

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62300P, TD62300F

2CH LOW V_{CC} SINK DRIVER

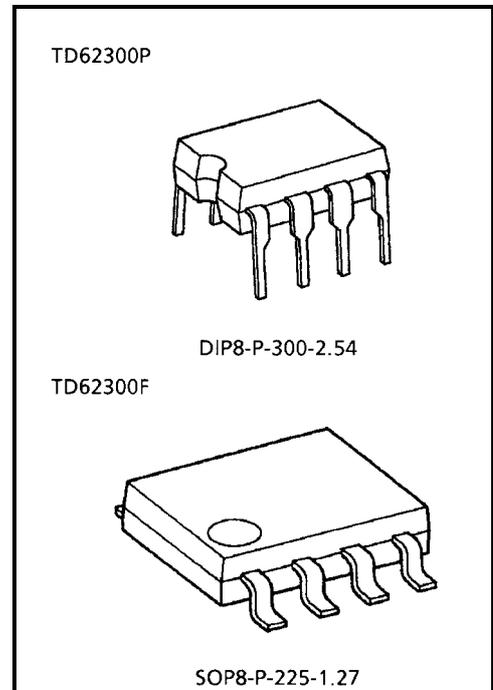
The TD62300P, TD62300F are comprised of two Low V_{CC} drivers.

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

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

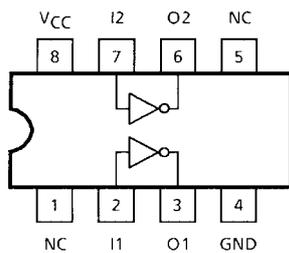
FEATURES

- Wide supply voltage range : V_{CC} = 1.0~6.5 V
- High output current (single output) : 200 mA (Max.)
- Low supply current : I_{CC} (OFF) = 1 μA (Max.)
- Input resistor : R_{IN} = 33 kΩ (Typ.)
- Package type-P : DIP-8 pin
- Package type-F : SOP-8 pin



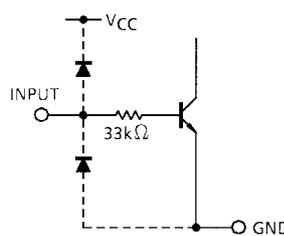
Weight
 DIP8-P-300-2.54 : 0.52 g (Typ.)
 SOP8-P-225-1.27 : 0.08 g (Typ.)

PIN CONNECTION (TOP VIEW)

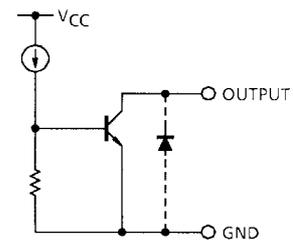


OUTPUT-INPUT EQUIVALENT CIRCUIT

Equivalent of input



Equivalent of output



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

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	P _D	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 × 1.6 mm 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	W
	TD62300F		(Note)	—	—	230	

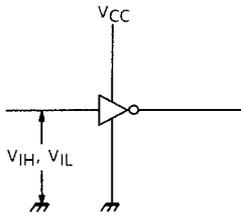
Note: On Glass Epoxy (20 × 20 × 1.6 mm Cu 50%)

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

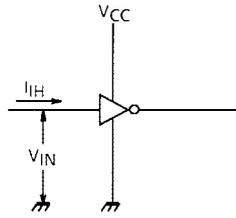
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Input Voltage	"H" Level	V _{IH}	1		0.85	—	—	V
	"L" Level	V _{IL}	1		—	—	0.45	
Input Current	"H" Level	I _{IH}	2	V _{IN} = 0.85 V	—	4.9	—	μA
Output Current	"H" Level	I _{OH}	3	V _{CC} = V _{OUT} = 5.0 V	—	—	10	μA
Output Voltage	"L"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

TEST CIRCUIT

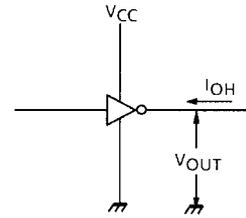
1. V_{IH} , V_{IL}



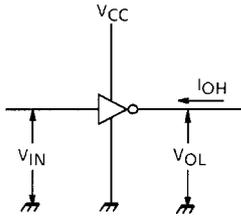
2. I_{IH}



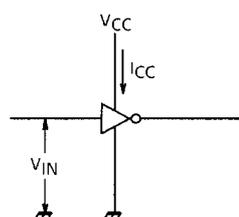
3. I_{OH}



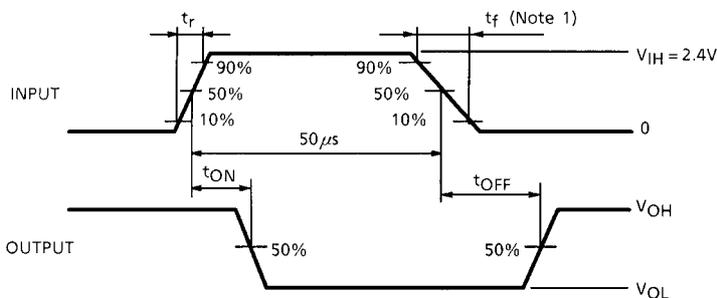
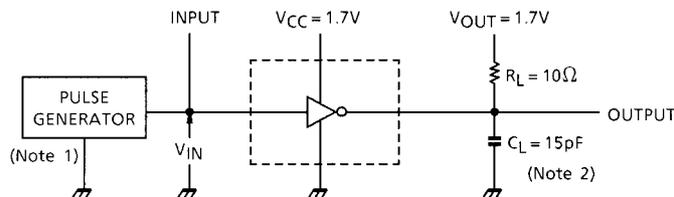
4. V_{OL}



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



6. t_{ON} , t_{OFF}



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

Note 2: C_L includes probe and jig capacitance.

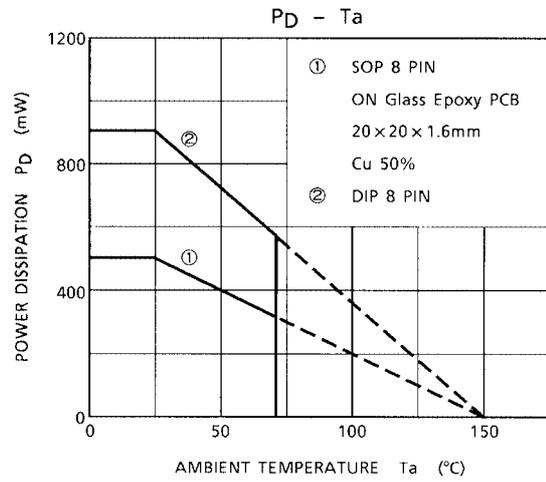
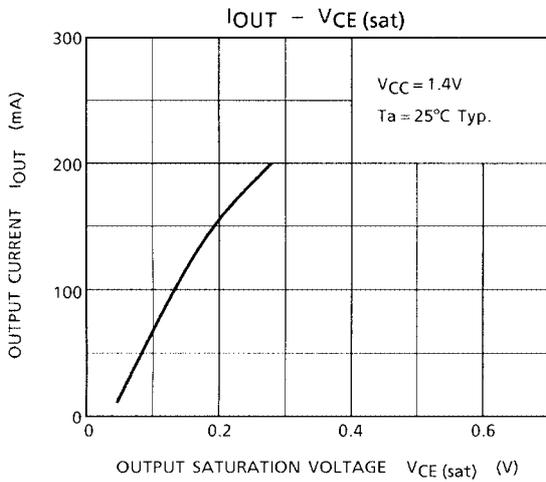
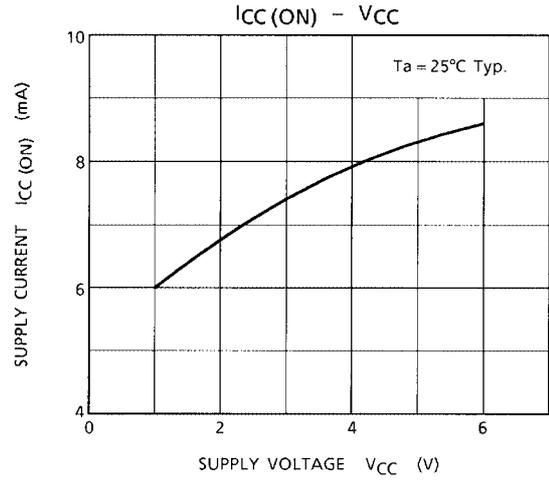
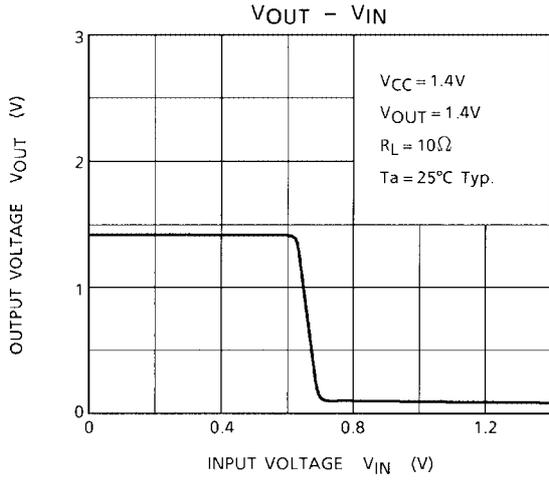
PRECAUTIONS for USING

This IC does not include built-in protection circuits for excess current or overvoltage.

If this IC is subjected to excess current or overvoltage, it may be destroyed.

Hence, the utmost care must be taken when systems which incorporate this IC are designed.

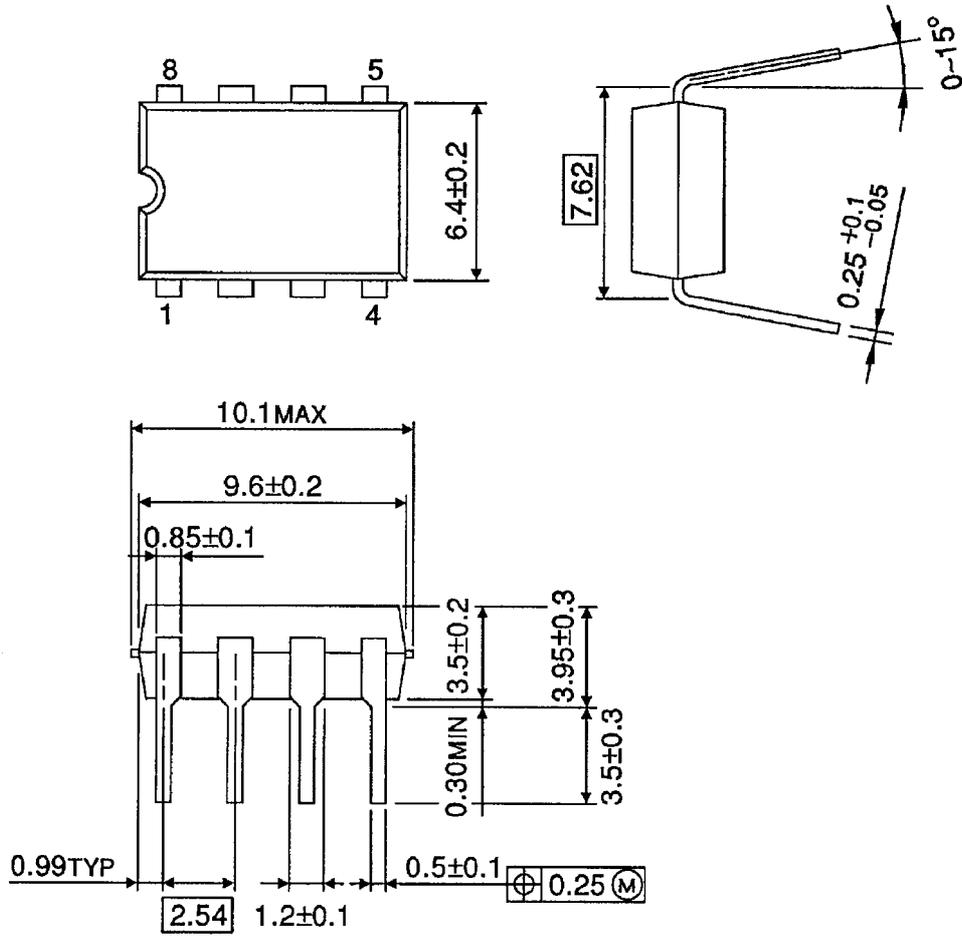
Utmost care is necessary in the design of the output line, VCC, COMMON and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.



PACKAGE DIMENSIONS

DIP8-P-300-2.54

Unit : mm

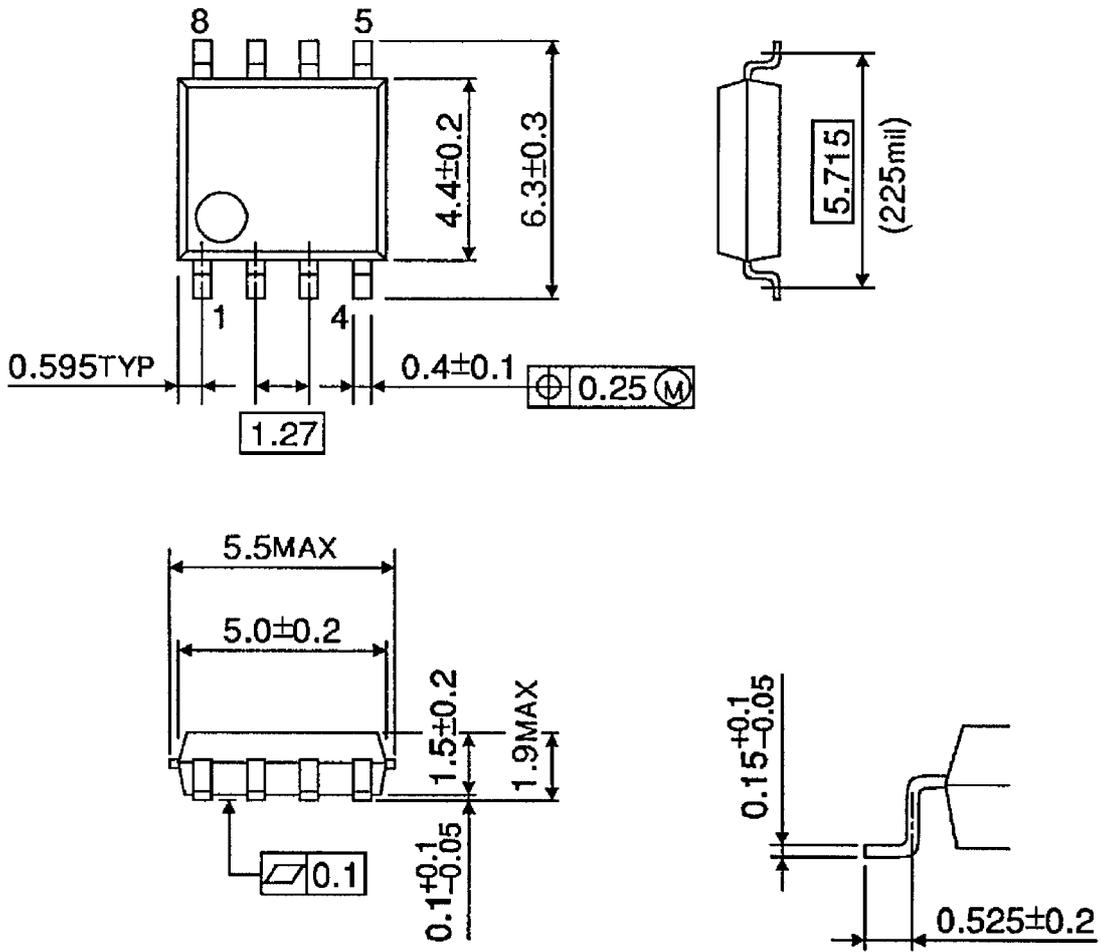


Weight: 0.52 g (Typ.)

PACKAGE DIMENSIONS

SOP8-P-225-1.27

Unit : mm



Weight: 0.08 g (Typ.)

RESTRICTIONS ON PRODUCT USE

000707EBA

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In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc..
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