

TOSHIBA

TD62303P/F

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62303P, TD62303F

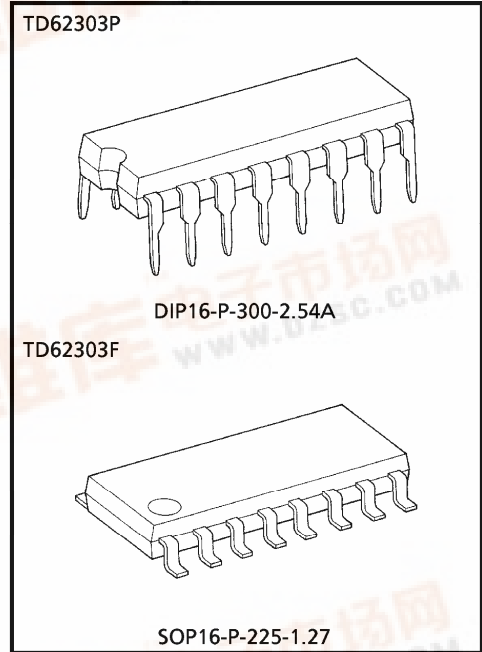
6CH DIGIT DRIVER

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 5V CMOS.

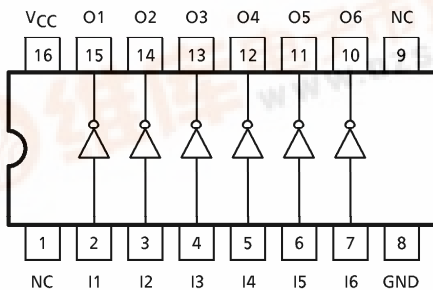
FEATURES

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

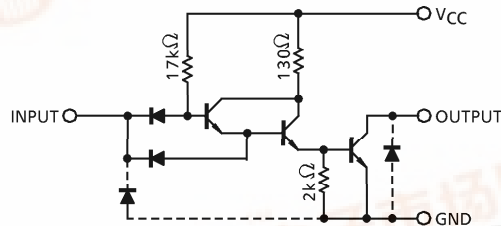


Weight
DIP16-P-300-2.54A : 1.11g (Typ.)
SOP16-P-225-1.27 : 0.16g (Typ.)

PIN CONNECTION (TOP VIEW)



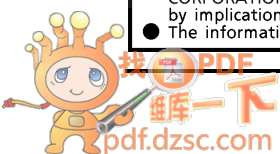
SCHEMATICS (EACH DRIVER)



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

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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		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}	- 50~150	°C

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

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

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	

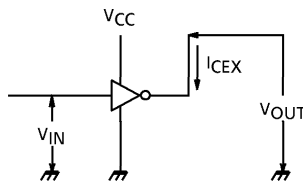
(Note) On Glass Epoxy PCB (30 × 30 × 1.6mm Cu 50%)

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

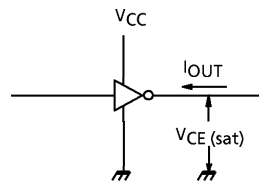
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current	P	I _{CEX}	1	V _{CC} = 5.5V, V _{IN} = 0V V _{OUT} = 15V	—	—	100	μA
	F							
Output Saturation Voltage		V _{CE(sat)}	2	V _{CC} = 4.5V, I _{OUT} = 150mA	—	0.3	0.4	V
				V _{CC} = 4.5V, I _{OUT} = 350mA	—	0.65	0.8	
Input Current	Output On	I _{IN(ON)}	3	V _{CC} = 5.5V, V _{IN} = 5.5V	—	—	40	μA
	Output Off	I _{IN(OFF)}	4	V _{CC} = 5.5V, V _{IN} = 0.4V	—	—	- 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} = 5.5V, V _{IN} = 5.5V	—	—	47	mA / Gate
Turn-On Delay		t _{ON}	7	V _{CC} = 5.0V, R _L = 37.5Ω V _{OUT} = 15V, C _L = 15pF	—	0.1	—	μs
Turn-Off Delay		t _{OFF}			—	0.7	—	μs

TEST CIRCUIT

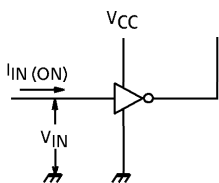
1. I_{CEX}



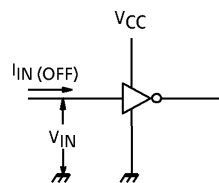
2. $V_{CE(sat)}$



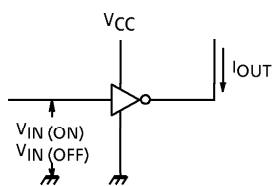
3. $I_{IN(ON)}$



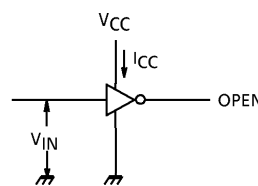
4. $I_{IN(OFF)}$



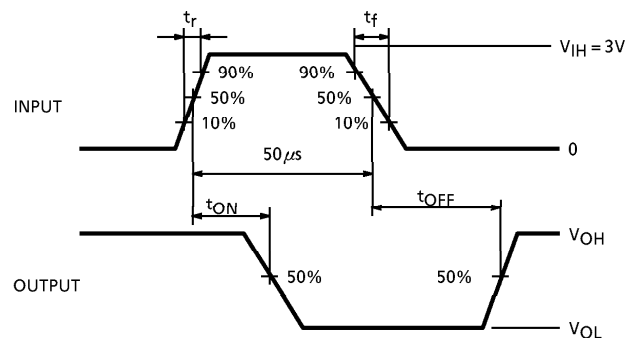
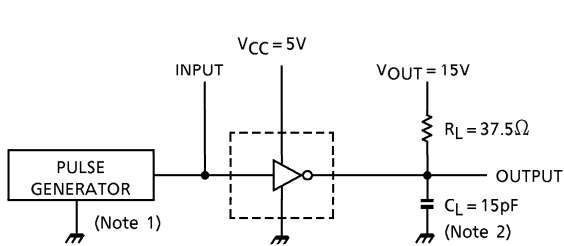
5. $V_{IN(ON)}, V_{IN(OFF)}$



6. I_{CC}



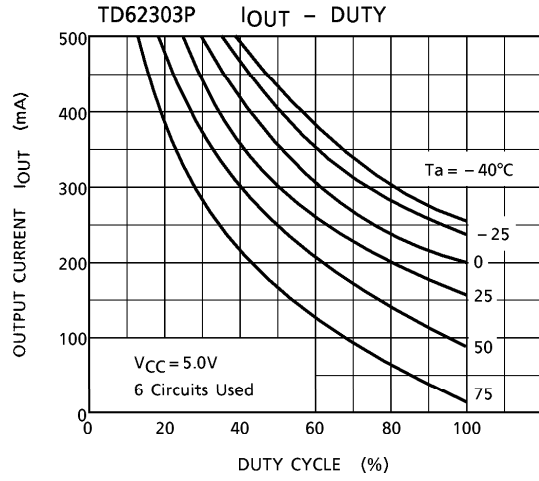
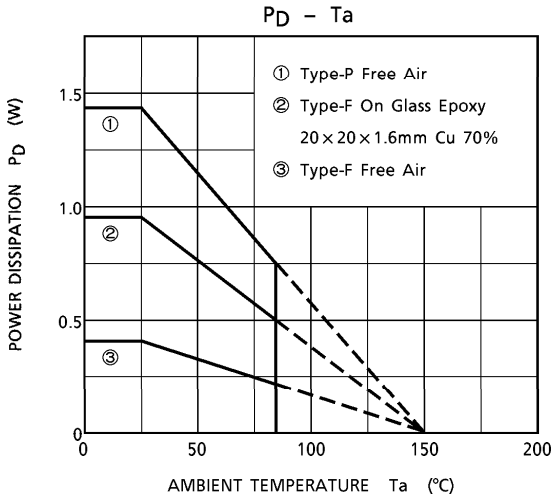
7. t_{ON}, t_{OFF}



- (Note 1) Pulse width $50\mu s$, duty cycle 10%
Output impedance 50Ω , $t_r \leq 5ns$, $t_f \leq 10ns$
- (Note 2) C_L includes probe and jig capacitance.

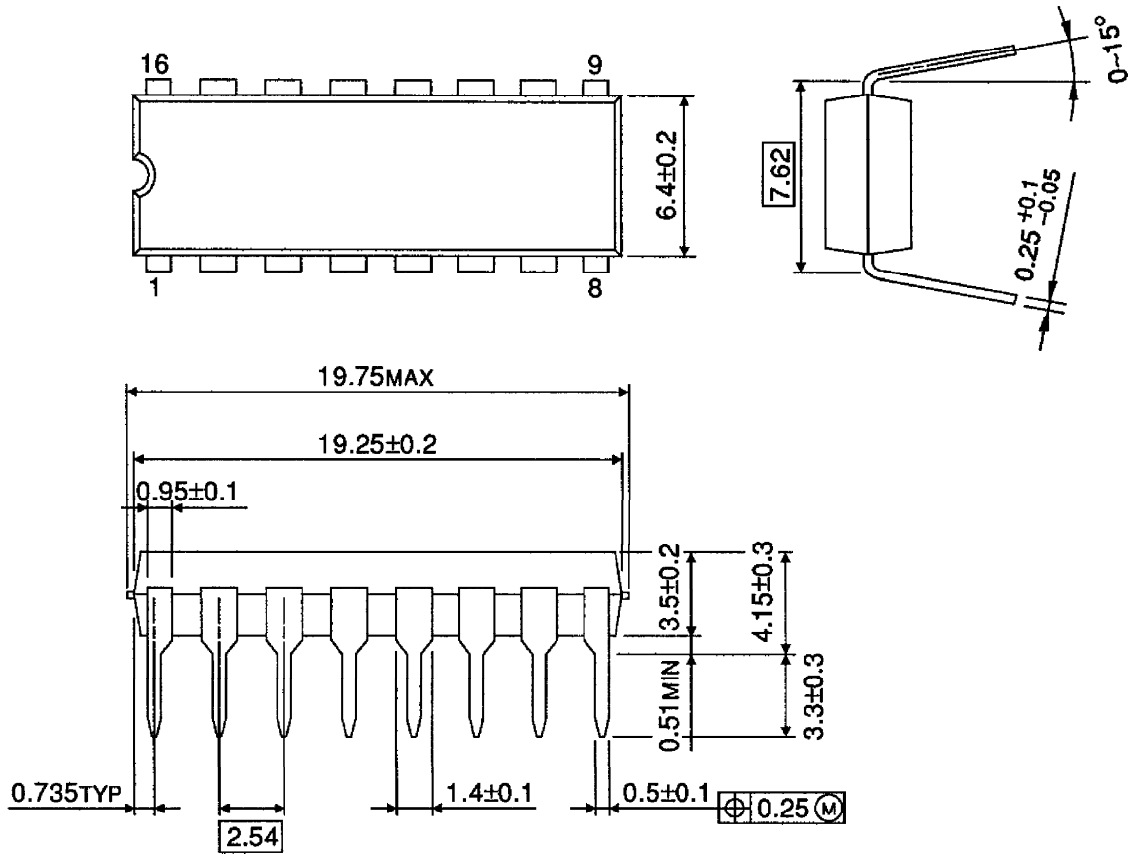
PRECAUTIONS for USING

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
DIP16-P-300-2.54A

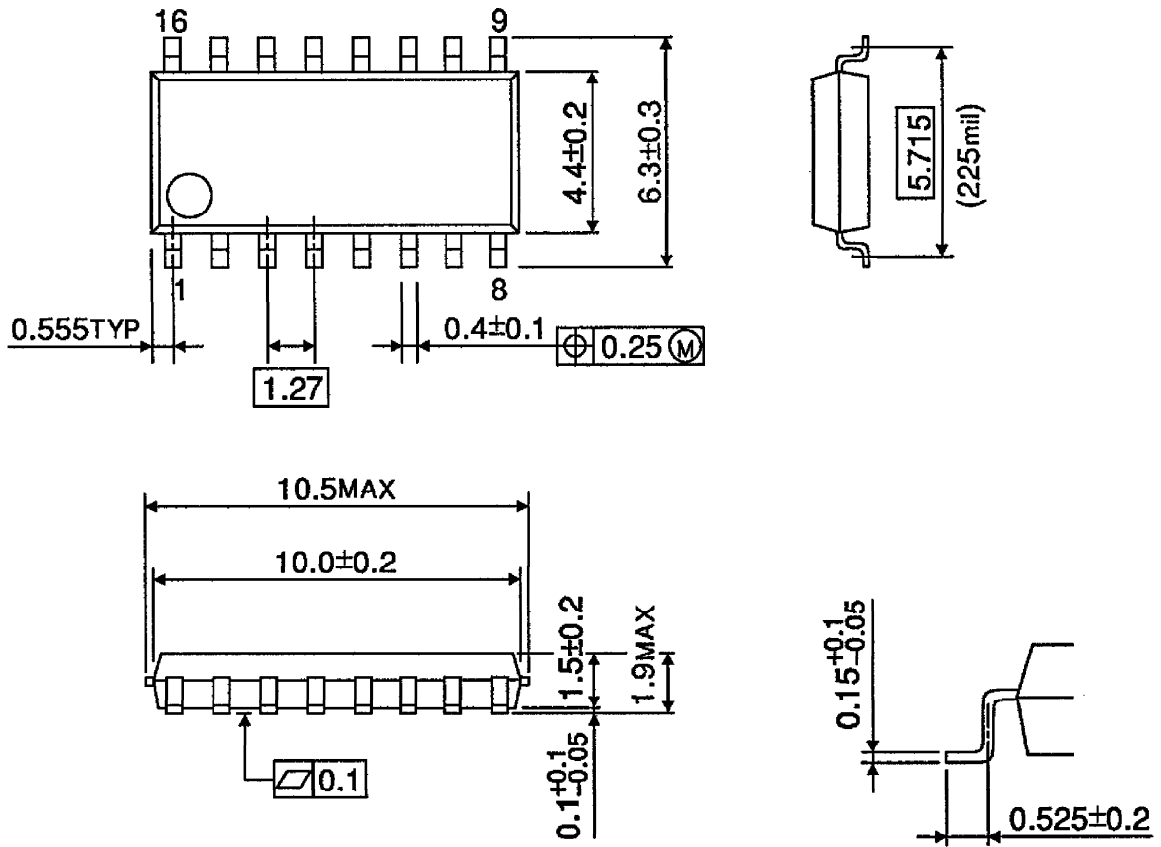
Unit : mm



Weight : 1.11g (Typ.)

OUTLINE DRAWING
SOP16-P-225-1.27

Unit : mm



Weight : 0.16g (Typ.)