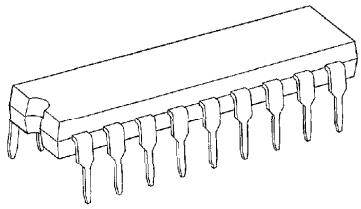
TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62583AP, TD62583F, TD62583AF

8CH SINGLE DRIVER

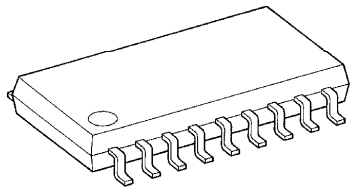
The TD62583AP / F / AF have a 2.7kΩ series base resistor, and thus allows operation directly with TTL or CMOS operating at supply voltage of 5V.
Applications include relay, hammer, lamp and display (LED) drivers.

TD62583AP



DIP18-P-300-2.54D

TD62583F
TD62583AF



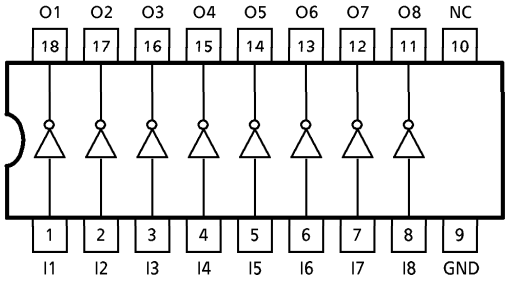
SOP18-P-375-1.27

Weight
DIP18-P-300-2.54D : 1.47g (Typ.)
SOP18-P-375-1.27 : 0.41g (Typ.)

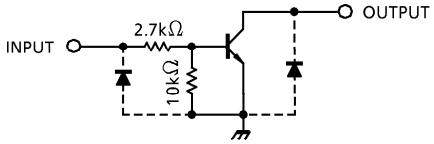
FEATURES

- Output current (single output) 50mA (Max.)
- High sustaining voltage output 35V (Min.) (TD62583F)
  50V (Min.) (TD62583AP / AF)
- Low saturation voltage V_{CE} (sat) = 0.4V @I_C = 16mA
- Inputs compatible with TTL, 5V CMOS
- Package type-AP : DIP-18 pin
- Package type-F, AF : SOP-18 pin

PIN CONNECTION (TOP VIEW)



SCHEMATICS (EACH DRIVER)



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

961001EBA2

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Output Sustaining Voltage	AP, AF	V_{CEO}	50	V
	F		35	
Output Current		I_{OUT}	50	mA / ch
Input Voltage		V_{IN}	10	V
Power Dissipation	AP	P_D	1.47	W
	F, AF		0.96	
Operating Temperature		T_{opr}	−40~85	°C
Storage Temperature		T_{stg}	−55~150	°C

RECOMMENDED OPERATING CONDITIONS (Ta = −40~85°C)

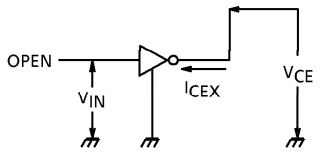
CHARACTERISTIC		SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Output Sustaining Voltage	AP, AF	V_{CEO}	—	0	—	50	V
	F		—	0	—	35	
Output Current		I_{OUT}	—	0	—	30	mA / ch
Input Voltage		V_{IN}	—	0	—	7	V
	Output On	$V_{IN\ (ON)}$	—	3.5	—	7	
Power Dissipation	AP	P_D	—	—	—	0.52	W
	F, AF		—	—	—	0.4	

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

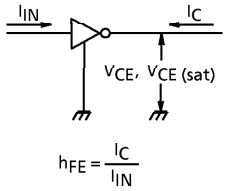
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Output Leakage Current	AP, AF	I_{CEX}	1	V_{CE} = 50V	V_{IN} = 0V	—	—	10	μA
	F			V_{CE} = 35V		—	—	10	
Output Saturation Voltage		$V_{CE\ (sat)}$	2	I_C = 16mA, I_{IN} = 0.3mA		—	0.2	0.4	V
				I_C = 30mA, I_{IN} = 0.45mA		—	0.3	0.7	
DC Current Transfer Ratio		h_{FE}	2	V_{CE} = 4V, I_C = 30mA		70	130	—	—
Input Current		$I_{IN\ (ON)}$	3	V_{IN} = 2.5V, I_C = 16mA		—	0.65	1.7	mA
Turn-On Delay	F	t_{ON}	4	V_{OUT} = 35V, R_L = 0.87kΩ		—	0.1	—	μs
	AP, AF			V_{OUT} = 50V, R_L = 1.25kΩ		—	0.1	—	
Turn-Off Delay	F	t_{OFF}		V_{OUT} = 35V, R_L = 0.87kΩ		—	0.5	—	
	AP, AF			V_{OUT} = 50V, R_L = 1.25kΩ		—	0.5	—	

TEST CIRCUIT

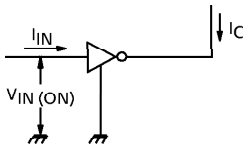
1. I_{CEX}



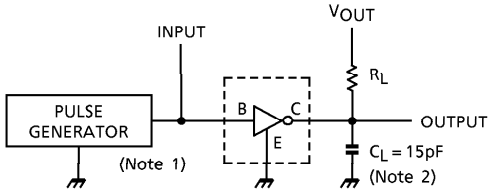
2. h_{FE}, $V_{CE\ (sat)}$

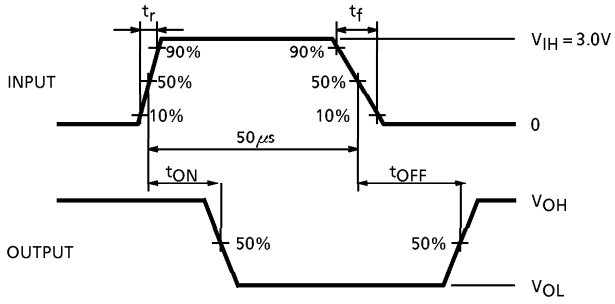


3. $V_{IN\ (ON)}$



4. t_{ON}, t_{OFF}



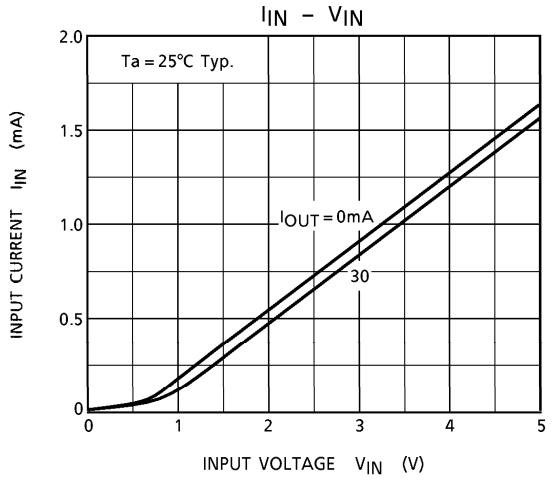


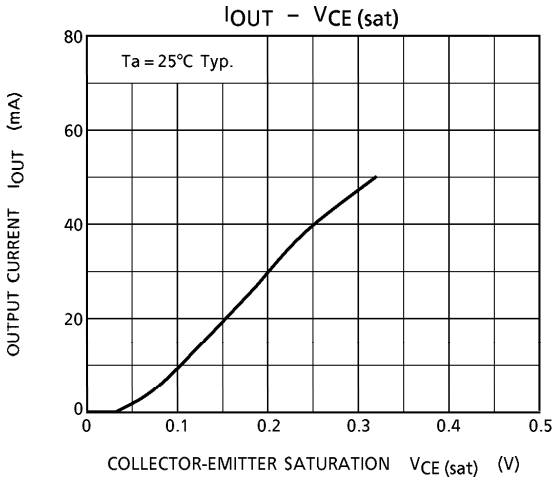
(Note 1) Pulse Width 50μs, Duty Cycle 10%
Output Impedance 50Ω, $t_r \leqq$ 5ns, $t_f \leqq$ 10ns

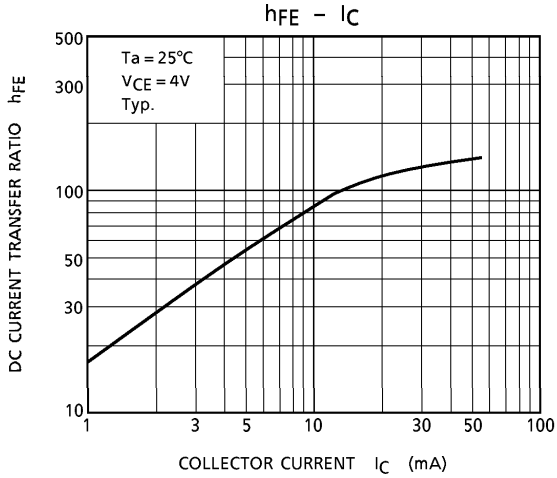
(Note 2) C_L includes probe and jig capacitance.

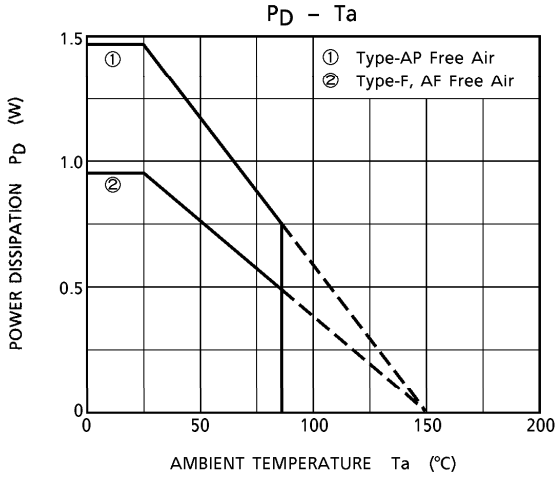
PRECAUTIONS for USING

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.


I_{IN} – V_{IN}
Ta = 25°C Typ.
I_{OUT} = 0mA
30
INPUT CURRENT I_{IN} (mA)
INPUT VOLTAGE V_{IN} (V)
2.0
1.5
1.0
0.5
0
0
1
2
3
4
5


I_{OUT} – $V_{CE\ (sat)}$
Ta = 25°C Typ.
OUTPUT CURRENT I_{OUT} (mA)
COLLECTOR-EMITTER SATURATION $V_{CE\ (sat)}$ (V)
80
60
40
20
0
0
0.1
0.2
0.3
0.4
0.5

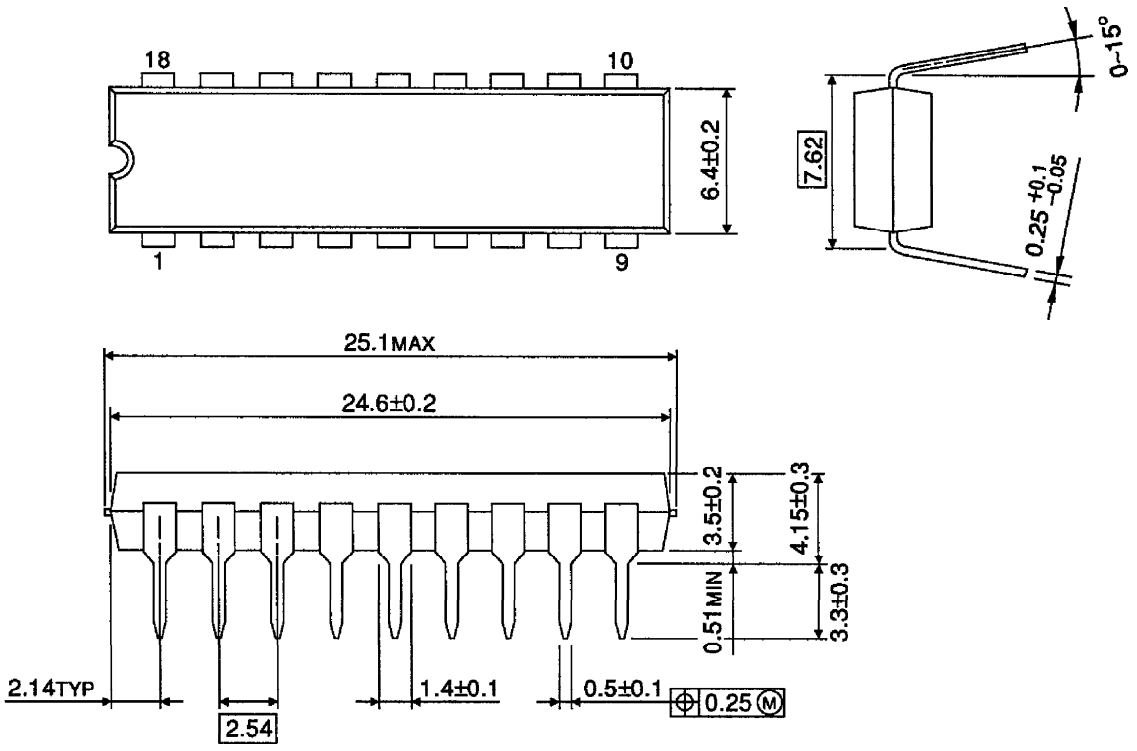

h_{FE} – I_C
Ta = 25°C
V_{CE} = 4V
Typ.
DC CURRENT TRANSFER RATIO h_{FE}
COLLECTOR CURRENT I_C (mA)
500
300
100
50
30
10
1
3
5
10
30
50
100


P_D – Ta
① Type-AP Free Air
② Type-F, AF Free Air
POWER DISSIPATION P_D (W)
AMBIENT TEMPERATURE Ta (°C)
1.5
1.0
0.5
0
0
50
100
150
200

OUTLINE DRAWING

DIP18-P-300-2.54D

Unit : mm

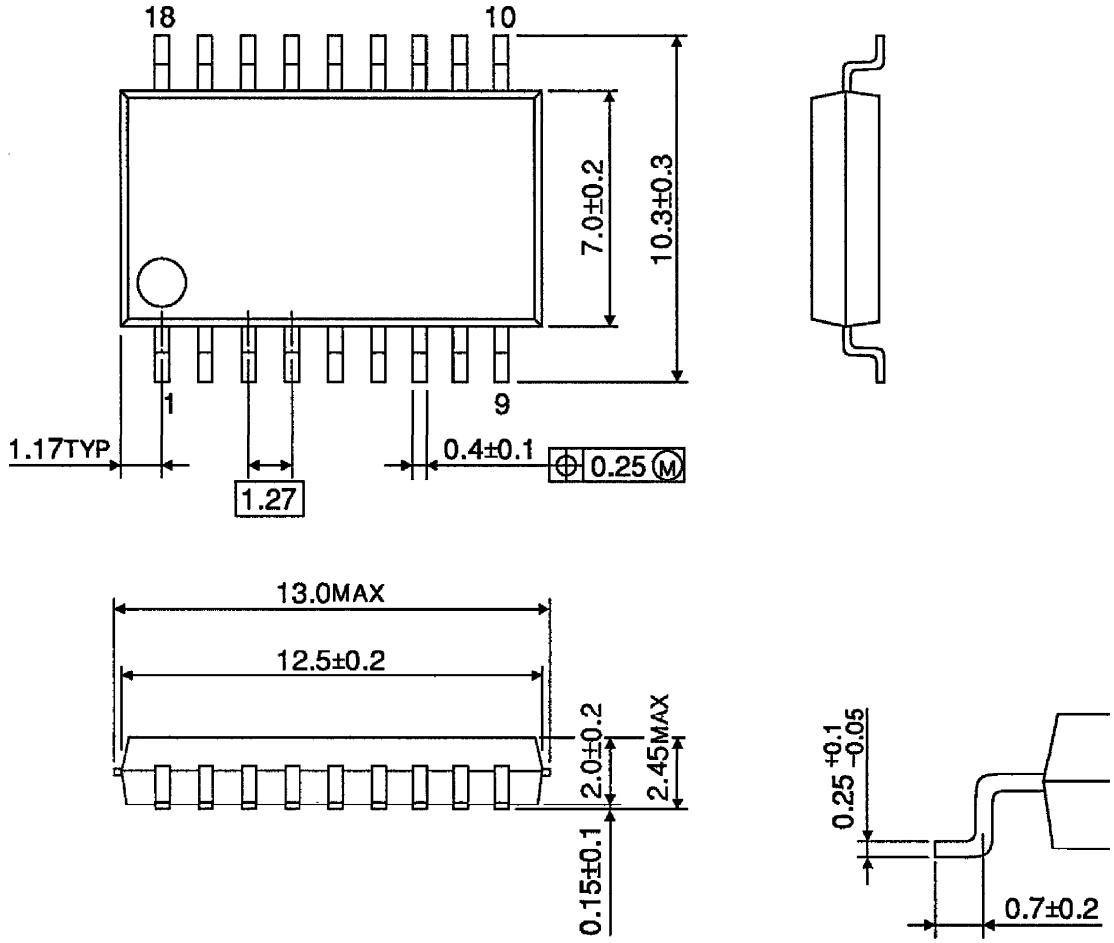


Weight : 1.47g (Typ.)

OUTLINE DRAWING

SOP18-P-375-1.27

Unit : mm



Weight : 0.41g (Typ.)