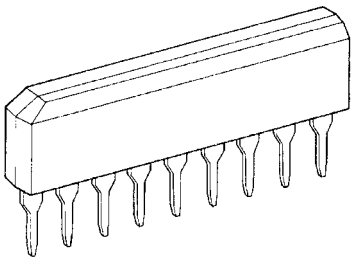
TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

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.



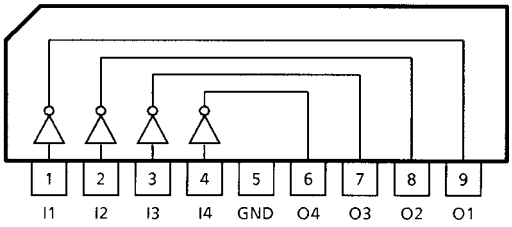
SIP9-P-2.54A

Weight: 0.92 g (Typ.)

FEATURES

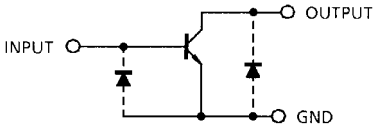
- Output current (single output) 150 mA (Max)
- High sustaining voltage output 25 V (Min)
- Low saturation voltage $V_{CE\ (sat)}$ = 0.5 V @I_{OUT} = 50 mA
- Inputs compatible with various types of logic.
- TD62551S : External
- TD62553S : R_{IN} = 2.7 kΩ..... TTL, 5 V CMOS
- TD62554S : R_{IN} = 10.5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

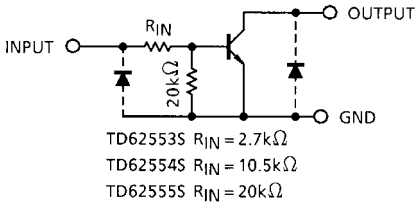
PIN CONNECTION



SCHEMATICS (EACH DRIVER)

TD62551S





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}	25	V
Collector−Base Voltage	V_{CBO}	35	V
Collector Current	I_C	150	mA / ch
Input Voltage	V_{IN} (Note 1)	20	V
Input Current	I_{IN} (Note 2)	10	mA
Power Dissipation	P_D (Note 3)	0.75	W
Operating Temperature	T_{opr}	−40~85	°C
Storage Temperature	T_{stg}	−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
Collecter−Emitter Voltage		V_{CEO}	—	0	—	25	V
Collecter−Base Voltage		V_{CBO}	—	0	—	35	V
Collector Current	TD62551S TD62553S	I_C	—	0	—	100	mA / ch
	TD62554S			0	—	80	
	TD62555S			0	—	60	
Input Voltage	TD62553S TD62554S TD62555S	V_{IN}	—	0	—	20	V
Input Current	TD62551S	I_{IN}	—	0	—	5	mA
Power Dissipation		P_D	—	—	—	0.27	W

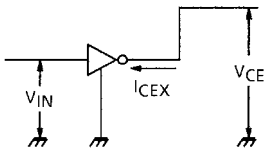
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CIR−CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Output Leakage Current		I_{CEX}	1	V_{CE} = 25 V, V_{IN} = 0 V	—	—	10	μA
Collector−Emitter Saturation Voltage		$V_{CE\ (sat)}$	2	I_{IN} = 0.5 mA, I_C = 10 mA	—	0.15	0.2	V
				I_{IN} = 2.5 mA, I_C = 50 mA	—	0.35	0.5	
DC Current Transfer Ratio	(Note 1)	h_{FE}	2	V_{CE} = 5 V, I_C = 10 mA	60	—	400	—
	(Note 2)				50	—	400	
Input Voltage	TD62553S	$V_{IN\ (ON)}$	3	I_{IN} = 0.5 mA, I_C = 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_{ON}	4	V_{OUT} = 25 V, R_L = 210 Ω C_L = 15 pF	—	100	—	ns
Turn−Off Delay		t_{OFF}			—	500	—	

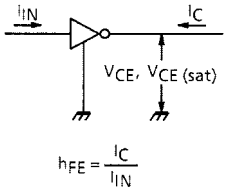
Note 1: Except TD62551S.
Note 2: Only TD62551S.

TEST CIRCUIT

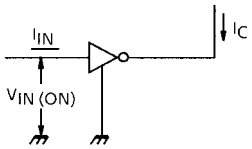
1. I_{CEX}



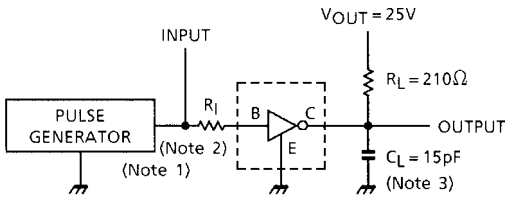
2. h_{FE}, $V_{CE\ (sat)}$

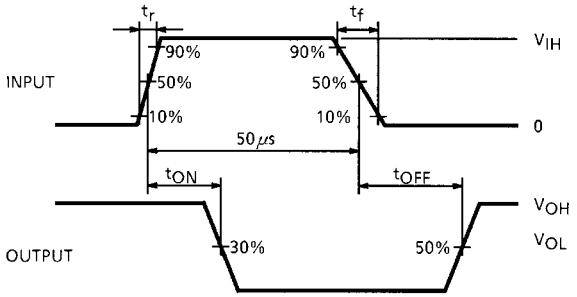


3. $V_{IN\ (ON)}$



4. t_{ON}, t_{OFF}





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

INPUT CONDITION

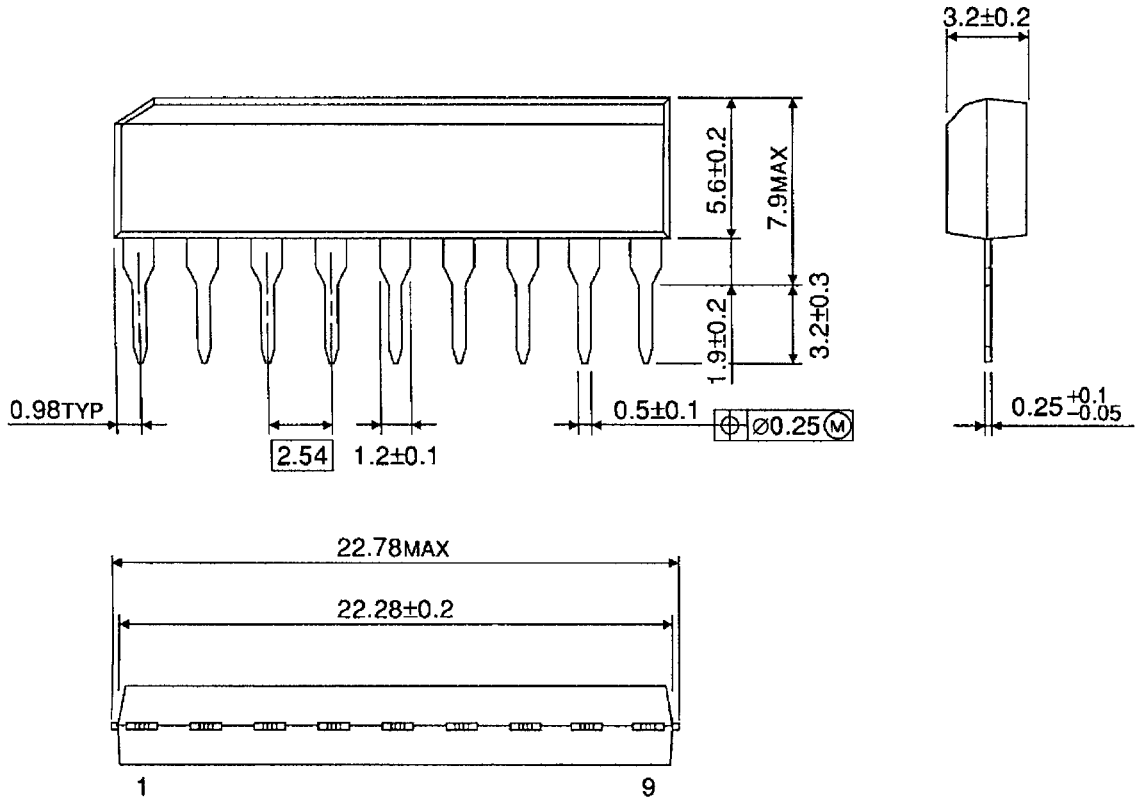
TYPE NUMBER	R_I	V_{IH}
TD62551S	2.7 kΩ	3 V
TD62553S	0 Ω	3 V
TD62554S	0 Ω	10 V
TD62555S	0 Ω	14 V

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, V_{CC} 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

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