

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

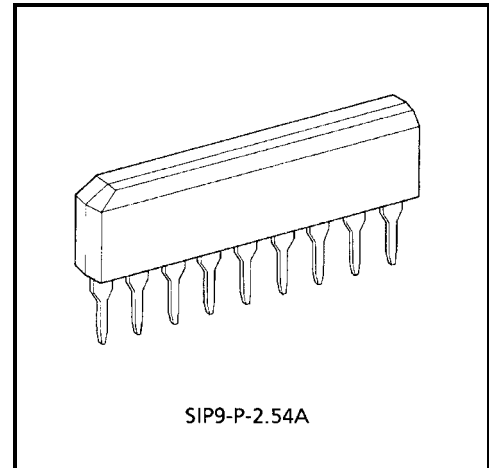
## TD62551S, TD62553S, TD62554S, TD62555S

### 4CH SINGLE DRIVER : COMMON EMITTER

The TD62551S are comprised of four NPN transistor arrays. Applications include relay, hammer, lamp and display (LED) drivers.

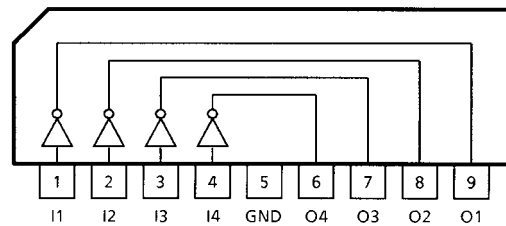
### FEATURES

- Output current (single output) 150 mA (Max)
- High sustaining voltage output 25 V (Min)
- Low saturation voltage  $V_{CE(sat)} = 0.5\text{ V}$  @  $I_{OUT} = 50\text{ mA}$
- Inputs compatible with various types of logic.
- TD62551S : External
- TD62553S :  $R_{IN} = 2.7\text{ k}\Omega$ ..... TTL, 5 V CMOS
- TD62554S :  $R_{IN} = 10.5\text{ k}\Omega$ .... 6~15 V PMOS, CMOS
- TD62555S :  $R_{IN} = 20\text{ k}\Omega$ ..... 12~24 V PMOS
- Package type : SIP-9 pin



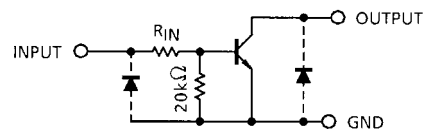
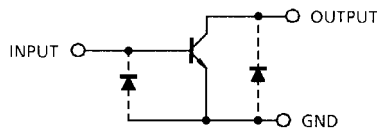
Weight: 0.92 g (Typ.)

### PIN CONNECTION



### SCHEMATICS (EACH DRIVER)

TD62551S



TD62553S  $R_{IN} = 2.7\text{ k}\Omega$   
 TD62554S  $R_{IN} = 10.5\text{ k}\Omega$   
 TD62555S  $R_{IN} = 20\text{ k}\Omega$

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 <sub>CEO</sub>	25	V
Collector-Base Voltage	V <sub>CBO</sub>	35	V
Collector Current	I <sub>C</sub>	150	mA / ch
Input Voltage	V <sub>IN</sub> (Note 1)	20	V
Input Current	I <sub>IN</sub> (Note 2)	10	mA
Power Dissipation	P <sub>D</sub> (Note 3)	0.75	W
Operating Temperature	T <sub>opr</sub>	-40~85	°C
Storage Temperature	T <sub>stg</sub>	-55~150	°C

Note 1: Except TD62551S

Note 2: Only TD62551S

Note 3: Delated above 25°C in the proportion of 6.0mW / °C.

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

CHARACTERISTIC	SYMBOL	CONDITION	MIN	TYP.	MAX	UNIT	
Collector-Emitter Voltage	V <sub>CEO</sub>	—	0	—	25	V	
Collector-Base Voltage	V <sub>CBO</sub>	—	0	—	35	V	
Collector Current	TD62551S TD62553S	I <sub>C</sub>	—	—	100	mA / ch	
	TD62554S						80
	TD62555S						60
Input Voltage	TD62553S TD62554S TD62555S	V <sub>IN</sub>	—	—	20	V	
Input Current	TD62551S	I <sub>IN</sub>	—	—	5	mA	
Power Dissipation	P <sub>D</sub>	—	—	—	0.27	W	

## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

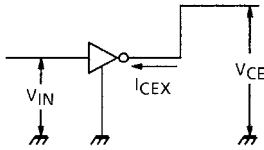
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Output Leakage Current	I <sub>CEX</sub>	1	V <sub>CE</sub> = 25 V, V <sub>IN</sub> = 0 V	—	—	10	μA
Collector-Emitter Saturation Voltage	V <sub>CE (sat)</sub>	2	I <sub>IN</sub> = 0.5 mA, I <sub>C</sub> = 10 mA	—	0.15	0.2	V
			I <sub>IN</sub> = 2.5 mA, I <sub>C</sub> = 50 mA	—	0.35	0.5	
DC Current Transfer Ratio	(Note 1)	2	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 10 mA	60	—	400	—
	(Note 2)			50	—	400	
Input Voltage	TD62553S	3	I <sub>IN</sub> = 0.5 mA, I <sub>C</sub> = 10 mA	1.7	2.1	2.5	V
	TD62554S			4.4	6.0	7.6	
	Td62555S			7.7	10.7	13.8	
Turn-On Delay	t <sub>ON</sub>	4	V <sub>OUT</sub> = 25 V, R <sub>L</sub> = 210 Ω C <sub>L</sub> = 15 pF	—	100	—	ns
Turn-Off Delay	t <sub>OFF</sub>			—	500	—	

Note 1: Except TD62551S.

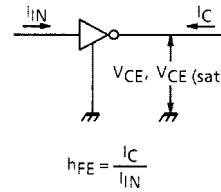
Note 2: Only TD62551S.

## TEST CIRCUIT

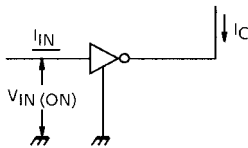
### 1. $I_{CEX}$



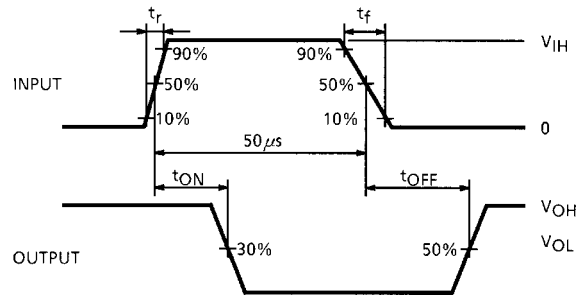
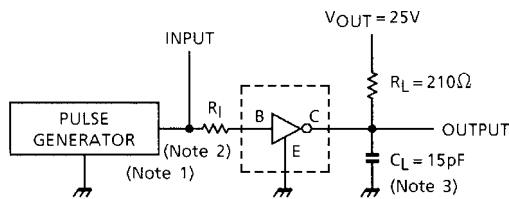
### 2. $h_{FE}$ , $V_{CE(sat)}$



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



### 4. $t_{ON}$ , $t_{OFF}$



- Note 1: Pulse Width 50  $\mu$ s, Duty Cycle 10%  
Output Impedance 50  $\Omega$ ,  $t_r \leq 5$  ns,  $t_f \leq 10$  ns
- Note 2: See right.
- Note 3:  $C_L$  includes probe and jig capacitance.

#### INPUT CONDITION

TYPE NUMBER	$R_I$	$V_{IH}$
TD62551S	2.7 k $\Omega$	3 V
TD62553S	0 $\Omega$	3 V
TD62554S	0 $\Omega$	10 V
TD62555S	0 $\Omega$	14 V

## PRECAUTIONS for USING

This IC does not integrate protection circuits such as overcurrent and overvoltage protectors.

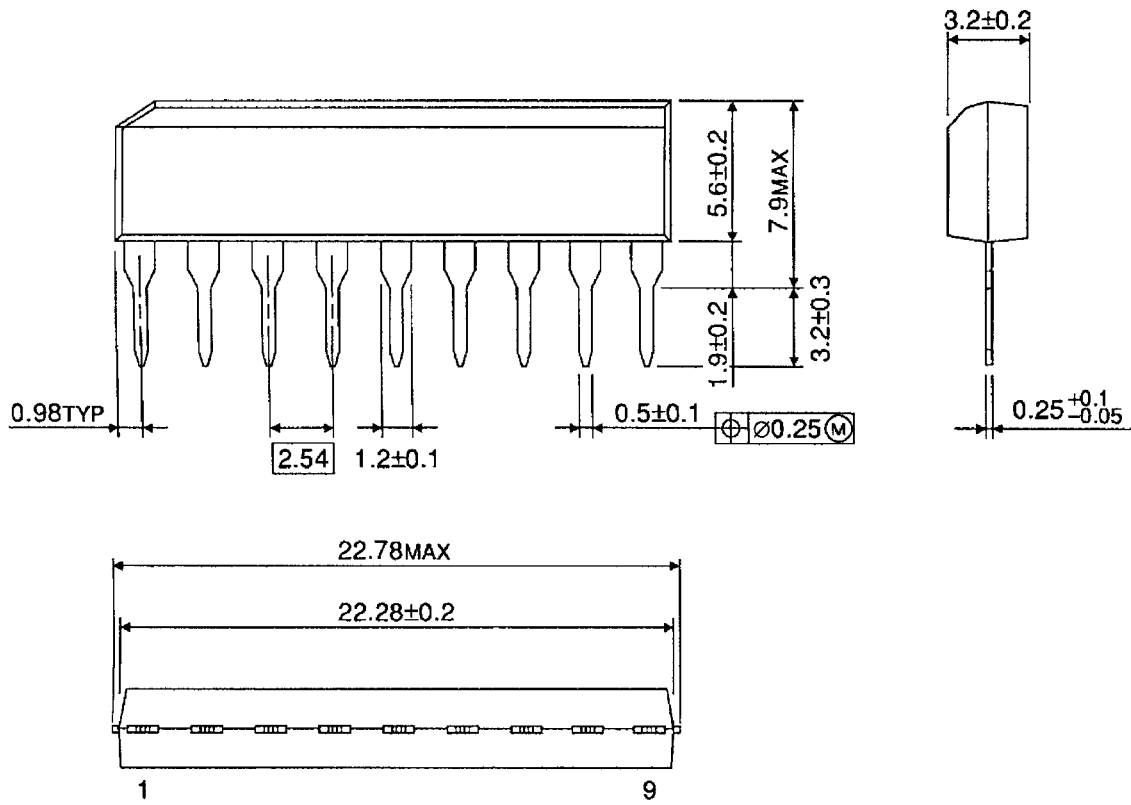
Thus, if excess current or voltage is applied to the IC, the IC may be damaged. Please design the IC so that excess current or voltage will not be applied to the IC.

Utmost care is necessary in the design of the output line, VCC and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.

## PACKAGE DIMENSIONS

SIP9-P-300-2.54A

Unit: mm



Weight: 0.92 g (Typ.)

**RESTRICTIONS ON PRODUCT USE**

000707EBA

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