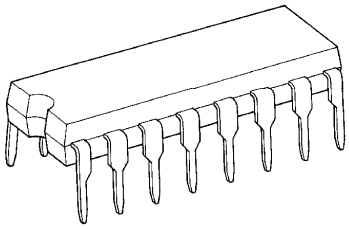
TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62503PA, TD62504PA

7CH SINGLE DRIVER : COMMON EMITTER

The TD62503PA and TD62504PA are comprised of seven or five NPN transistor arrays.
Applications include relay, hammer, lamp and display (LED) drivers.



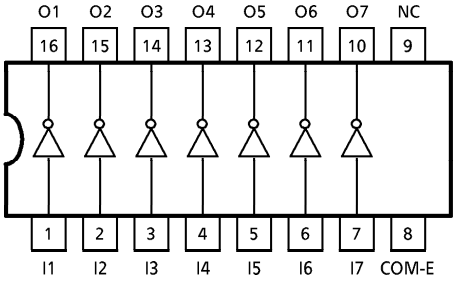
DIP16-P-300-2.54A

Weight : 1.11g (Typ.)

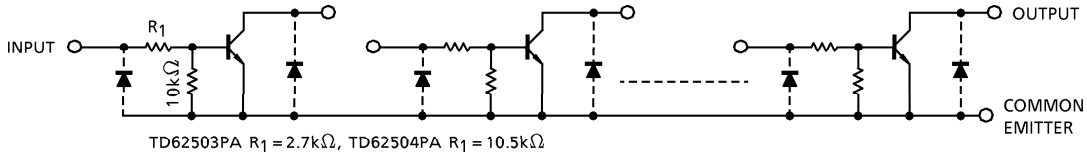
FEATURES

- Output current (single output) 200mA / ch (Max.)
- High sustaining voltage output 35V (Min.)
- Low saturation voltage $V_{CE\ (sat)}$ = 0.8V @I_{OUT} = 150mA
- Inputs compatible with various types of logic.
- TD62503PA : R_{IN} = 2.7kΩ ..... TTL, 5V CMOS
- TD62504PA : R_{IN} = 10.5kΩ .... PMOS, CMOS
- Package type-PA : DIP-16 pin

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
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 (Note)	1.0	W
Operating Temperature	T_{opr}	−40~85	°C
Storage Temperature	T_{stg}	−55~150	°C

(Note) Delated above 25°C in the proportion of 8.0mW / °C.

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

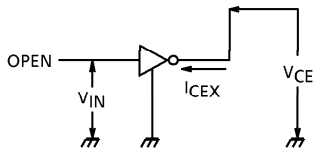
CHARACTERISTIC		SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Collector-Emitter Voltage		V_{CEO}	—	0	—	35	V
Collector-Base Voltage		V_{CBO}	—	0	—	50	V
Collector Current		I_C	—	0	—	150	mA / ch
Input Voltage	TD62503PA	V_{IN}	—	0	—	25	V
	TD62504PA						
Power Dissipation		P_D	—	—	—	0.360	W

ELECTRICAL CHARACTERISTICS (Ta = 25°C unless otherwise noted)

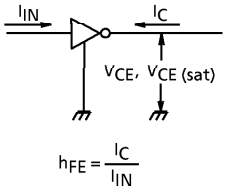
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current		I_{CEX}	1	V_{CE} = 25V, V_{IN} = 0	—	—	10	μA
Collector-Emitter Saturation Voltage		$V_{CE\ (sat)}$	2	I_{IN} = 1mA, I_C = 10mA	—	—	0.2	V
				I_{IN} = 3mA, I_C = 150mA	—	—	0.8	
DC Current Transfer Ratio		h_{FE}	2	V_{CE} = 10V, I_C = 10mA	50	—	—	—
Input Voltage (Output On)	TD62503PA	$V_{IN\ (ON)}$	3	I_{IN} = 1mA, I_C = 10mA	2.4	3.4	4.2	V
	TD62504PA				7.5	11.5	15	
Input Voltage (Output Off)	TD62505PA	$V_{IN\ (OFF)}$	—	—	0.6	0.8	1.0	V
	TD62506PA				1.1	1.6	1.9	
Turn-On Delay		t_{ON}	4	V_{OUT} = 35V, R_L = 3.3kΩ, C_L = 15pF	—	50	—	ns
Turn-Off Delay		t_{OFF}			—	200	—	

TEST CIRCUIT

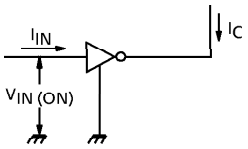
1. I_{CEX}



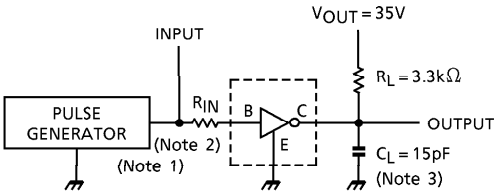
2. h_{FE}, $V_{CE\ (sat)}$

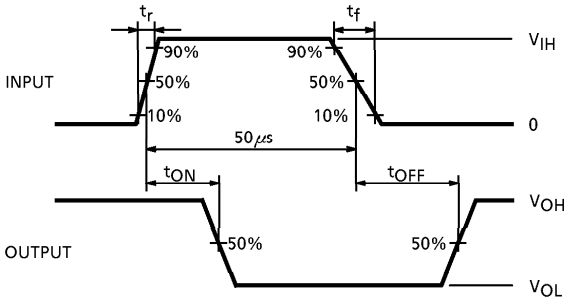


3. $V_{IN\ (ON)}$



4. t_{ON}, t_{OFF}





(Note 1) Pulse Width 50μs, Duty Cycle 10%
Output Impedance 50Ω, $t_r \leqq$ 5ns, $t_f \leqq$ 10ns

(Note 2) See below.

INPUT CONDITION

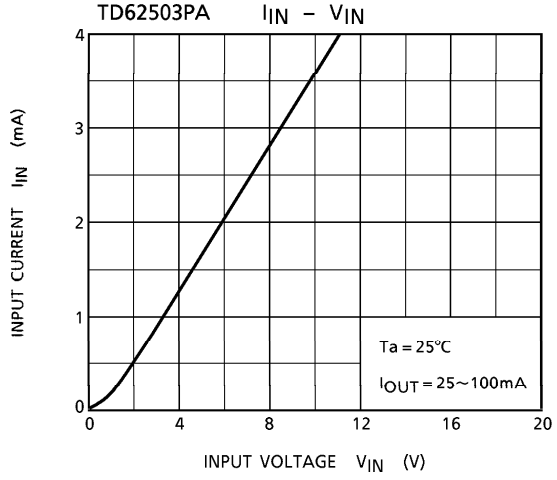
TYPE NUMBER	R_{IN}	V_{IH}
TD62503PA	0Ω	3V
TD62504PA	0Ω	10V

(Note 3) C_L includes probe and jig capacitance.

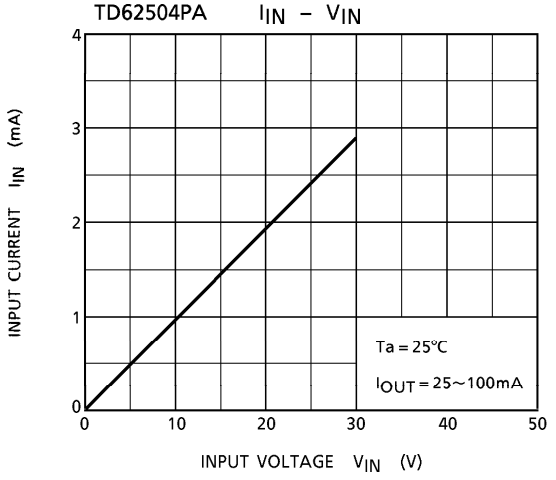
PRECAUTIONS for USING

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.

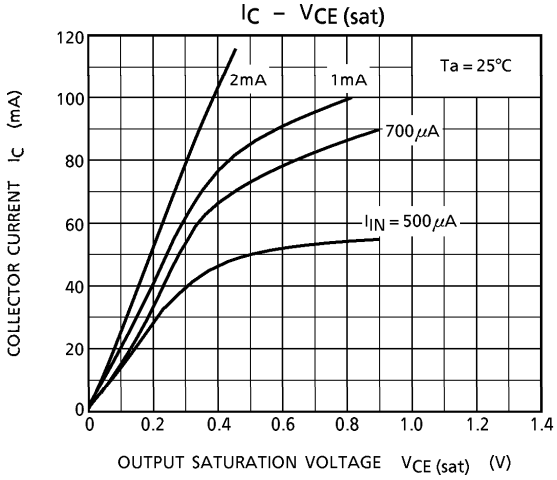
TD62503PA I_{IN} – V_{IN}



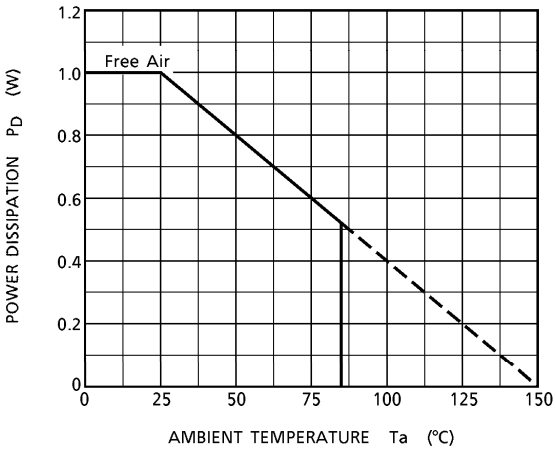
TD62504PA I_{IN} – V_{IN}



I_C – $V_{CE\,(sat)}$



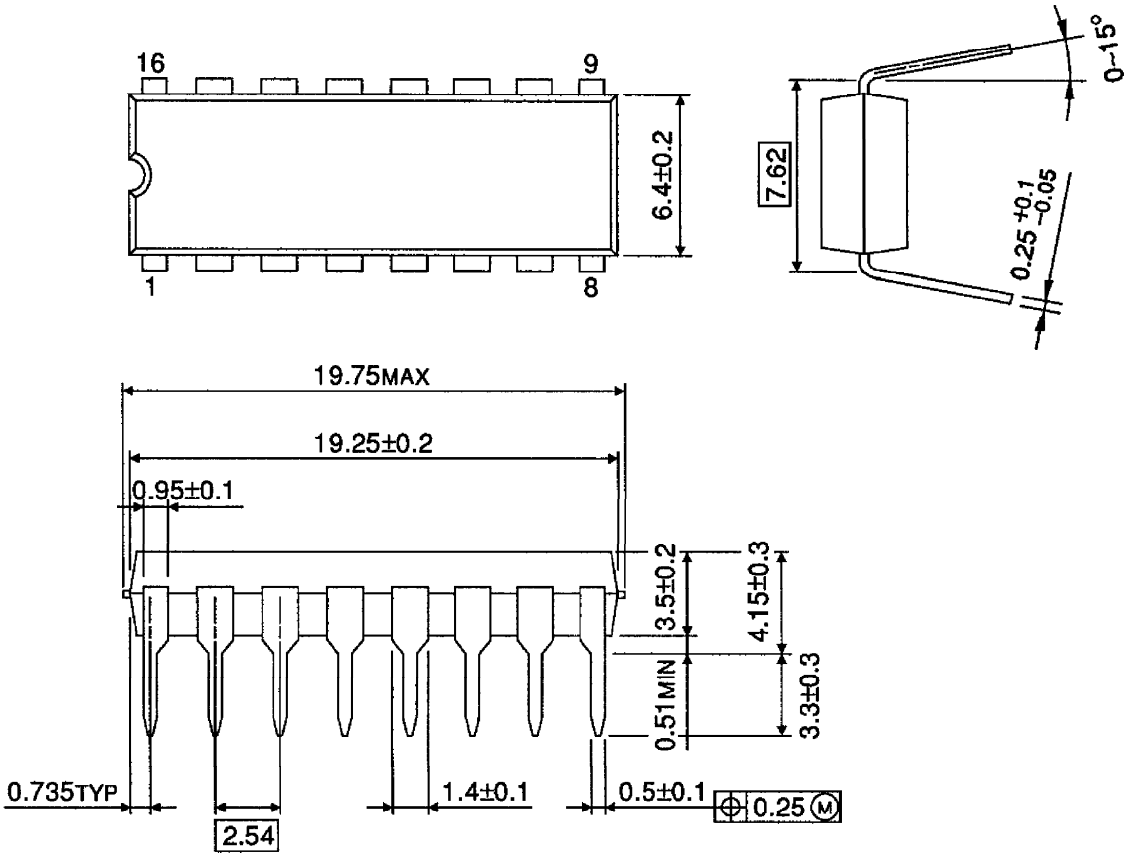
P_D – Ta



OUTLINE DRAWING

DIP16-P-300-2.54A

Unit : mm



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