

TOSHIBA**TD62300P/F**

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62300P, TD62300F**2CH LOW V_{CC} SINK DRIVER**

The TD62300P, TD62300F are comprised of two Low V_{CC} drivers.

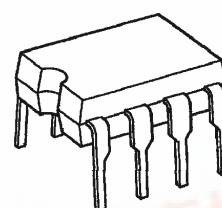
These devices can operate from $V_{CC} = 1.0V$, and suitable for various types of battery system.

Applications include relay, hammer, lamp and stepping motor drivers.

FEATURES

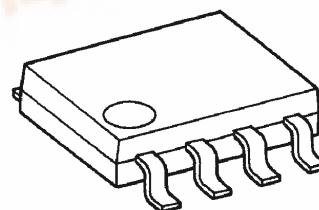
- Wide supply voltage range : $V_{CC} = 1.0 \sim 6.5V$
- High output current (single output) : 200mA (Max.)
- Low supply current : $I_{CC}(\text{OFF}) = 1\mu A$ (Max.)
- Input resistor : $R_{IN} = 33k\Omega$ (Typ.)
- Package type-P : DIP-8 pin
- Package type-F : SOP-8 pin

TD62300P



DIP8-P-300-2.54

TD62300F

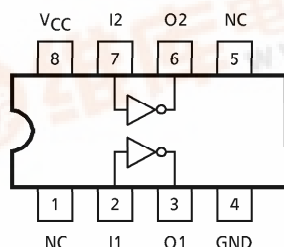


SOP8-P-225-1.27

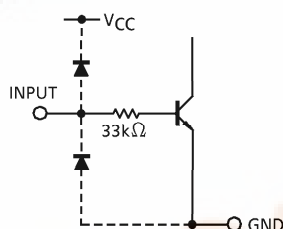
Weight

DIP8-P-300-2.54 : 0.52g (Typ.)

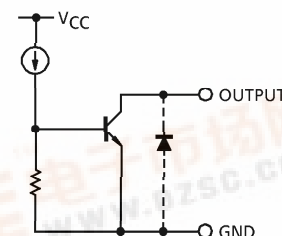
SOP8-P-225-1.27 : 0.08g (Typ.)

PIN CONNECTION (TOP VIEW)**OUTPUT-INPUT EQUIVALENT CIRCUIT**

Equivalent of input



Equivalent of output



(Note) The input and output parasitic diodes cannot be used as clamp diodes.

961001EBA2

- TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.
- The products described in this document are subject to foreign exchange and foreign trade control laws.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V _{CC}	7.0	V
Output Sustaining Voltage	V _{CE (SUS)}	8.0	V
Output Current	I _{OUT}	200	mA / ch
Input Voltage	V _{IN}	V _{CC}	V
Power Dissipation	TD62300P	900	mW
	TD62300F	480 (Note)	
Operating Temperature	T _{opr}	0 ~ 70	°C
Storage Temperature	T _{stg}	- 55 ~ 150	°C

(Note) On Glass Epoxy (20×20×1.6mm Cu 50%)

RECOMMENDED OPERATING CONDITIONS (Ta = 0~70°C)

CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V _{CC}		1.0	—	6.5	V
Output Sustaining Voltage	V _{CE (SUS)}		—	—	8	V
Output Current	I _{OUT}		—	—	150	mA
Input Voltage	V _{IN}		0	—	V _{CC}	V
Power Dissipation	TD62300P	P _D	—	—	430	mW
	TD62300F		—	—	230	

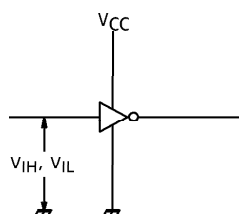
(Note) On Glass Epoxy (20×20×1.6mm Cu 50%)

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

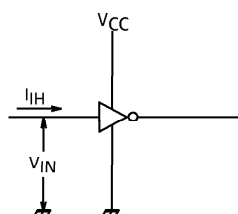
CHARACTERISTIC		SYMBOL	TEST CIR- CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Voltage	"H" Level	V _{IH}	1		0.85	—	—	V
	"L" Level	V _{IL}	1		—	—	0.45	
Input Current	"H" Level	I _{IH}	2	V _{IN} = 0.85V	—	4.9	—	μA
Output Current	"H" Level	I _{OH}	3	V _{CC} = V _{OUT} = 5.0V	—	—	10	μA
Output Voltage	"L" Level	V _{OL}	4	V _{CC} = 1.4V, I _{OUT} = 140mA	—	0.2	0.6	V
Supply Current		I _{CC} (ON)	5	V _{CC} = 1.4V, V _{IN} = 0.85V	—	6.4	9.0	mA
		I _{CC} (OFF)		V _{CC} = 5.0V, V _{IN} = 0V	—	—	1.0	μA
Turn-On Delay		t _{ON}	6	V _{CC} = 1.7V, R _L = 10Ω	—	0.1	—	μs
Turn-Off Delay		t _{OFF}		C _L = 15pF	—	2.3	—	μs

TEST CIRCUIT

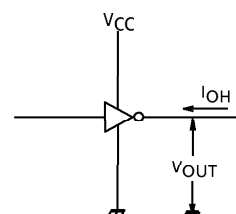
1. V_{IH} , V_{IL}



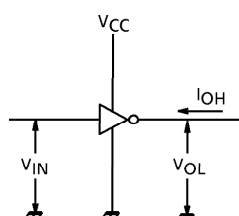
2. I_{IH}



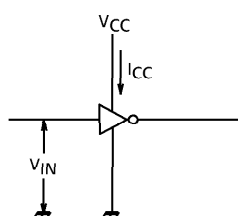
3. I_{OH}



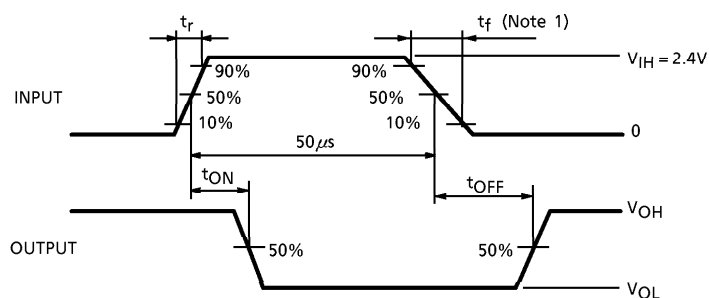
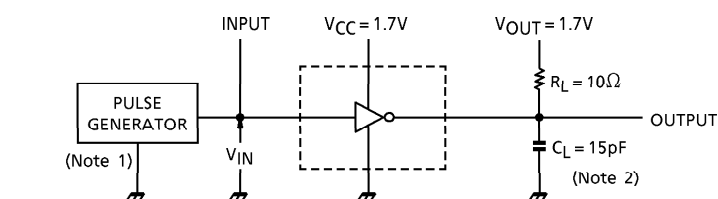
4. V_{OL}



5. $I_{CC} (ON)$, $I_{CC} (OFF)$



6. t_{ON} , t_{OFF}

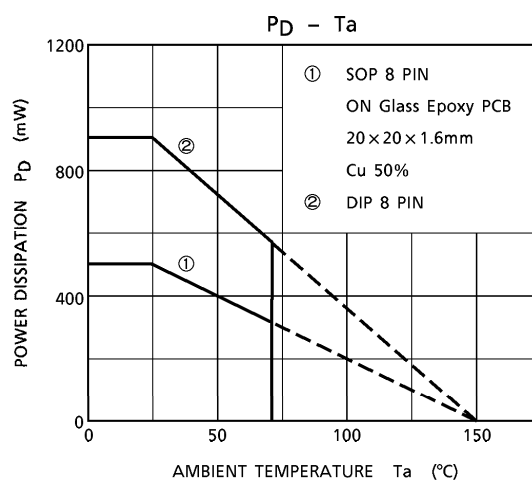
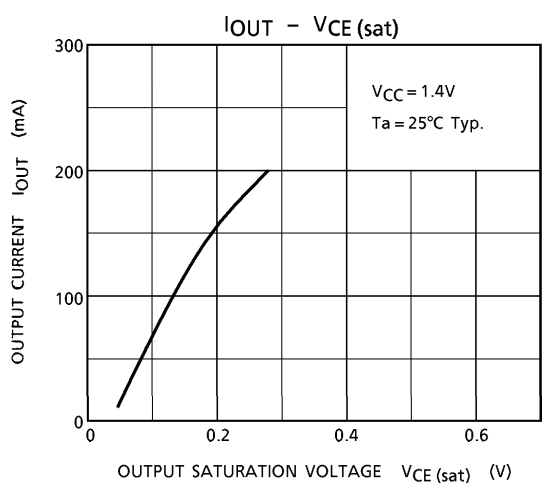
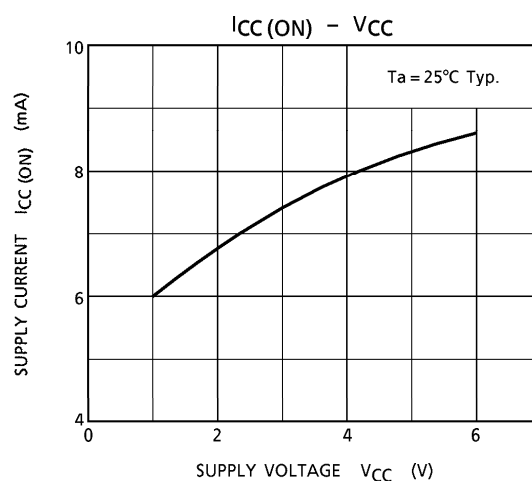
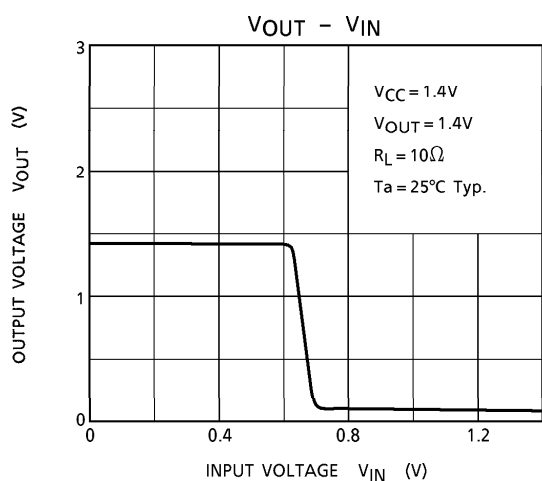


(Note 1) Pulse Width $50\mu s$
Duty Cycle 10%
Output Impedance 50Ω
 $t_r \leq 5ns$, $t_f \leq 10ns$

(Note 2) C_L includes probe and jig capacitance.

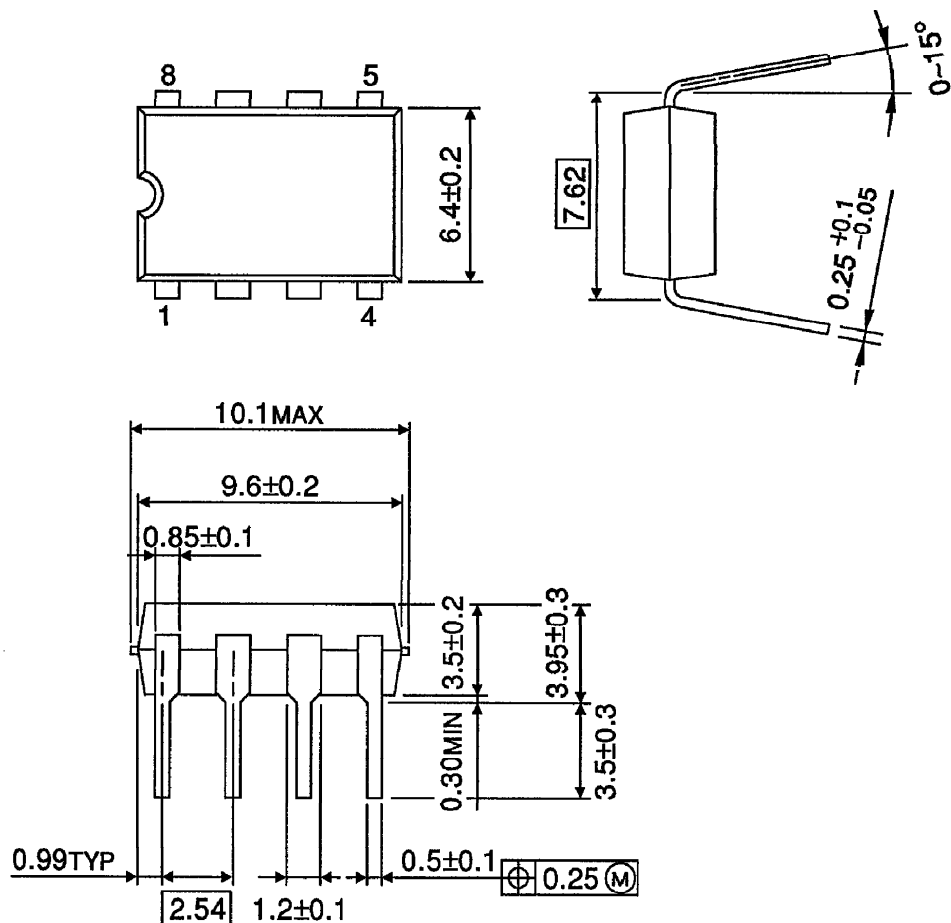
PRECAUTIONS for USING

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
DIP8-P-300-2.54

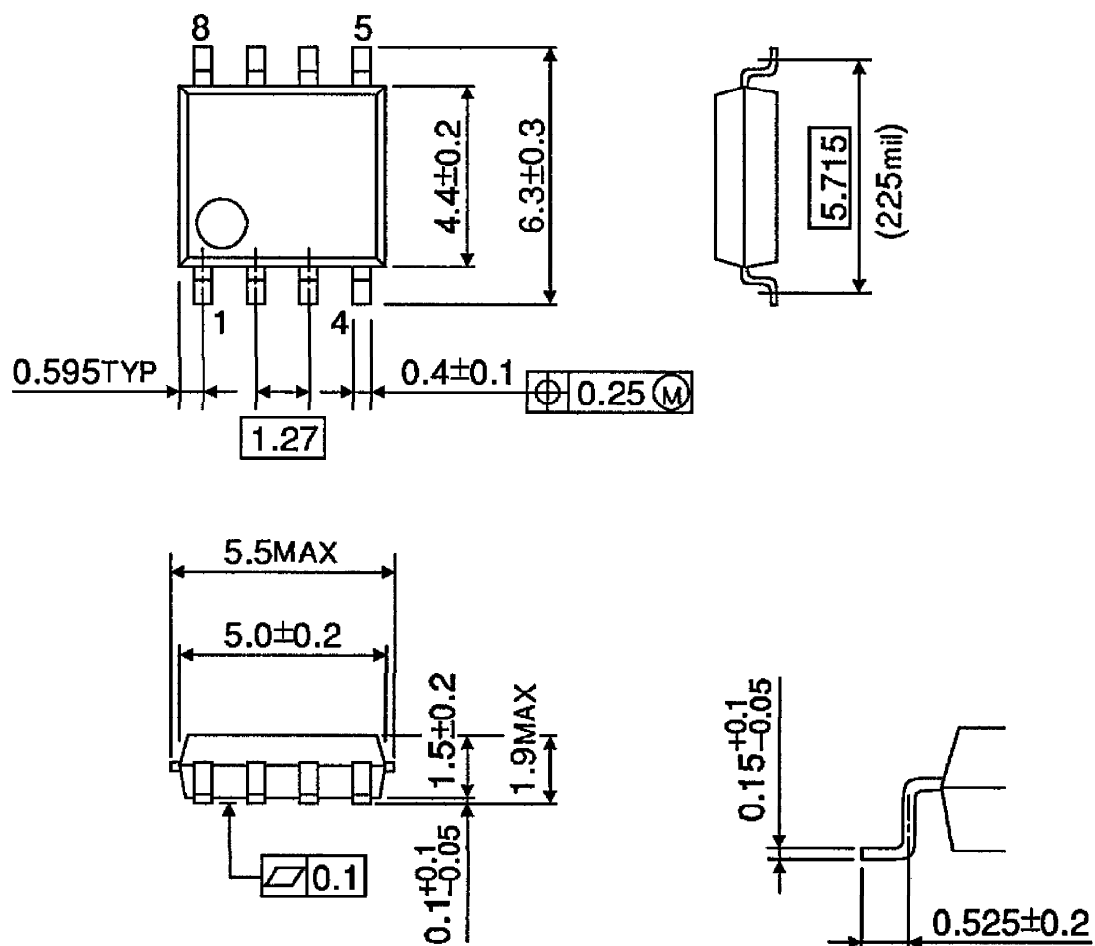
Unit : mm



Weight : 0.52g (Typ.)

OUTLINE DRAWING
SOP8-P-225-1.27

Unit : mm



Weight : 0.08g (Typ.)