

TOSHIBA**TD62384,385AP/F/AF**

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

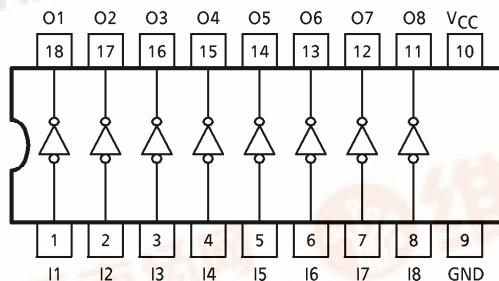
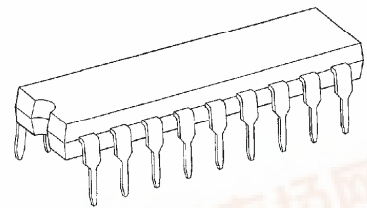
TD62384AP, TD62384F, TD62384AF
TD62385AP, TD62385F, TD62385AF**8CH LOW INPUT ACTIVE DARLINGTON SINK DRIVER**

The TD62384AP/F/AF and TD62385AP/F/AF are non-inverting transistor arrays, which are comprised of eight NPN darlington output stages and PNP input stages. These devices are Low Level input active drivers and are suitable for operations with TTL, 5V CMOS and 5V Microprocessor which have sink current output drivers. Applications include relay, hammer, lamp and LED driver.

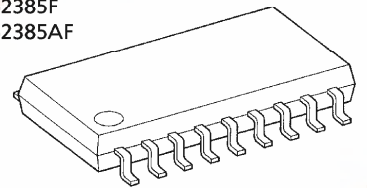
FEATURES

- Output current (single output) 500mA (Max.)
- High sustaining voltage 35V (TD62384F, 385F) 50V (TD62384AP/AF, 385AP/AF) (Min.)
- Low level active input
- Standard supply voltage
- Inputs compatible with TTL and 5V CMOS
- Package type-AP : DIP-18pin
- Package type-F, AF : SOP-18pin

TYPE	V _{IN} (ON)
TD62384AP / F / AF	-20V~V _{CC} -2.8V
TD62385AP / F / AF	0V~V _{CC} -3.7V

PIN CONNECTION (TOP VIEW)TD62384AP
TD62385AP

DIP18-P-300-2.54D

TD62384F
TD62384AF
TD62385F
TD62385AF

SOP18-P-375-1.27

Weight

DIP18-P-300-2.54D : 1.47g (Typ.)

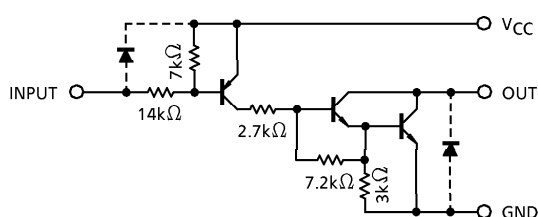
SOP18-P-375-1.27 : 0.41g (Typ.)

961001EBA2

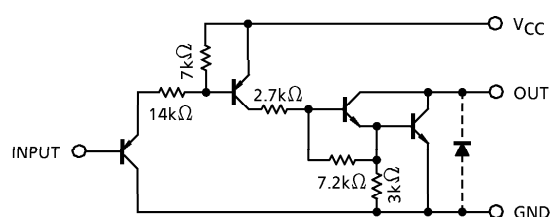
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SCHEMATICS (EACH DRIVER)

TD62384AP / F / AF



TD62385AP / F / AF



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

MAXIMUM RATING (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Supply Voltage		V _{CC}	− 0.5~7.0	V
Output Sustaining Voltage	AP / AF	V _{CE} (SUS)	− 0.5~50	V
	F		− 0.5~35	
Output Current		I _{OUT}	500	mA / ch
Input Voltage		V _{IN} (Note 1)	− 22~V _{CC} + 0.5	V
		V _{IN} (Note 2)	− 0.5~7	
Input Current		I _{IN}	− 10	mA
Power Dissipation	AP	P _D (Note 3)	1.47	W
	F / AF		0.96	
Operating Temperature		T _{opr}	− 40~85	°C
Storage Temperature		T _{stg}	− 55~150	°C

(Note 1) TD62384AP / AF / F

(Note 2) TD62385AP / AF / F

(Note 3) Delated above 25°C in the proportion of 11.7mW/°C (AP-Type), 7.7mW/°C (F, AF-Type).

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

CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V _{CC}	—	4.5	5.0	5.5	V
Output Sustaining Voltage	AP / AF F	V _{CE (SUS)}	—	—	50	V
Output Current	AP F / AF	I _{OUT}	—	—	35	V
		T _{pw} = 25ms, Duty = 50%, 8 Circuits Ta = 85°C, T _j = 120°C	0	—	115	mA / ch
		T _{pw} = 25ms, Duty = 10%, 1 Circuit	0	—	78	mA / ch
Input Voltage	TD62384 TD62385	V _{IN}	- 20 0	—	V _{CC} 5.5	V
Power Dissipation	AP F / AF	P _D	—	—	0.52 0.35	W

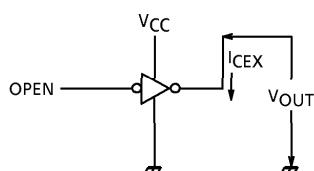
ELECTRICAL CHARACTERISTIC (Ta = 25°C)

CHARACTERISTIC			SYMBOL	TEST CIR- CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Output Leakage Current		AP / AF	I _{CEX}	1	V _{CC} = 5.5V, I _{IN} = 0, Ta = 85°C	V _{OUT} = 50V	—	—	100	μA
		F			V _{OUT} = 35V					
Output Saturation Voltage			V _{CE} (sat)	2	V _{CC} = 4.5V, I _{OUT} = 350mA V _{IN} = V _{IN} (ON) MAX.		—	1.4	2.0	V
Input Current		(Output On)	I _{IN} (ON)	3	V _{CC} = 5.5V, V _{IN} = 0.4V		—	−0.32	−0.45	mA
					V _{CC} = 5.5V, V _{IN} = −20V		—	—	−2.6	
		(Output Off)	I _{IN} (OFF)	4	—		—	—	−4.0	μA
Input Voltage	(Output On)	TD62384	V _{IN} (ON)	5	—		—	—	V _{CC} − 2.8	V
		TD62385			—		—	—	V _{CC} − 3.7	
Supply Current			I _{CC} (ON)	6	V _{CC} = 5.5V, V _{IN} = 0		—	17	22	mA
			I _{CC} (OFF)		V _{CC} = 5.5V, V _{IN} = V _{CC}		—	—	100	μA
Turn-On Delay			t _{ON}	7	V _{CC} = 5V, V _{OUT} = 50V R _L = 163Ω, C _L = 15pF (Note 1)		—	0.1	—	μs
Turn-Off Delay			t _{OFF}				—	3	—	

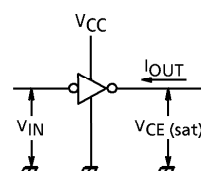
(Note 1) F-Type : V_{OUT} = 35V, R_L = 116Ω

TEST CIRCUIT

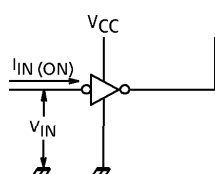
1. I_{CEX}



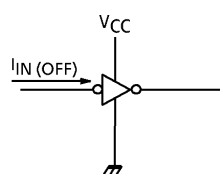
2. $V_{CE(sat)}$



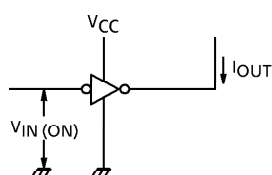
3. $I_{IN(ON)}$



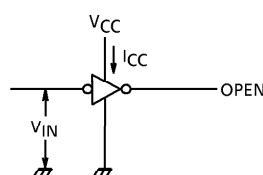
4. $I_{IN(OFF)}$



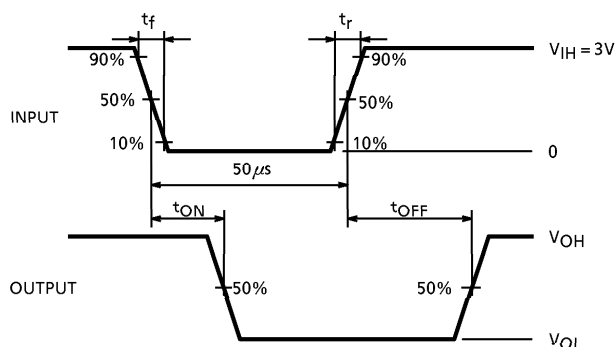
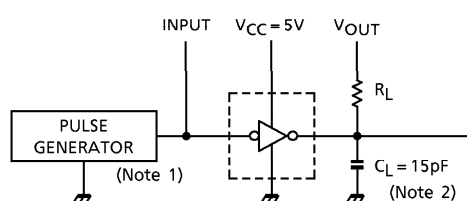
5. $V_{IN(ON)}$



6. I_{CC}



7. t_{ON} , t_{OFF}

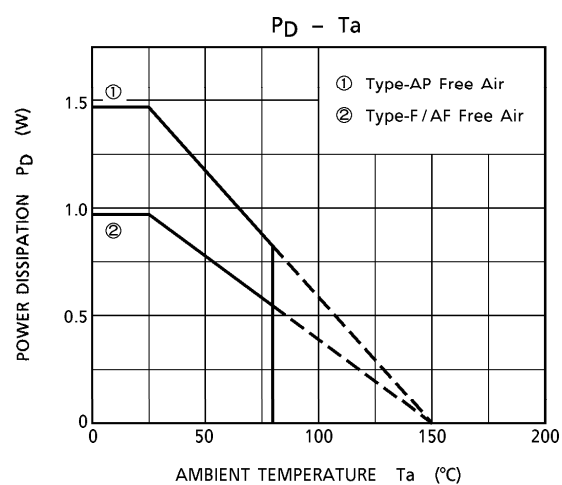
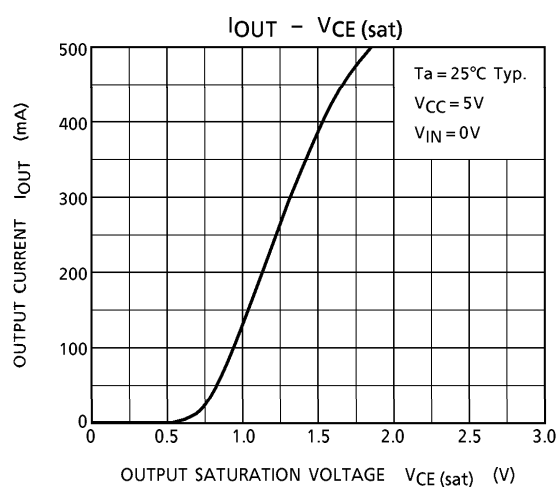
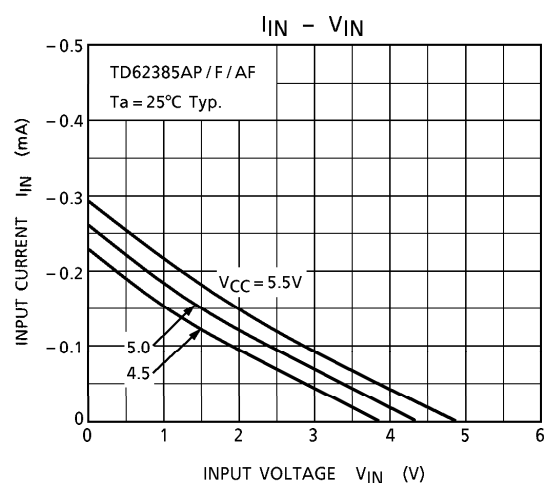
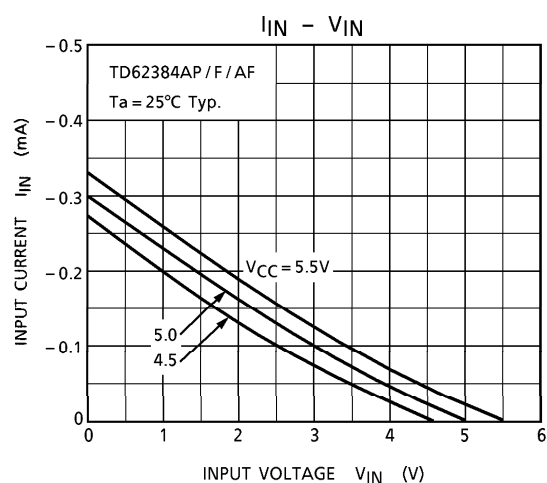
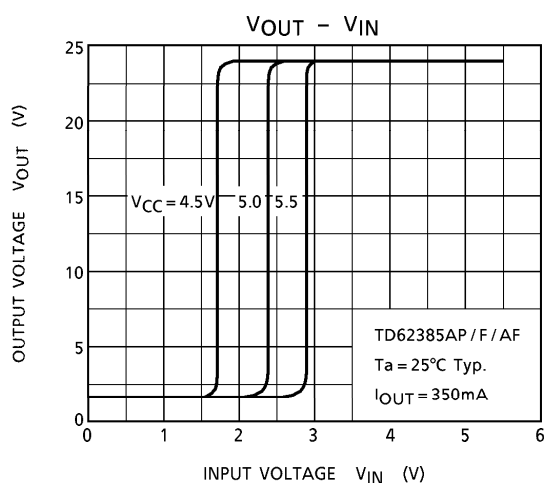
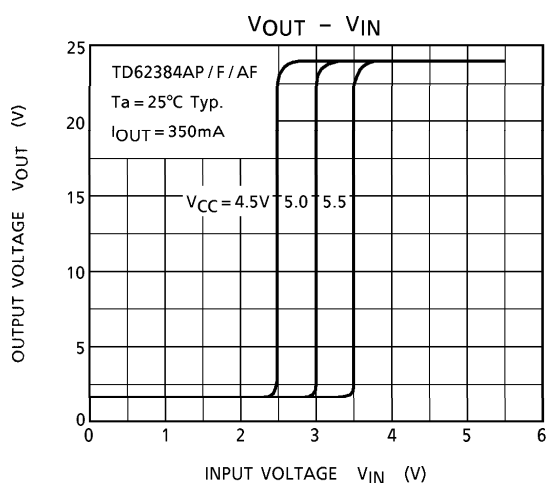


(Note 1) Pulse Width $50\mu s$, Duty Cycle 10%
Output Impedance 50Ω , $t_r \leq 5ns$, $t_f \leq 10ns$

(Note 2) C_L includes probe and jig capacitance.

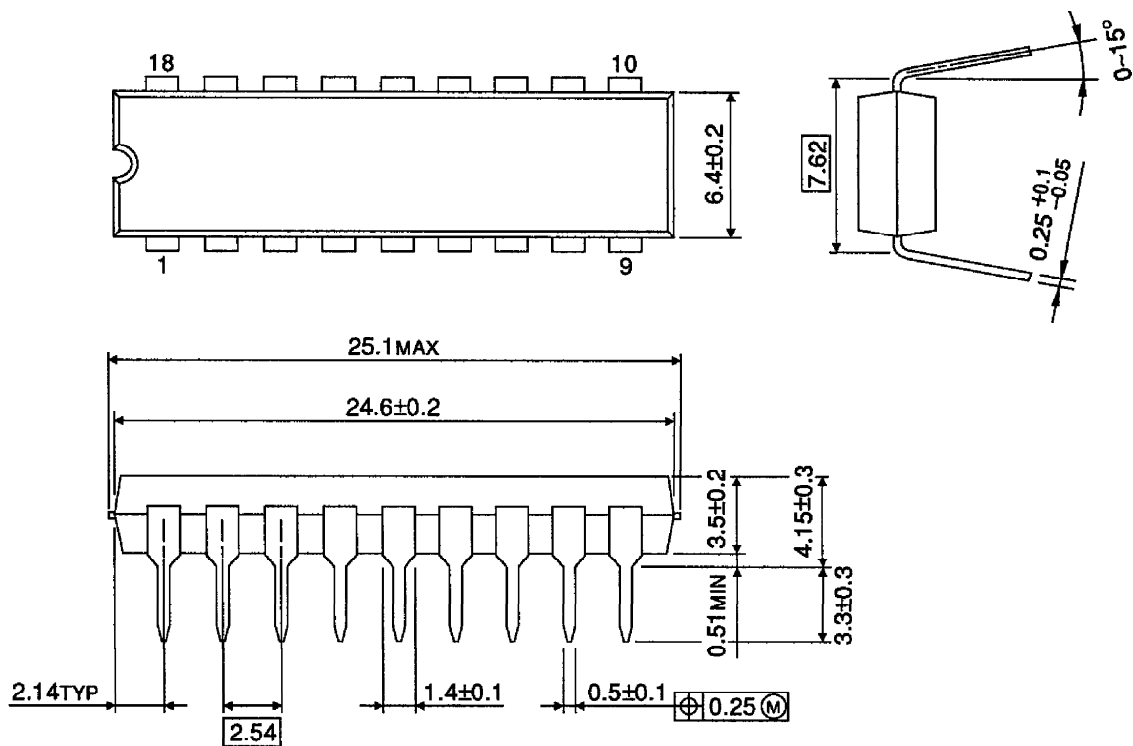
PRECAUTIONS for USING

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
DIP18-P-300-2.54D

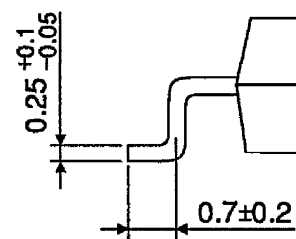
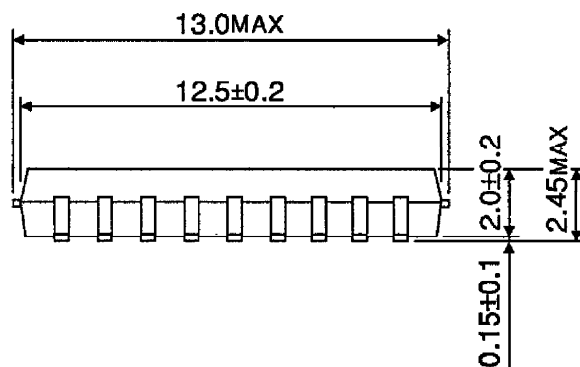
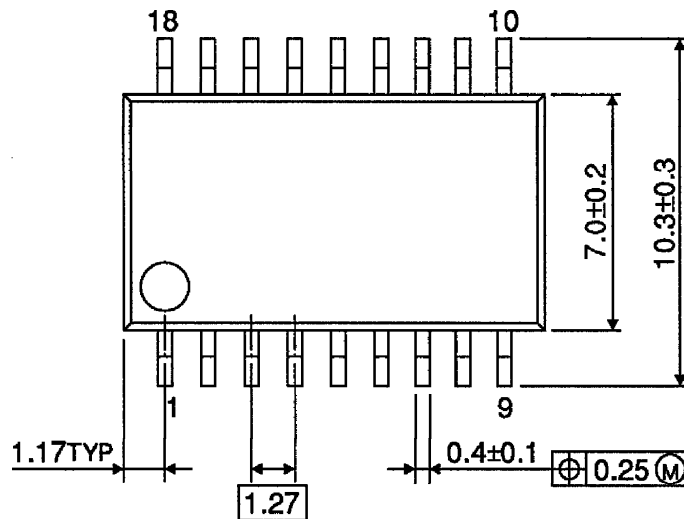
Unit : mm



Weight : 1.47g (Typ.)

OUTLINE DRAWING
SOP18-P-375-1.27

Unit : mm



Weight : 0.41g (Typ.)