

TD62303P, TD62303F

6CH DIGIT DRIVER

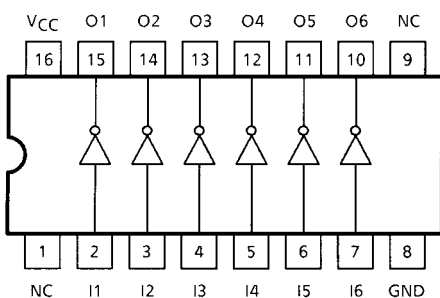
The TD62303P and TD62303F are comprised of six NPN low saturation drivers.

These devices are specifically designed for multiplexed digit driving of six digits common cathode LED displays. This device is intended for use with TTL and 5 V CMOS.

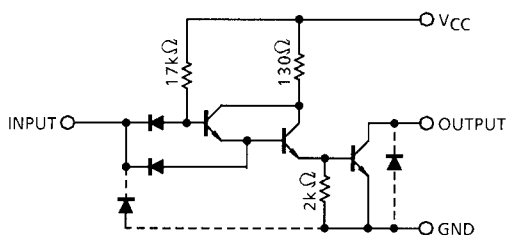
FEATURES

- Low saturation output : $V_{CE(sat)} = 0.8 \text{ V (Max.)}$
- Output rating (single output) 17 V (Min.) / 500 mA (Max.)
- Input compatible with TTL and 5 V CMOS
- Suitable for digit-driver of 6 digit common cathode LED displays.
- Package type-P: DIP-16 pin
- Package type-F: SOP-16 pin

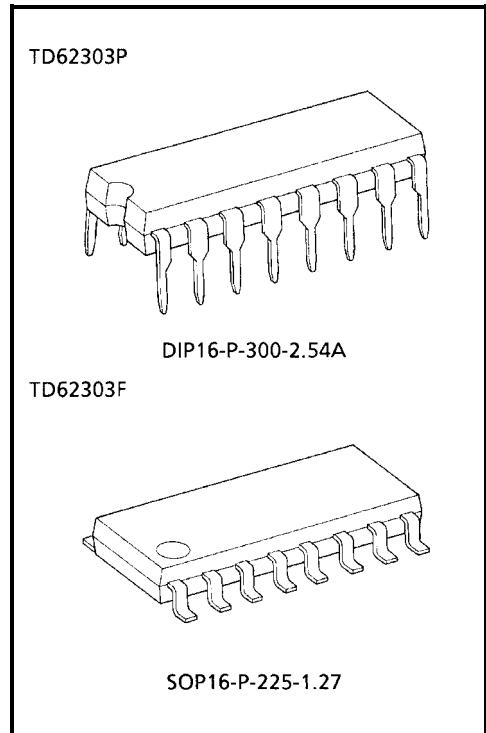
PIN CONNECTION (TOP VIEW)



SCHEMATICS (EACH DRIVER)



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



Weight
 DIP16-P-300-2.54A : 1.11 g (Typ.)
 SOP16-P-225-1.27 : 0.16 g (Typ.)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTICS		SYMBOL	RATING	UNIT
Supply Voltage		V _{CC}	-0.5~7.0	V
Output Sustaining Voltage		V _{CE (SUS)}	-0.5~17	V
Output Current		I _{OUT}	500	mA / ch
Input Voltage		V _{IN}	-0.5~V _{CC} + 0.5	V
Input Current		I _{IN}	-10	mA
Power Dissipation	P	P _D	1.0	W
	F		0.625 (Note)	
Operating Temperature	P	T _{opr}	-30~75	°C
	F		-40~85	
Storage Temperature		T _{stg}	-55~150	°C

Note: On Glass Epoxy PCB (30 × 30 × 1.6 mm Cu 50%)

RECOMMENDED OPERATING CONDITIONS (Ta = -30~75°C and Ta = -40~85°C for only Type-P)

CHARACTERISTIC		SYMBOL	CONDITION	MIN	TYP.	MAX	UNIT
Supply Voltage		V _{CC}	—	4.5	5.0	5.5	V
Output Sustaining Voltage		V _{CE (SUS)}	—	0	—	15	V
Output Current		I _{OUT}	DC 1 Circuit	0	—	350	mA / ch
Input Voltage		V _{IN}	—	0	—	V _{CC}	V
Power Dissipation	P	P _D	—	—	—	0.44	W
	F		(Note)	—	—	0.325	

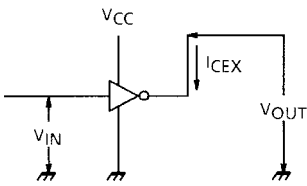
Note: On Glass Epoxy PCB (30 × 30 × 1.6 mm Cu 50%)

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

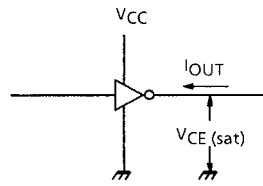
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Output Leakage Current	P	I _{CEX}	1	V _{CC} = 5.5 V V _{IN} = 0 V V _{OUT} = 15 V	—	—	100	μA
	F			Ta = 75°C Ta = 85°C				
Output Saturation Voltage		V _{CE (sat)}	2	V _{CC} = 4.5 V, I _{OUT} = 150 mA	—	0.3	0.4	V
				V _{CC} = 4.5 V, I _{OUT} = 350 mA				
Input Current	Output On	I _{IN (ON)}	3	V _{CC} = 5.5 V, V _{IN} = 5.5 V	—	—	40	μA
	Output Off	I _{IN (OFF)}	4	V _{CC} = 5.5 V, V _{IN} = 0.4 V	—	—	-0.36	mA
Input Voltage	Output On	V _{IN (ON)}	5	—	—	—	2.0	V
	Output Off	V _{IN (OFF)}	5	—	0.8	—	—	
Supply Current		I _{CC}	6	V _{CC} = 5.5 V, V _{IN} = 5.5 V	—	—	47	mA / Gate
Turn-On Delay		t _{ON}	7	V _{CC} = 5.0 V, R _L = 37.5 Ω V _{OUT} = 15 V, C _L = 15 pF	—	0.1	—	μs
Turn-Off Delay		t _{OFF}			—	0.7	—	μs

TEST CIRCUIT

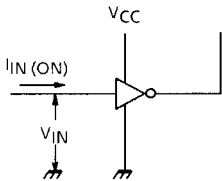
1. I_{CEX}



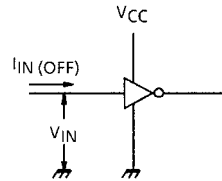
2. $V_{CE(sat)}$



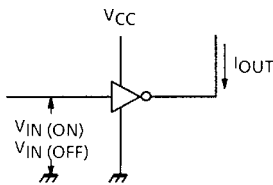
3. $I_{IN(ON)}$



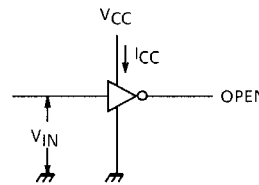
4. $I_{IN(OFF)}$



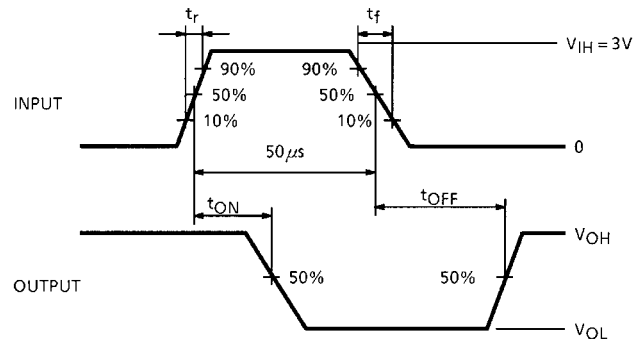
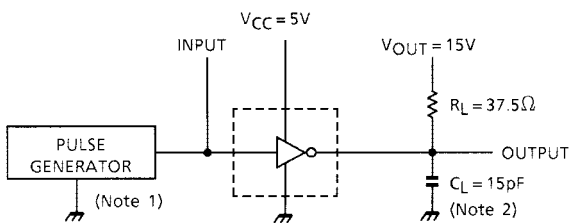
5. $V_{IN(ON)}$, $V_{IN(OFF)}$



6. I_{CC}



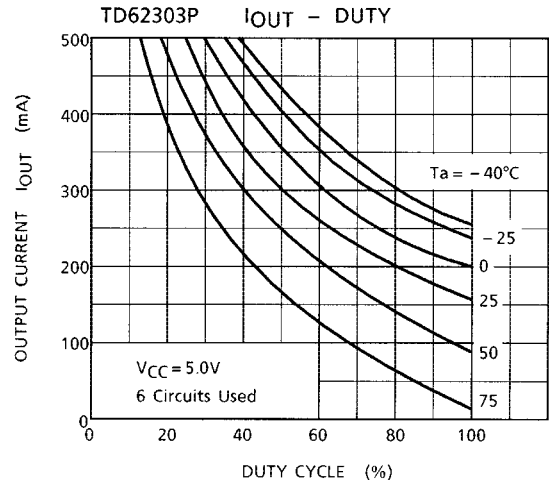
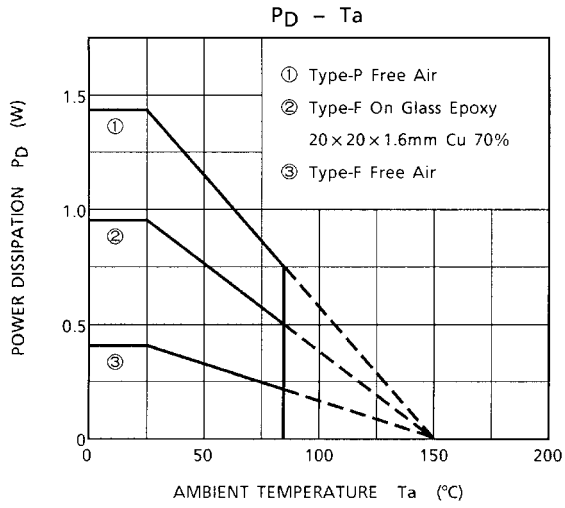
7. t_{ON} , t_{OFF}



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

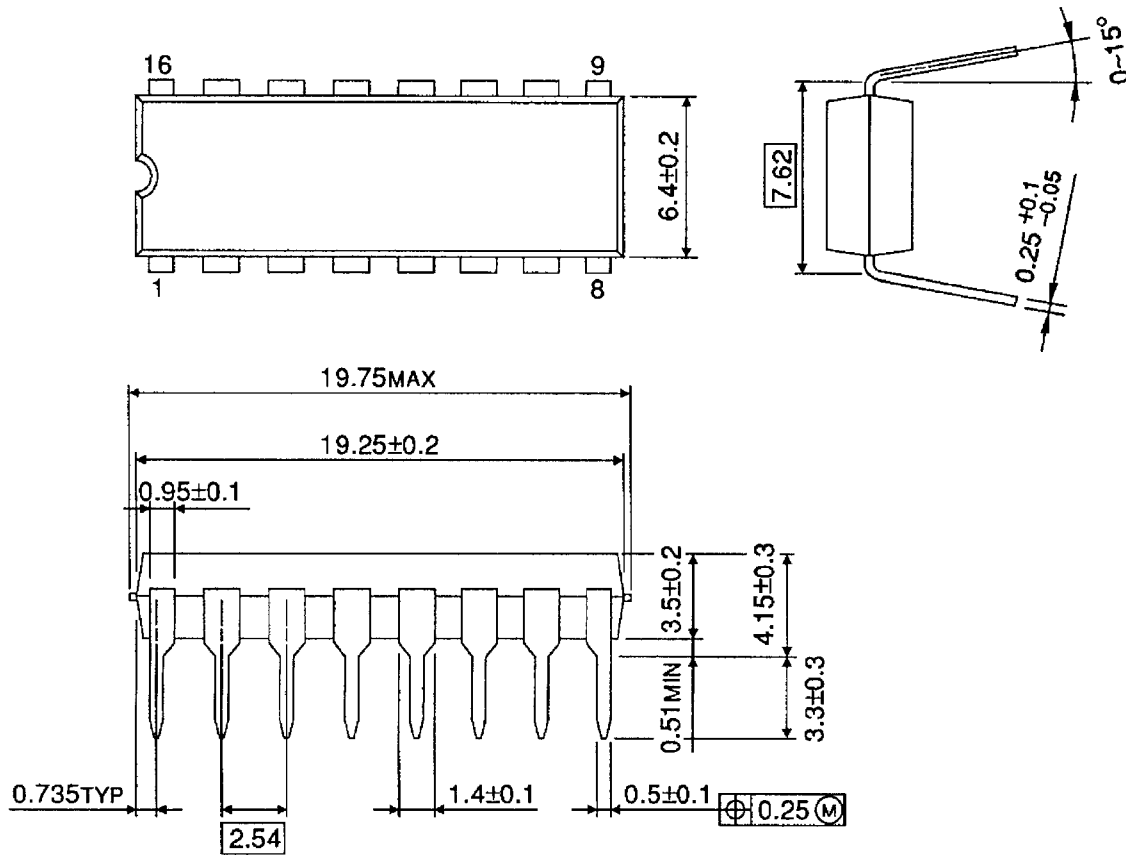
This IC does not include built-in protection circuits for excess current or overvoltage. If this IC is subjected to excess current or overvoltage, it may be destroyed. Hence, the utmost care must be taken when systems which incorporate this IC are designed. Utmost care is necessary in the design of the output line, VCC and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.



PACKAGE DIMENSIONS

DIP16-P-300-2.54A

Unit : mm

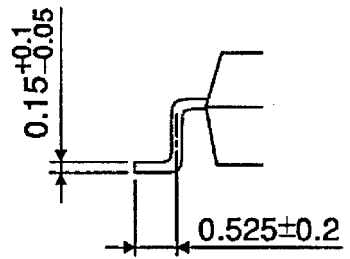
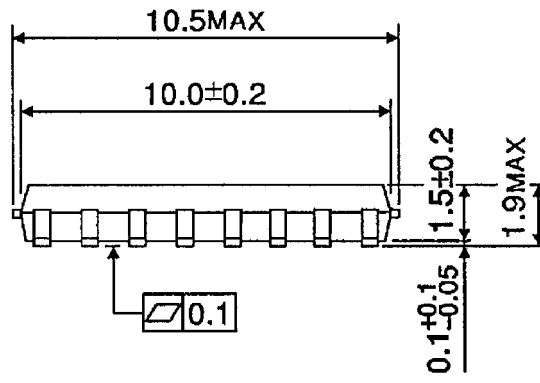
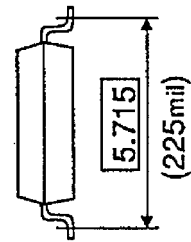
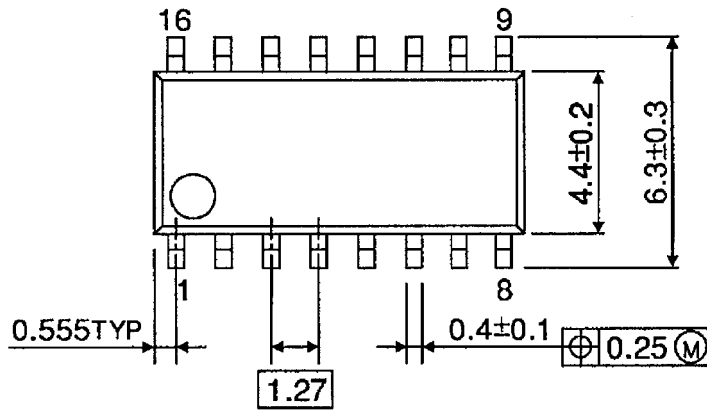


Weight: 1.11 g (Typ.)

PACKAGE DIMENSIONS

SOP16-P-225-1.27

Unit : mm



Weight: 0.16 g (Typ.)

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000707EBA

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