

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

TD62501P, TD62501F, TD62502P, TD62502F, TD62503P, TD62503F, TD62504P
TD62504F, TD62505P, TD62505F, TD62506P, TD62506F, TD62507P, TD62507F

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

7 SINGLE DRIVER

TD62501, 502, 503, 504P/F : COMMON EMITTER
 TD62505, 506P/F : COMMON COLLECTOR
 TD62507P/F : ISOLATED

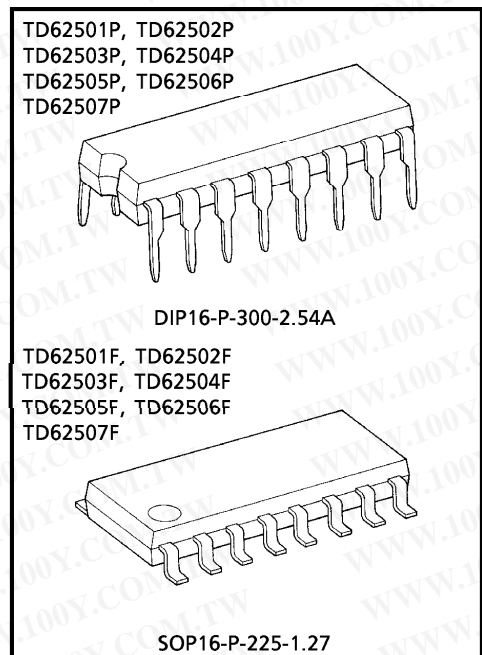
The TD62501P/F Series are comprised of seven or five NPN Transistor Arrays.

For proper operation, the substrate (SUB) must be connected to the most negative voltage.

Applications include relay, hammer, Lamp and display (LED) drivers.

FEATURES

- Output Current (Single Output) 200mA MAX.
- High Sustaining Voltage Output 35V MIN.
- Inputs Compatible with Various Types of Logic.
- TD62501P/F, TD62505P/F and TD62507P/F : Using external resistor...General Purpose
- TD62502P/F
 : $R_{IN} = 10.5k\Omega + 7V$ Zener Diode... 14~25V P-MOS
- TD62503P/F, TD62506P/F : $R_{IN} = 2.7k\Omega$...TTL, 5V C-MOS
- TD62504P/F,
 : $R_{IN} = 10.5k\Omega$... 6~15V P-MOS, C-MOS
- Package Type-p : DIP-16 pin
- Package Type-F : SOP-16 pin



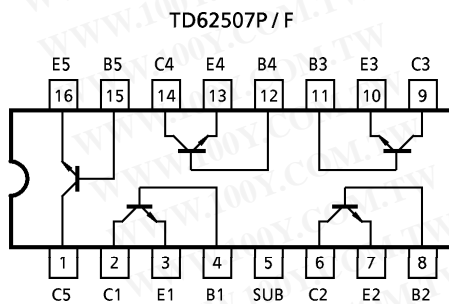
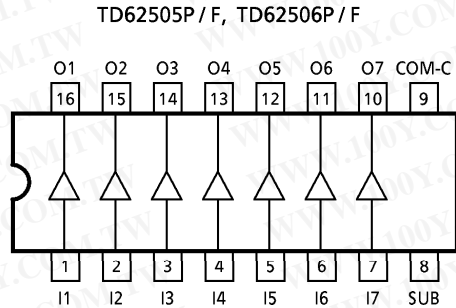
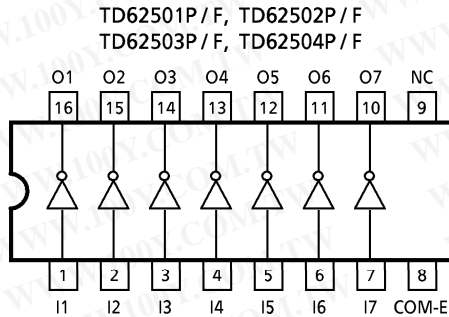
Weight
 DIP16-P-300-2.54A : 1.11g (Typ.)
 SOP16-P-225-1.27 : 0.16g (Typ.)

961001EBA2

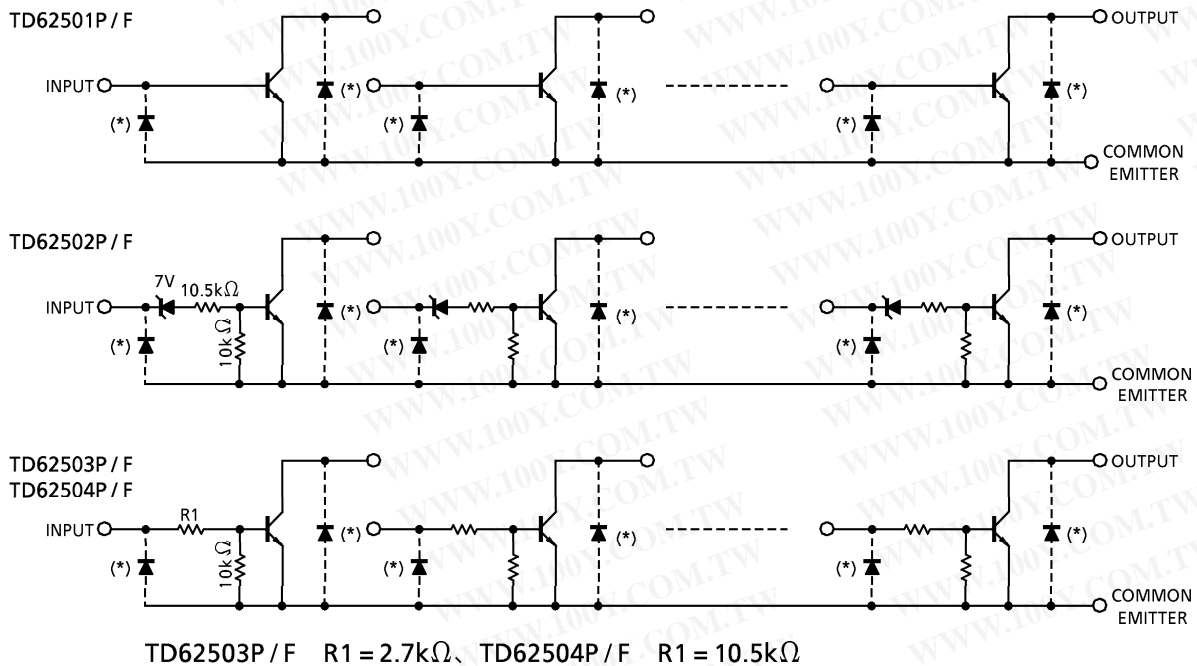
- TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.
- The products described in this document are subject to foreign exchange and foreign trade control laws.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

PIN CONNECTION (Top view)



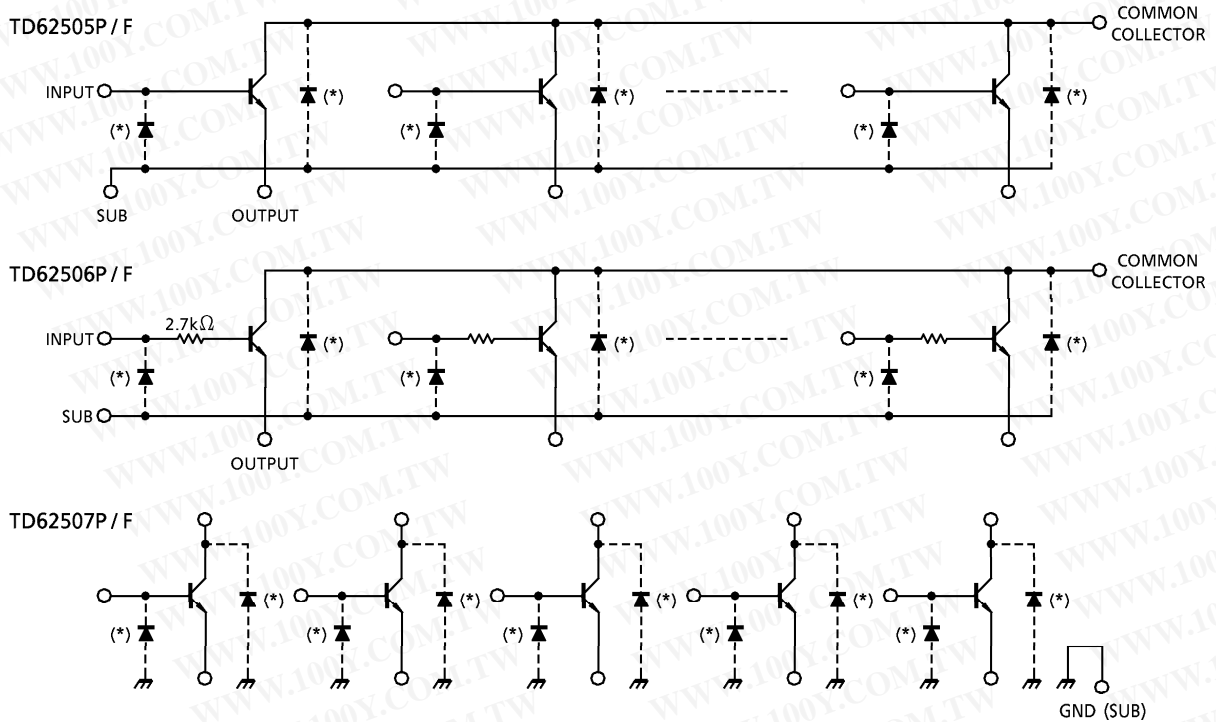
SCHEMATICS (Each driver)



(*) Parasitic Diodes

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

SCHEMATICS (Each driver)



(*) Parasitic Diodes

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

MAXIMUM RATINGS (Ta = 25°C Unless otherwise noted)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	V _{CEO}	35	V
Collector-Base Voltage	V _{CB0}	50	V
Collector Current	I _C	200	mA / ch
Input Voltage	V _{IN} (Note 1)	-0.5~45	V
	V _{IN} (Note 2)	-0.5~30	
Input Current	I _{IN} (Note 3)	25	mA
Isolation Voltage	V _{SUB}	35	V
Power Dissipation	P _D	P	1.0
		F	0.625 (Note 4)
Operating Temperature	T _{opr}	-40~85	°C
Storage Temperature	T _{stg}	-55~150	°C

(Note 1) TD62506P / F

(Note 2) TD62502P / F, TD62503P / F, TD62504P / F

(Note 3) TD62501P / F, TD62505P / F, TD62507P / F

(Note 4) On Glass Epoxy PCB (30 × 30 × 1.6mm, Cu 50%)

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

CHARACTERISTIC		SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Collector-Emitter Voltage		V _{CEO}		0	—	35	V
Collector-Base Voltage		V _{CBO}		0	—	50	V
Collector Current		I _C		0	—	150	mA / ch
Input Voltage	TD62506P / F	V _{IN}		0	—	35	V
	TD62502P / F						
	TD62503P / F						
	TD62504P / F						
Input Current	TD62501P / F	I _{IN}		0	—	10	mA
	TD62505P / F						
	TD62507P / F						
Power Dissipation	P	P _D	On PCB (*)	—	—	0.360	W
	F						

(*) 30 × 30 × 1.6mm, Cu 50%

ELECTRICAL CHARACTERISTICS (Ta = 25°C Unless otherwise noted)

CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current		I _{CEX}	1	V _{CE} = 25V, V _{IN} = 0	—	—	10	μA
Collector-Emitter Saturation Voltage		V _{CE (sat)}	2	I _{IN} = 1mA, I _C = 10mA	—	—	0.2	V
				I _{IN} = 3mA, I _C = 150mA (Note 1)	—	—	0.8	
DC Current Transfer Ratio	(Note 2)	h _{FE}	2	V _{CE} = 10V, I _C = 10mA	70	—	—	
	(Note 3)				50	—	—	
Input Voltage	TD62502P / F	V _{IN (ON)}	3	I _{IN} = 1mA I _C = 10mA	13	17	23	V
	TD62503P / F				2.4	3.4	4.2	
	TD62504P / F				7.5	11.5	15	
Turn-On Delay		t _{ON}	4	V _{OUT} = 35V, R _L = 3.3kΩ C _L = 15pF	—	50	—	ns
Turn-Off Delay		t _{OFF}			—	200	—	

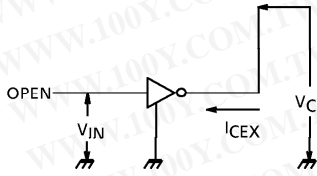
(Note 1) Except TD62502P / F Only

(Note 2) Only TD62501P / F, TD62505P / F, TD62506P / F, TD62507P / F

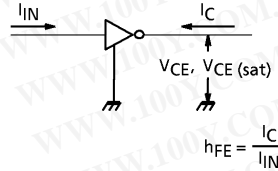
(Note 3) Only TD62502P / F, TD62503P / F, TD62504P / F

TEST CIRCUIT

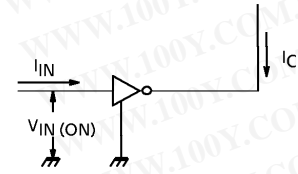
1. I_{CEX}



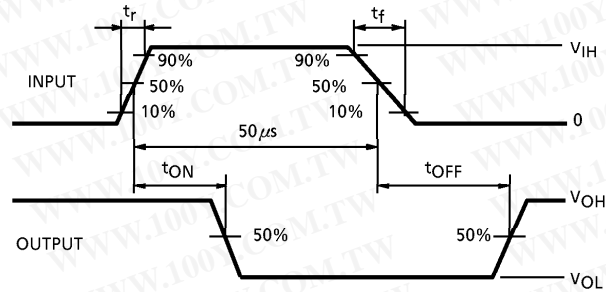
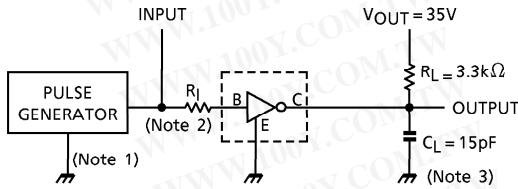
2. h_{FE} , $V_{CE(sat)}$



3. $V_{IN(ON)}$



4. 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) See below

INPUT CONDITION

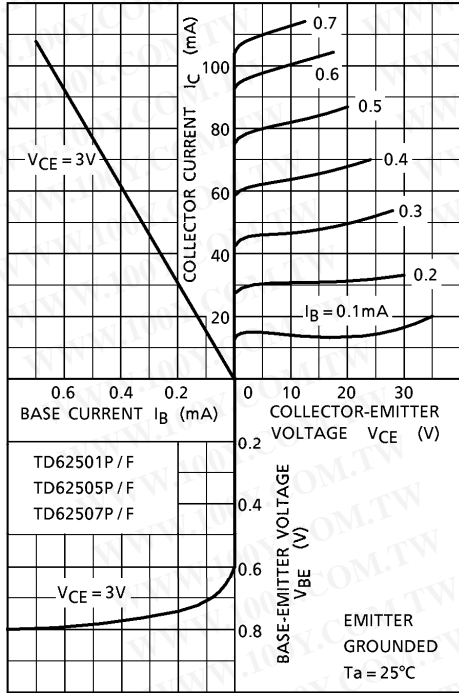
TYPE NUMBER	R_I	V_{IH}
TD62501P / F	$2.7k\Omega$	3V
TD62502P / F	0Ω	15V
TD62503P / F	0Ω	3V
TD62504P / F	0Ω	10V
TD62505P / F	$2.7k\Omega$	3V
TD62506P / F	0Ω	3V
TD62507P / F	$2.7k\Omega$	3V

- (Note 3) C_L includes probe and jig capacitance

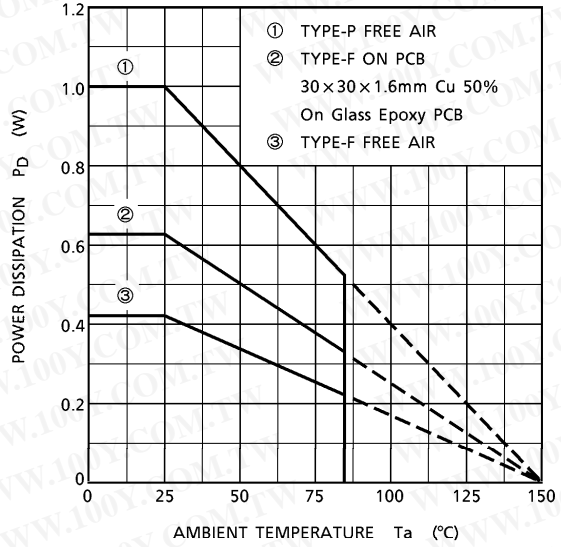
PRECAUTIONS for USING

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.

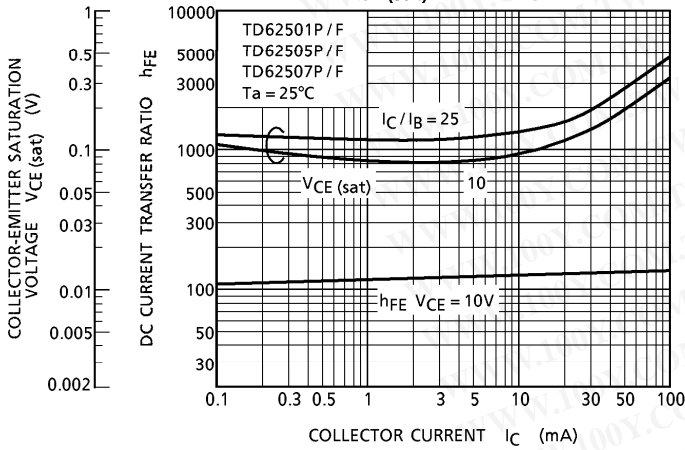
STATIC CHARACTERISTICS

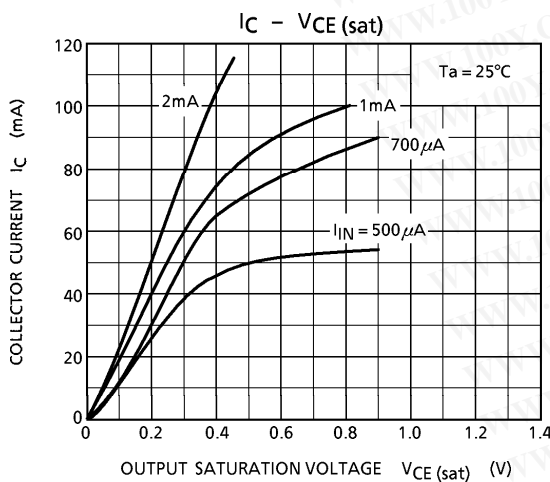
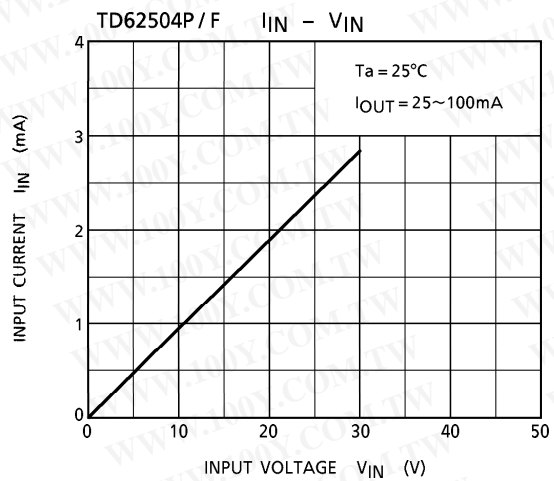
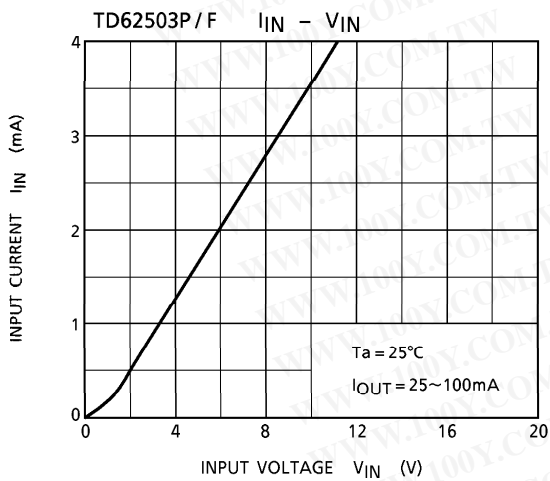
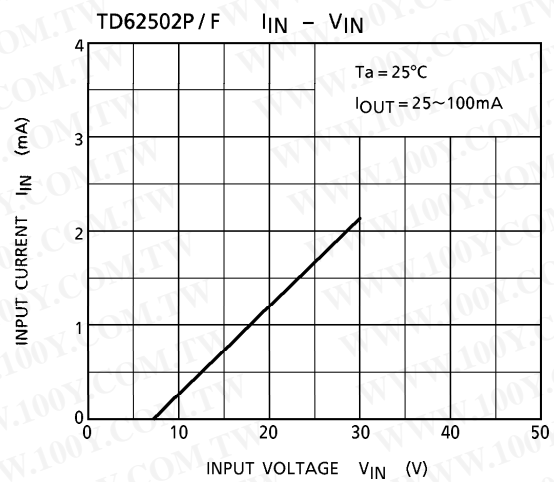
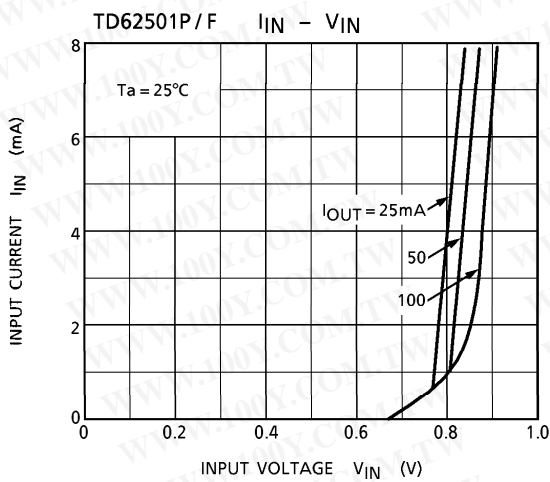


PD - Ta



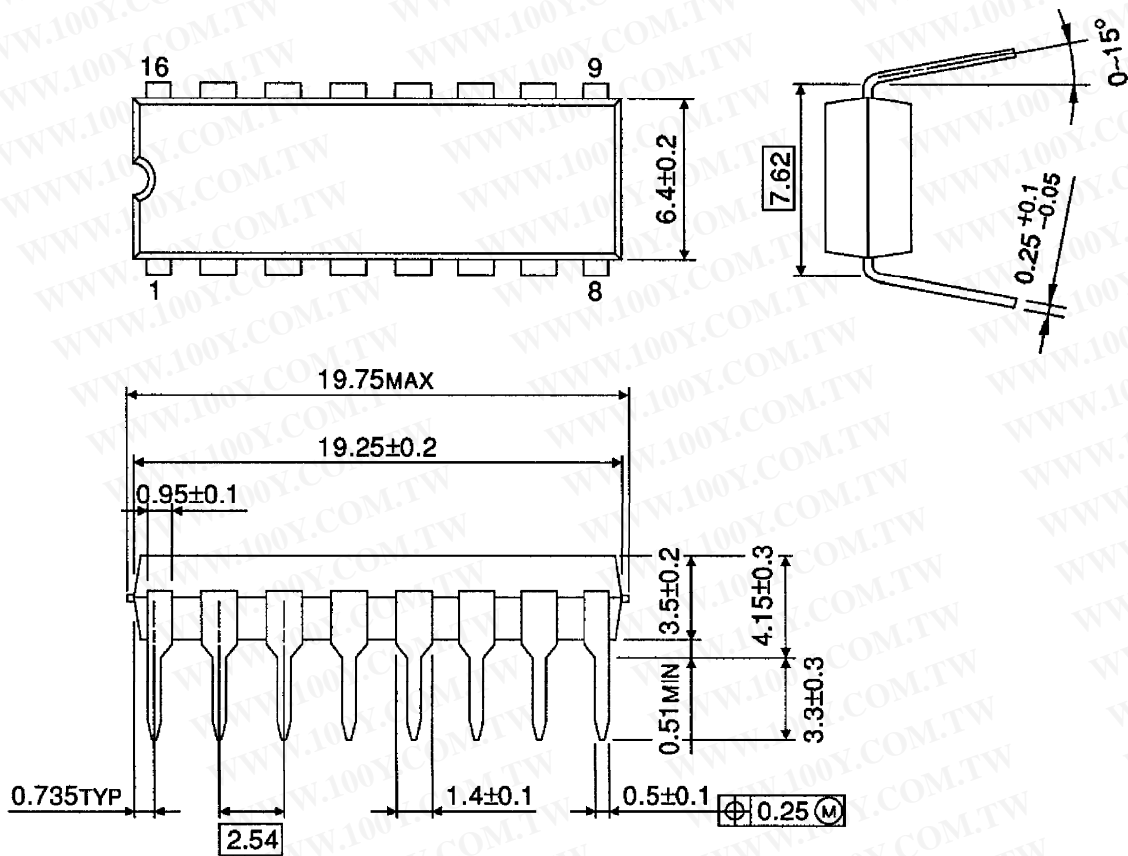
$V_{CE(sat)}$, h_{FE} - I_C





OUTLINE DRAWING
DIP16-P-300-2.54A

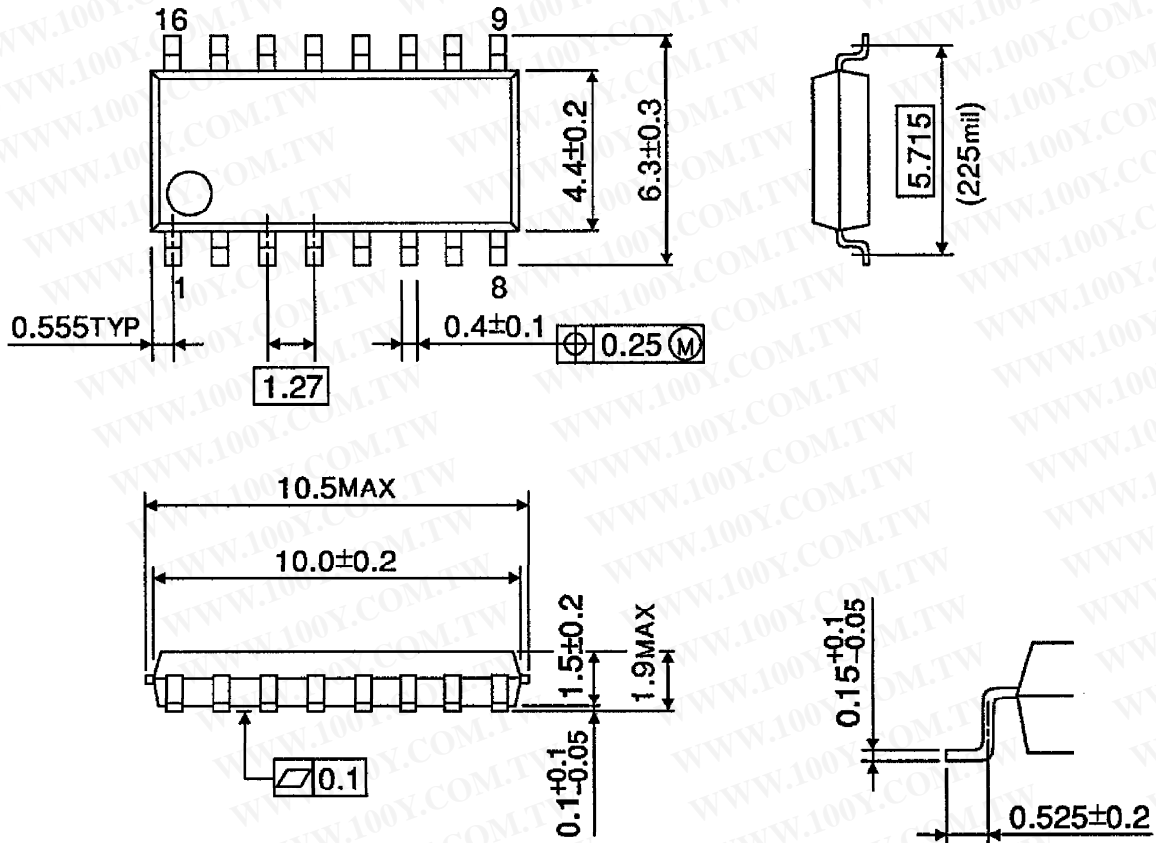
Unit : mm



Weight : 1.11g (Typ.)

OUTLINE DRAWING
SOP16-P-225-1.27

Unit : mm



Weight : 0.16g (Typ.)