

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62551SG, TD62553SG, TD62554SG, TD62555SG

4CH SINGLE DRIVER : COMMON EMITTER

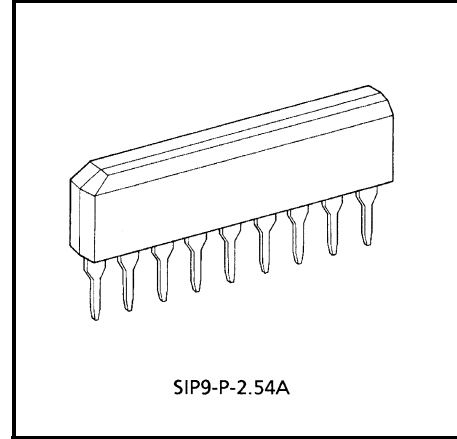
The TD62551SG series are comprised of four NPN transistor arrays.

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

This devices are a product for the Pb free(Sn-Ag).

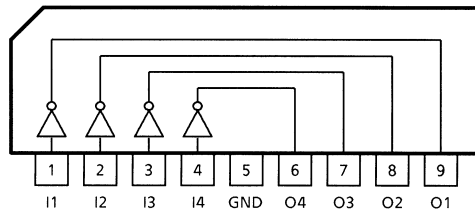
FEATURES

- 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.
- TD62551SG : External
- TD62553SG : $R_{IN} = 2.7 \text{ k}\Omega$ TTL, 5 V CMOS
- TD62554SG : $R_{IN} = 10.5 \text{ k}\Omega$ 6~15 V PMOS, CMOS
- TD62555SG : $R_{IN} = 20 \text{ k}\Omega$ 12~24 V PMOS
- Package type : SIP-9 pin

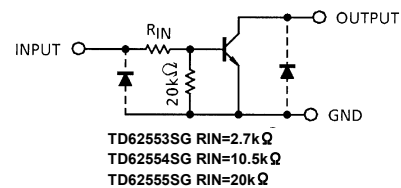
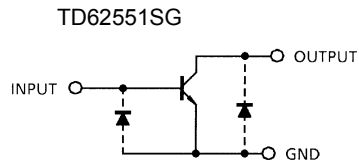


Weight: 0.92 g (Typ.)

PIN CONNECTION



SCHEMATICS (EACH DRIVER)



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 TD62551SG

Note 2: Only TD62551SG

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_{CEO}	—	0	—	25	V
Collector-Base Voltage	V_{CBO}	—	0	—	35	V
Collector Current	TD62551SG TD62553SG	I_C	0	—	100	mA / ch
	TD62554SG		0	—	80	
	TD62555SG		0	—	60	
Input Voltage	TD62553SG TD62554SG TD62555SG	V_{IN}	0	—	20	V
Input Current	TD62551SG	I_{IN}	0	—	5	mA
Power Dissipation	P_D	—	—	—	0.27	W

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

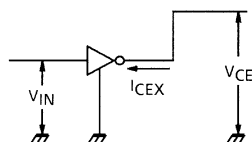
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Output Leakage Current	I_{CEX}	1	$V_{CE} = 25\text{ V}$, $V_{IN} = 0\text{ V}$	—	—	10	μA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	2	$I_{IN} = 0.5\text{ mA}$, $I_C = 10\text{ mA}$	—	0.15	0.2	V
			$I_{IN} = 2.5\text{ mA}$, $I_C = 50\text{ mA}$	—	0.35	0.5	
DC Current Transfer Ratio	(Note 1)	h_{FE}	$V_{CE} = 5\text{ V}$, $I_C = 10\text{ mA}$	60	—	400	—
	(Note 2)			50	—	400	
Input Voltage	TD62553SG	$V_{IN(ON)}$	$I_{IN} = 0.5\text{ mA}$, $I_C = 10\text{ mA}$	1.7	2.1	2.5	V
	TD62554SG			4.4	6.0	7.6	
	TD62555SG			7.7	10.7	13.8	
Turn-On Delay	t_{ON}	4	$V_{OUT} = 25\text{ V}$, $R_L = 210\ \Omega$ $C_L = 15\text{ pF}$	—	100	—	ns
Turn-Off Delay	t_{OFF}			—	500	—	

Note 1: Except TD62551SG

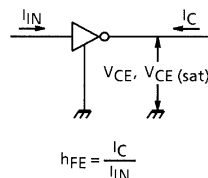
Note 2: Only TD62551SG

TEST CIRCUIT

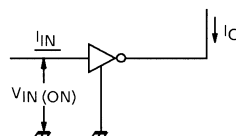
1. ICEX



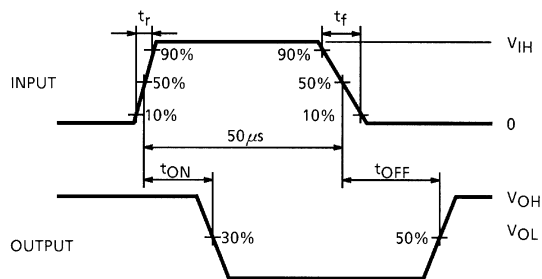
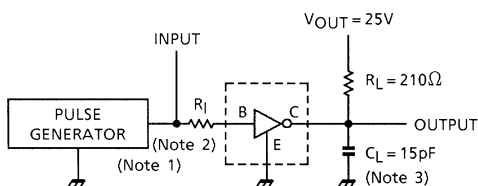
2. h_{FE} , $V_{CE(sat)}$



3. $V_{IN(ON)}$



4. t_{ON} , t_{OFF}



Note 1: Pulse Width 50 μ s, Duty Cycle 10%

Output Impedance $50\ \Omega$, $t_r \leq 5\text{ ns}$, $t_f \leq 10\text{ ns}$

Note 2: See right.

Note 3: C_L includes probe and jig capacitance.

INPUT CONDITION

TYPE NUMBER	R _I	V _{IH}
TD62551SG	2.7 kΩ	3 V
TD62553SG	0 Ω	3 V
TD62554SG	0 Ω	10 V
TD62555SG	0 Ω	14 V

PRECAUTIONS for USING

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

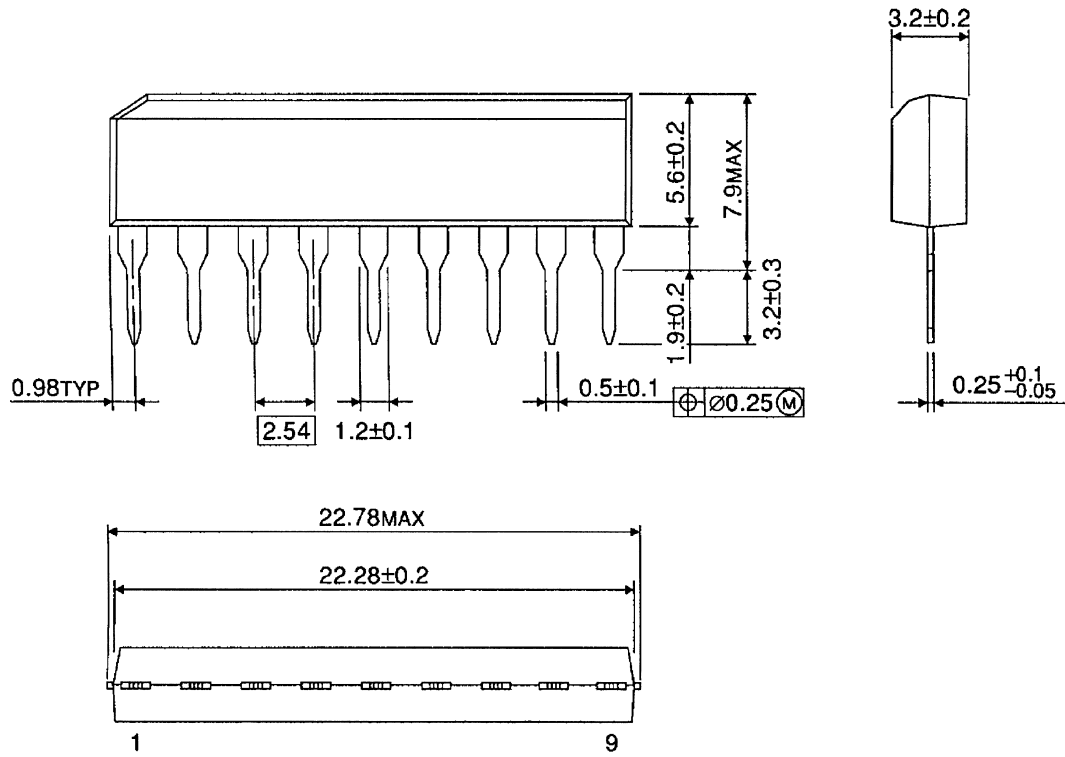
Thus, if excess current or voltage is applied to the IC, the IC may be damaged. Please design the IC so that excess current or voltage will not be applied to the IC.

Utmost care is necessary in the design of the output line, 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.)

About solderability, following conditions were confirmed

- Solderability

- (1) Use of Sn-63Pb solder Bath

- solder bath temperature = 230°C
 - dipping time = 5 seconds
 - the number of times = once
 - use of R-type flux

- (2) Use of Sn-3.0Ag-0.5Cu solder Bath

- solder bath temperature = 245°C
 - dipping time = 5 seconds
 - the number of times = once
 - use of R-type flux

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030619EBA

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