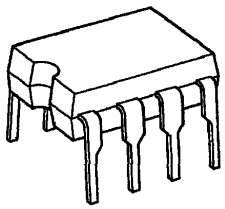
TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62300P, TD62300F

2CH LOW V_{CC} SINK DRIVER

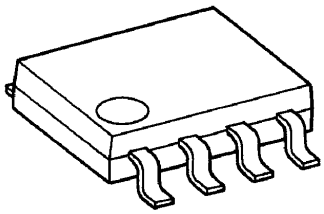
The TD62300P, TD62300F are comprised of two Low V_{CC} drivers.
These devices can operate from V_{CC} = 1.0V, and suitable for various types of battery system.
Applications include relay, hammer, lamp and stepping motor drivers.

TD62300P



DIP8-P-300-2.54

TD62300F



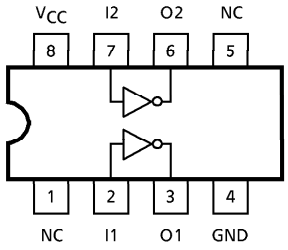
SOP8-P-225-1.27

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

FEATURES

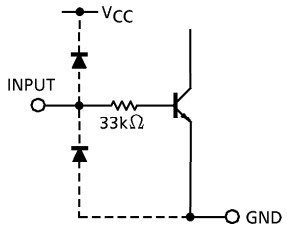
- Wide supply voltage range : V_{CC} = 1.0~6.5V
- High output current (single output) : 200mA (Max.)
- Low supply current : $I_{CC\ (OFF)}$ = 1μA (Max.)
- Input resistor : R_{IN} = 33kΩ (Typ.)
- Package type-P : DIP-8 pin
- Package type-F : SOP-8 pin

PIN CONNECTION (TOP VIEW)

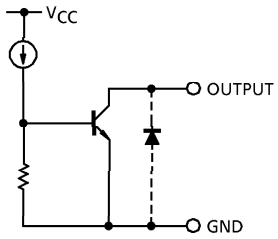


OUTPUT-INPUT EQUIVALENT CIRCUIT

Equivalent of input



Equivalent of output



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

961001EBA2

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 × 1.6mm 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		(Note)	—	—	230	

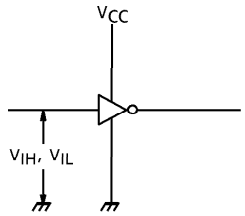
(Note) On Glass Epoxy (20 × 20 × 1.6mm Cu 50%)

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

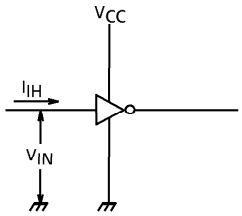
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Voltage	"H" Level	V_{IH}	1		0.85	—	—	V
	"L" Level	V_{IL}	1		—	—	0.45	
Input Current	"H" Level	I_{IH}	2	V_{IN} = 0.85V	—	4.9	—	μA
Output Current	"H" Level	I_{OH}	3	$V_{CC} = V_{OUT}$ = 5.0V	—	—	10	μA
Output Voltage	"L" Level	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

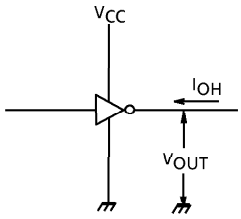
1. V_{IH}, V_{IL}



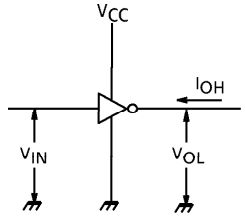
2. I_{IH}



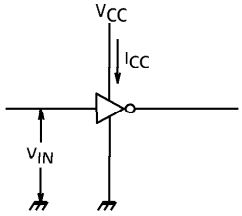
3. I_{OH}



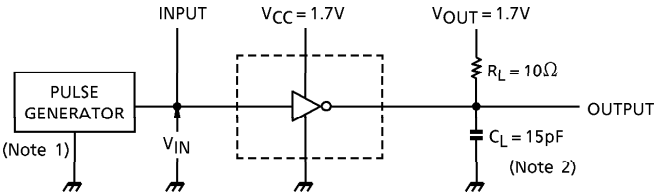
4. V_{OL}

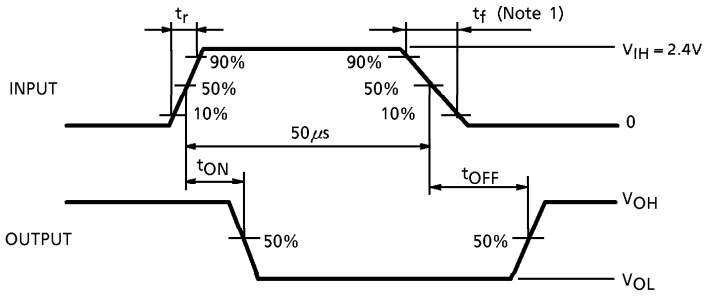


5. $I_{CC\ (ON)}$, $I_{CC\ (OFF)}$



6. t_{ON}, t_{OFF}





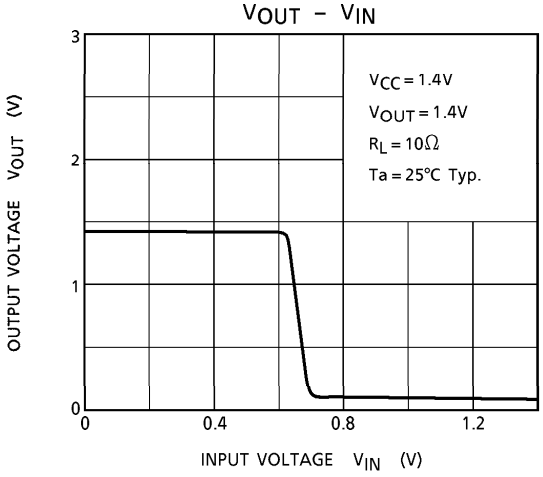
(Note 1) Pulse Width 50μs
Duty Cycle 10%
Output Impedance 50Ω
$t_r \leqq 5$ns, $t_f \leqq 10$ns

(Note 2) C_L includes probe and jig capacitance.

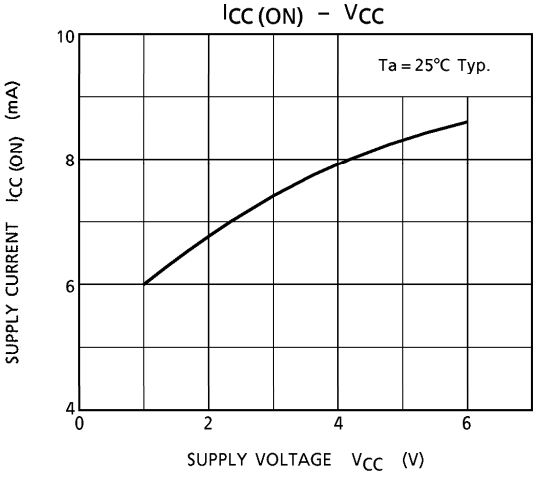
PRECAUTIONS for USING

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.

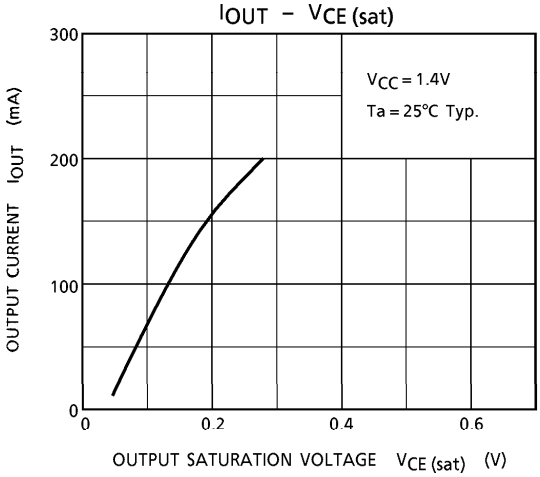
V_{OUT} – V_{IN}



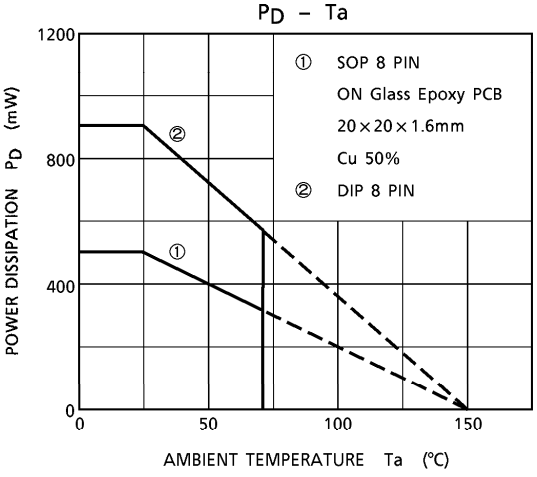
$I_{CC\,(ON)}$ – V_{CC}



I_{OUT} – $V_{CE\,(sat)}$



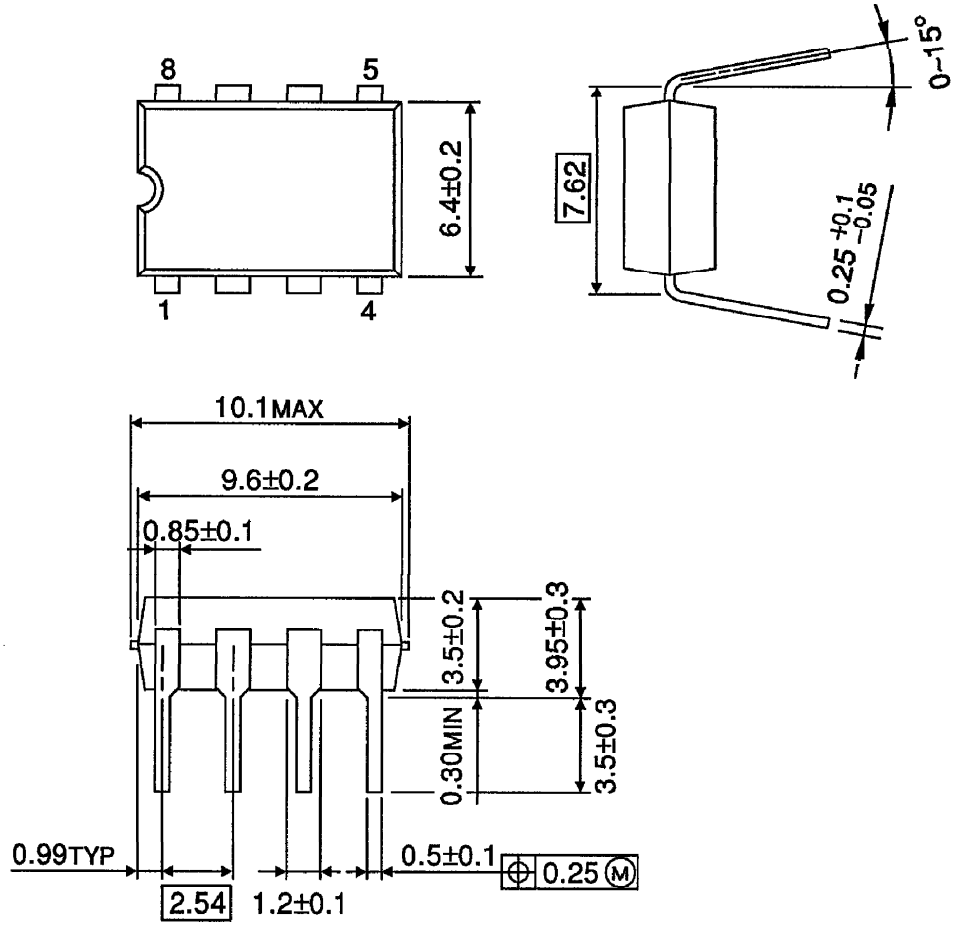
P_D – Ta



OUTLINE DRAWING

DIP8-P-300-2.54

Unit : mm

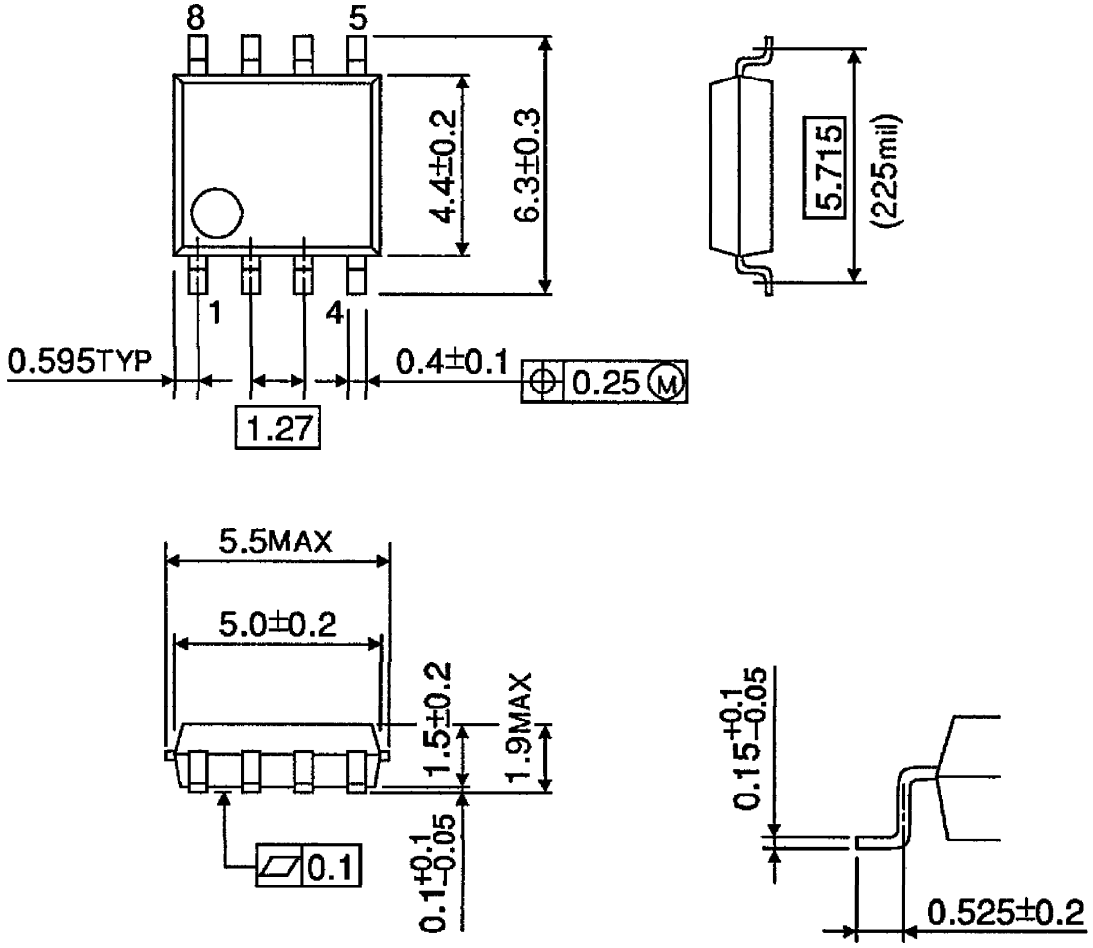


Weight : 0.52g (Typ.)

OUTLINE DRAWING

SOP8-P-225-1.27

Unit : mm



Weight : 0.08g (Typ.)