

TOSHIBA Bi-CMOS INTEGRATED CIRCUIT SILICON MONOLITHIC

TB62003P, TB62003F, TB62003FW, TB62004P, TB62004F, TB62004FW, TB62006P, TB62006F, TB62006FW, TB62007P, TB62007F, TB62007FW, TB62008P, TB62008F, TB62008FW, TB62009P, TB62009F, TB62009FW

**8CH DMOS TRANSISTOR ARRAY WITH GATE**

TB62003P, TB62003F, TB62003FW  
INVERTER & DMOS DRIVER

TB62004P, TB62004F, TB62004FW  
THROUGH & DMOS DRIVER

TB62006P, TB62006F, TB62006FW  
NAND & DMOS DRIVER

TB62007P, TB62007F, TB62007FW  
AND & DMOS DRIVER

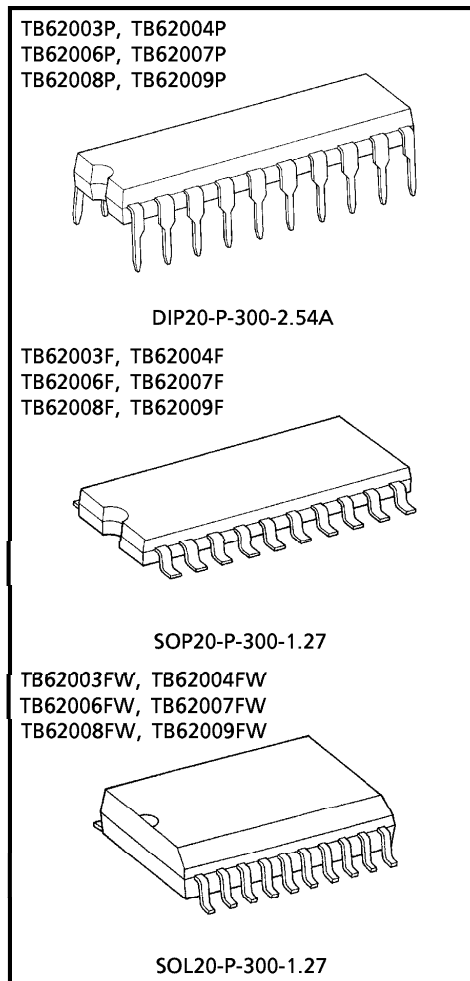
TB62008P, TB62008F, TB62008FW  
NOR & DMOS DRIVER

TB62009P, TB62009F, TB62009FW  
OR & DMOS DRIVER

The TB62003 Series are high-voltage, high-current arrays comprised of eight N-ch DMOS pairs.

**FEATURES**

- Package :           Type-P       DIP-20pin  
                          Type-F       SOP-20pin (200mil)  
                          Type-FW     SOL-20pin (300mil)
- Output rating    : 35V (Min.) / 200mA (Max.)
- Low power



Weight  
 DIP20-P-300-2.54A : 2.25g (Typ.)  
 SOP20-P-300-1.27 : 0.25g (Typ.)  
 SOL20-P-300-1.27 : 0.48g (Typ.)

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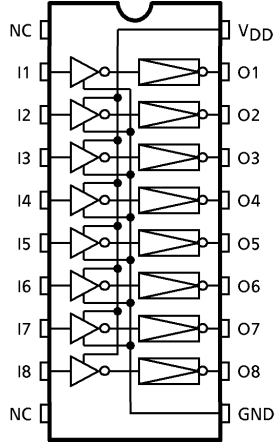
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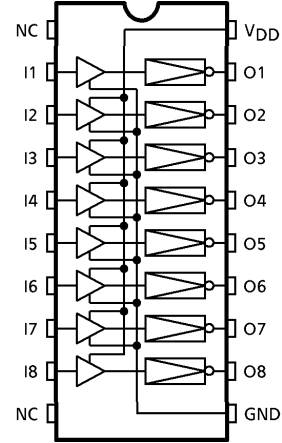
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**PIN CONNECTION (TOP VIEW)**

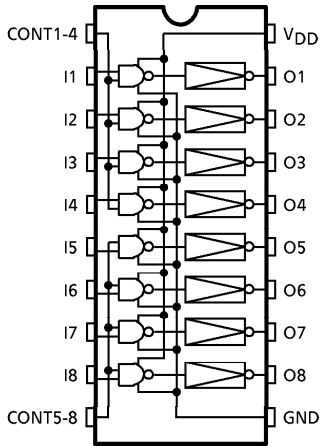
TB62003P / F / FW



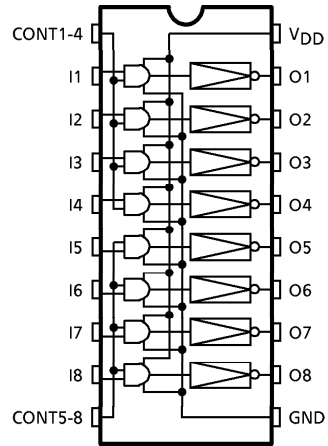
TB62004P / F / FW



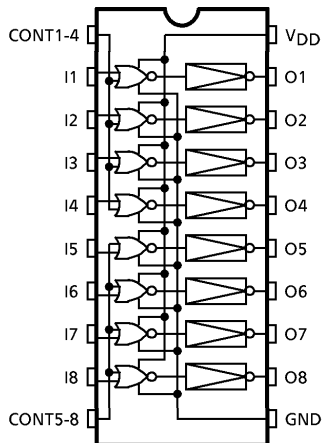
TB62006P / F / FW



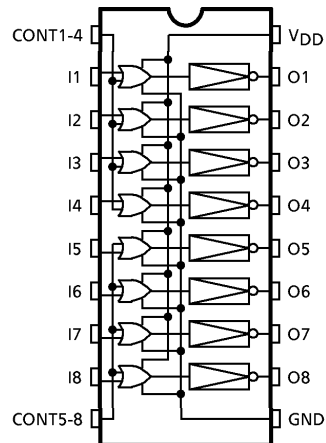
TB62007P / F / FW



TB62008P / F / FW



TB62009P / F / FW



**TRUTH TABLE**  
TB62006P/F/FW

INPUT				OUTPUT	
I1~4	I5~8	CONT1~4	CONT5~8	O3~4	O5~8
H	X	H	X	OFF	NOT FIX
H	X	L	X	ON	NOT FIX
L	X	H	X	ON	NOT FIX
L	X	L	X	ON	NOT FIX
X	H	X	H	NOT FIX	OFF
X	H	X	L	NOT FIX	ON
X	L	X	H	NOT FIX	ON
X	L	X	L	NOT FIX	ON

X : Don't Care

TB62007P/F/FW

INPUT				OUTPUT	
I1~4	I5~8	CONT1~4	CONT5~8	O3~4	O5~8
H	X	H	X	ON	NOT FIX
H	X	L	X	OFF	NOT FIX
L	X	H	X	OFF	NOT FIX
L	X	L	X	OFF	NOT FIX
X	H	X	H	NOT FIX	ON
X	H	X	L	NOT FIX	OFF
X	L	X	H	NOT FIX	OFF
X	L	X	L	NOT FIX	OFF

X : Don't Care

TB62008P / F / FW

INPUT				OUTPUT	
I1~4	I5~8	CONT1~4	CONT5~8	O3~4	O5~8
H	X	H	X	OFF	NOT FIX
H	X	L	X	OFF	NOT FIX
L	X	H	X	OFF	NOT FIX
L	X	L	X	ON	NOT FIX
X	H	X	H	NOT FIX	OFF
X	H	X	L	NOT FIX	OFF
X	L	X	H	NOT FIX	OFF
X	L	X	L	NOT FIX	ON

X : Don't Care

TB62009P / F / FW

INPUT				OUTPUT	
I1~4	I5~8	CONT1~4	CONT5~8	O3~4	O5~8
H	X	H	X	ON	NOT FIX
H	X	L	X	ON	NOT FIX
L	X	H	X	ON	NOT FIX
L	X	L	X	OFF	NOT FIX
X	H	X	H	NOT FIX	ON
X	H	X	L	NOT FIX	ON
X	L	X	H	NOT FIX	ON
X	L	X	L	NOT FIX	OFF

X : Don't Care

**MAXIMUM RATINGS (Ta = 25°C)**

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V <sub>DD</sub>	7	V
DC Output Voltage	V <sub>DS</sub>	-0.5~35	V
DC Output Current	I <sub>DS</sub>	200	mA / ch
DC Input Voltage	V <sub>IN</sub>	-0.4 + V <sub>DD</sub> + 0.4	V
DC Input Current	I <sub>IN</sub>	± 5	mA
Input Diode Current	I <sub>ID</sub>	± 5	mA
Output Diode Current	I <sub>OK</sub>	5	mA
Power Dissipation	P	1.47	W
	F	0.96 (Note 1)	
	FW	1.00 (Note 2)	
Operating Temperature	T <sub>opr</sub>	-40~85	°C
Storage Temperature	T <sub>stg</sub>	-55~150	°C

(Note 1) On Glass Epoxy PCB (50×50×1.6mm Cu 40%)

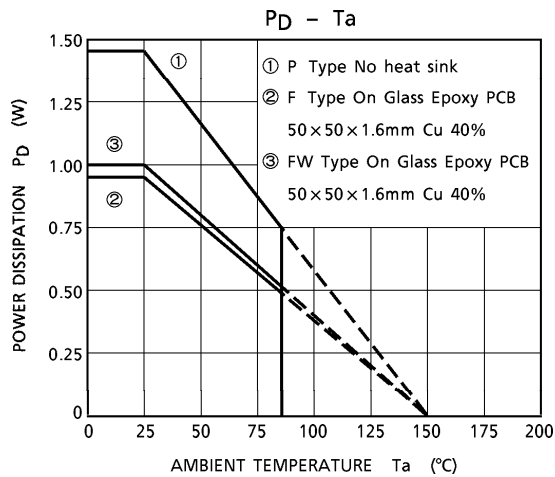
(Note 2) Delated above 25°C in the proportion of 7.7mW/°C (F Type), 8.0mW/°C (FW Type).

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

CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	
Supply Voltage Range	V <sub>DD</sub>	—	4.5	—	5.5	V	
DC Output Voltage	V <sub>DS</sub>	—	—	—	30	V	
DC Output Current	P	Duty 80%	8ch On V <sub>DD</sub> = 5.0V	—	—	170	mA / ch
	F					90	
	FW					140	
	P	Duty 100%				150	
	F					80	
	FW					120	
DC Input Voltage	V <sub>IN</sub>	—	GND	—	V <sub>DD</sub>	V	

**ELECTRICAL CHARACTERISTICS** (Ta = 25°C, VDD = 5.0V)

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current	I <sub>OZ</sub>	—	V <sub>DS</sub> = 35V	—	—	50	μA
Low-Level Output Voltage	V <sub>DS</sub>	—	I <sub>DS</sub> = 150mA	—	0.70	0.8	V
		—	I <sub>DS</sub> = 200mA	—	0.94	1.2	
Output Resistance	R <sub>ON</sub>	—	I <sub>DS</sub> = 200mA	—	4.7	6.0	Ω
DC Input Current	I <sub>IN</sub>	—	V <sub>IN</sub> = GND, V <sub>IN</sub> = V <sub>DD</sub>	—	—	± 1.0	μA
High-Level Input Voltage	V <sub>IN</sub> (H)	—	—	3.5	—	V <sub>DD</sub> + 0.4	V
	V <sub>IN</sub> (L)	—	—	-0.4	—	1.5	
Operating Supply Current	I <sub>DDopr</sub>	—	8ch On, Output open f <sub>IN</sub> = 1MHz	—	2	—	μA
Output Diode Forward Voltage	V <sub>FK</sub>	—	I <sub>OK</sub> = 5mA	—	0.6	—	V
Turn-On Delay	t <sub>ON</sub>	—	I <sub>OUT</sub> = 170mA	—	300	—	ns
Turn-Off Delay	t <sub>OFF</sub>	—	—	—	300	—	
Supply Current	I <sub>DD</sub>	—	—	—	—	10	μA
Input Capacitance	C <sub>IN</sub>	—	—	—	15	—	pF

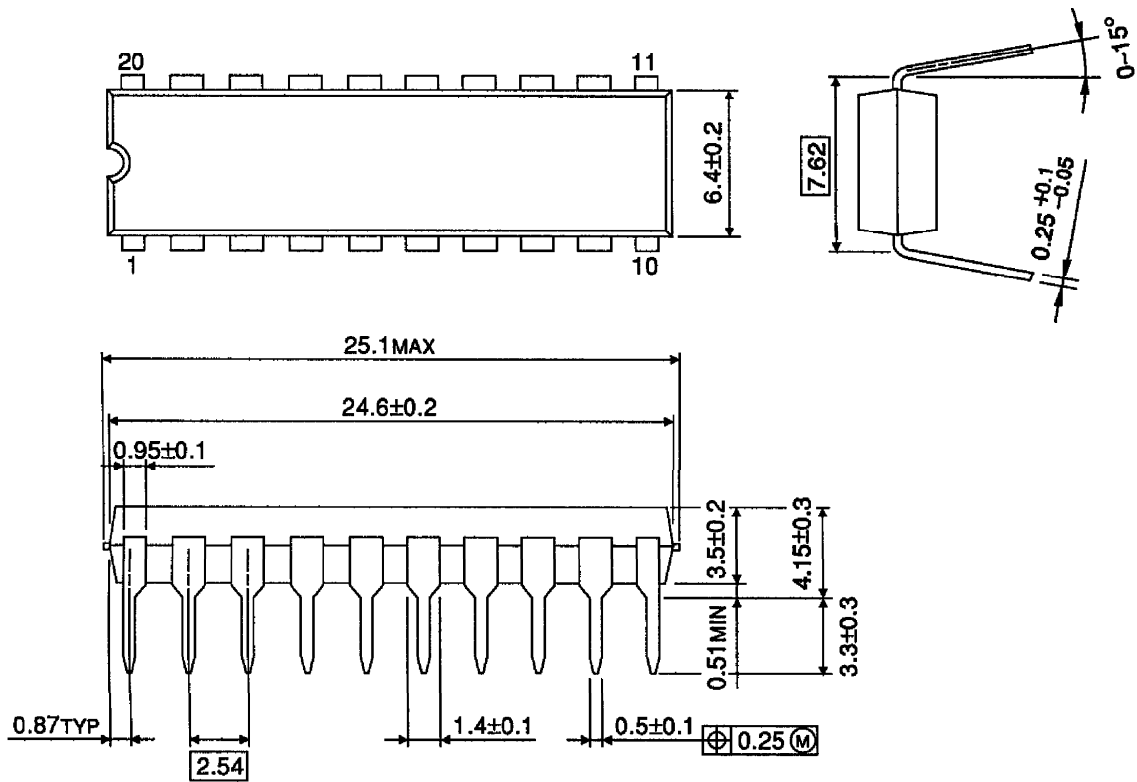


**PRECAUTIONS for USING**

Utmost care is necessary in the design of the output line, V<sub>CC</sub> (V<sub>DD</sub>) and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.

**OUTLINE DRAWING**  
DIP20-P-300-2.54A

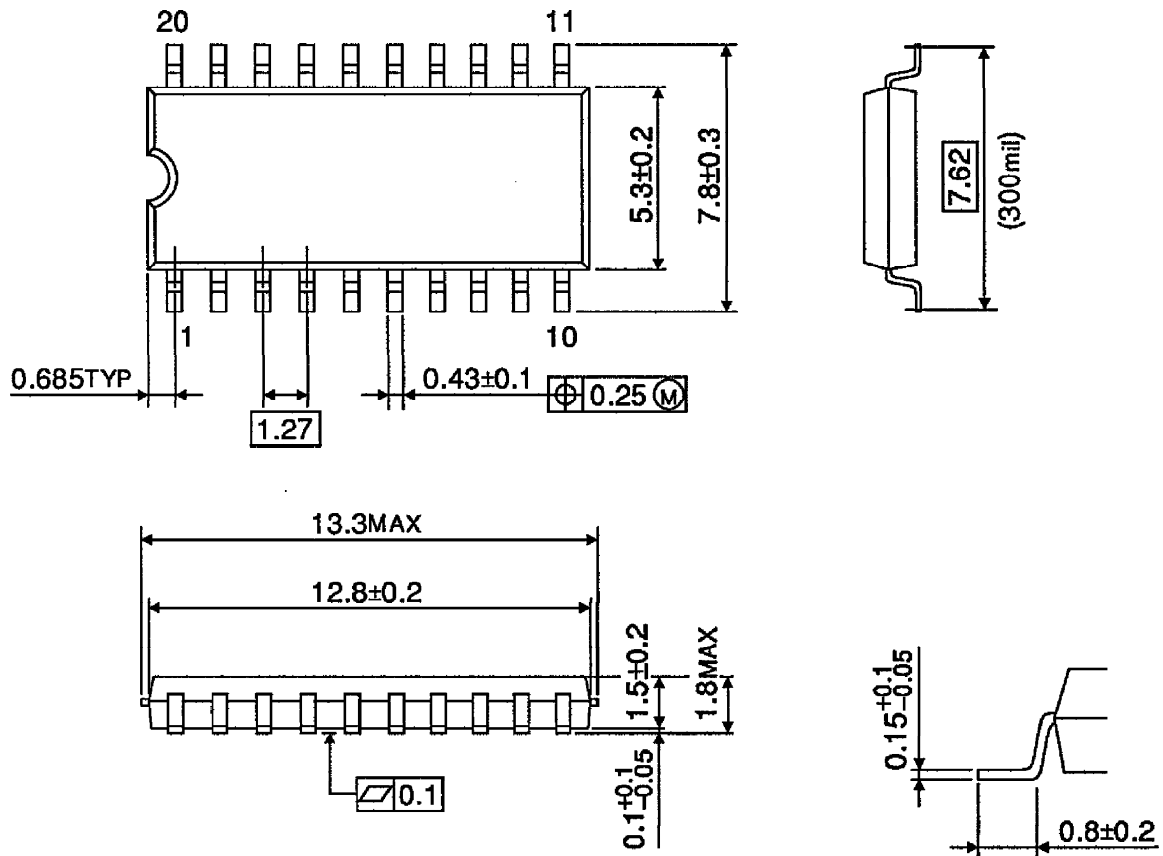
Unit : mm



Weight : 2.25g (Typ.)

**OUTLINE DRAWING**  
SOP20-P-300-1.27

Unit : mm

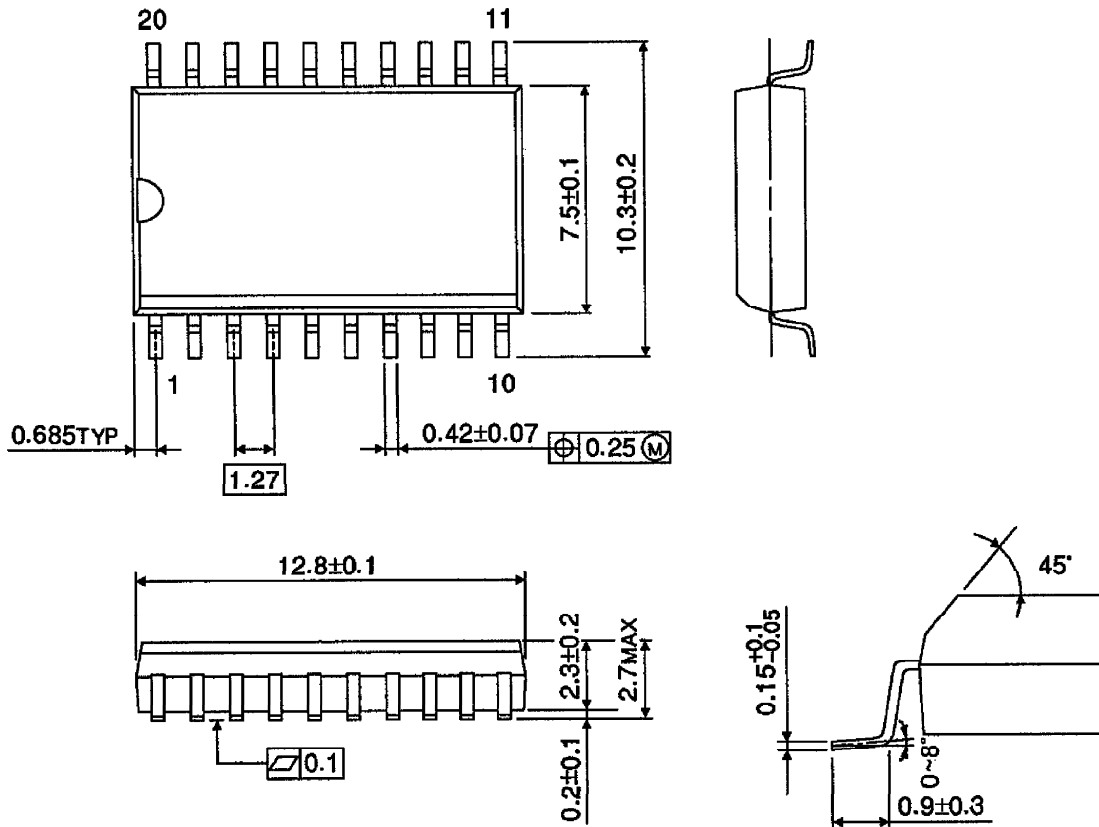


Weight : 0.25g (Typ.)



**OUTLINE DRAWING**  
SOL20-P-300-1.27

Unit : mm



Weight : 0.48g (Typ.)