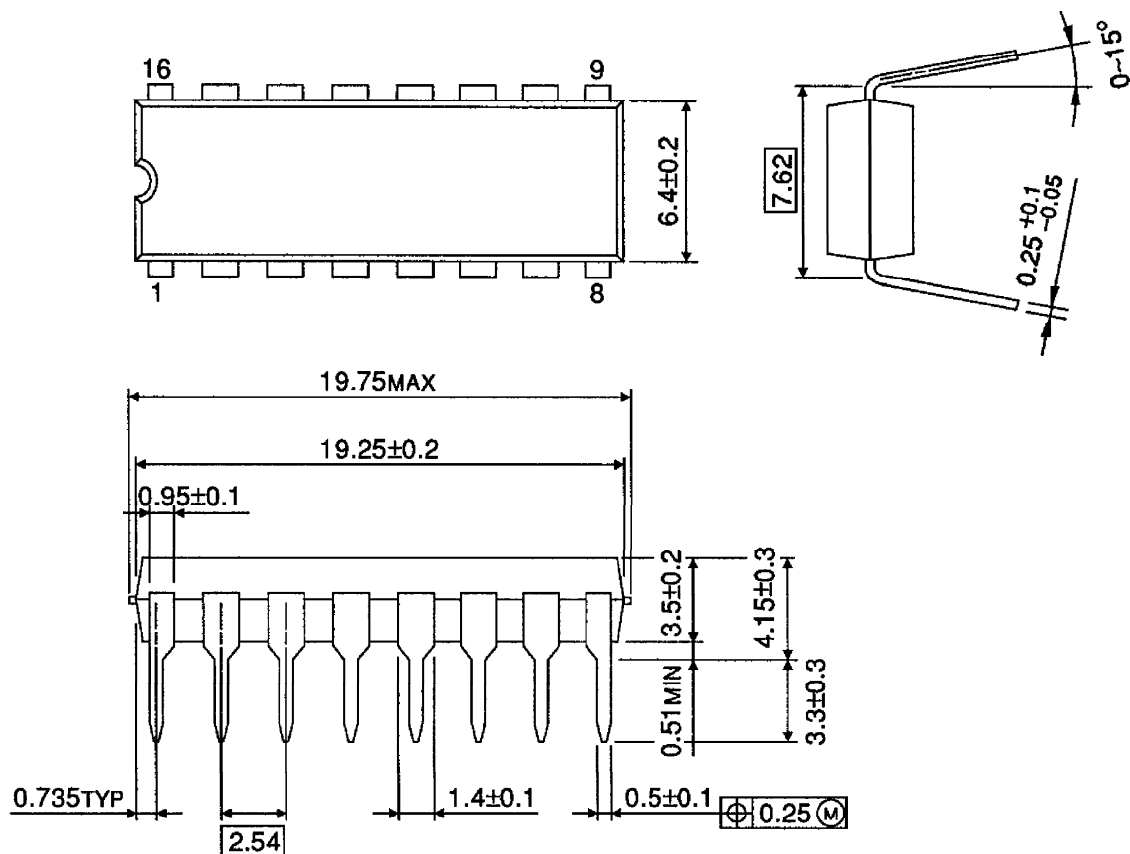
PRECAUTIONS for USING

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.)