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

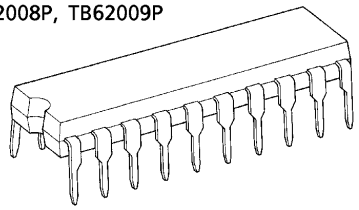
TB62007P, TB62007F, TB62007FW
AND & DMOS DRIVER

TB62008P, TB62008F, TB62008FW
NOR & DMOS DRIVER

TB62009P, TB62009F, TB62009FW
OR & DMOS DRIVER

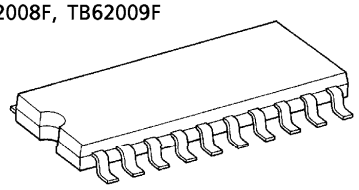
The TB62003 Series are high-voltage, high-current arrays comprised of eight N-ch DMOS pairs.

TB62003P, TB62004P
TB62006P, TB62007P
TB62008P, TB62009P



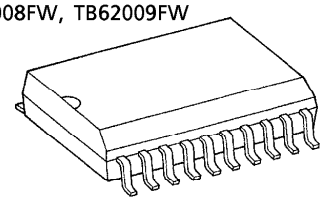
DIP20-P-300-2.54A

TB62003F, TB62004F
TB62006F, TB62007F
TB62008F, TB62009F



SOP20-P-300-1.27

TB62003FW, TB62004FW
TB62006FW, TB62007FW
TB62008FW, TB62009FW



SOL20-P-300-1.27

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.)

FEATURES

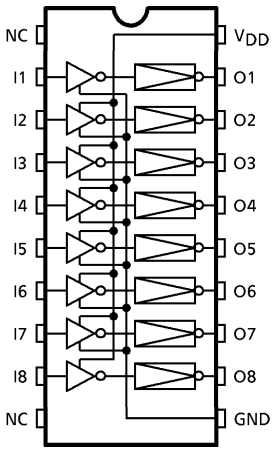
- Package : Type-P DIP-20pin
  Type-F SOP-20pin (200mil)
  Type-FW SOL-20pin (300mil)
- Output rating : 35V (Min.) / 200mA (Max.)
- Low power

961001EBA2

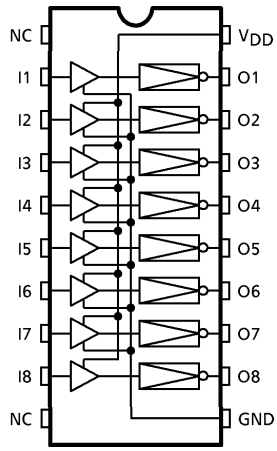
- TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing 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.

PIN CONNECTION (TOP VIEW)

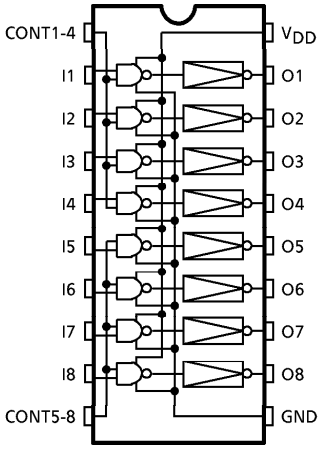
TB62003P / F / FW



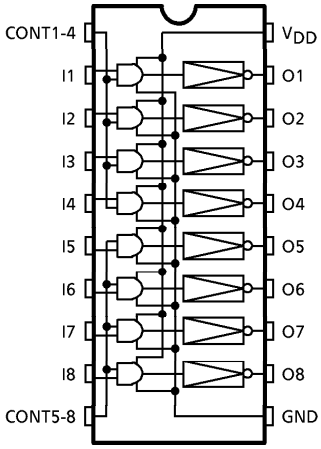
TB62004P / F / FW



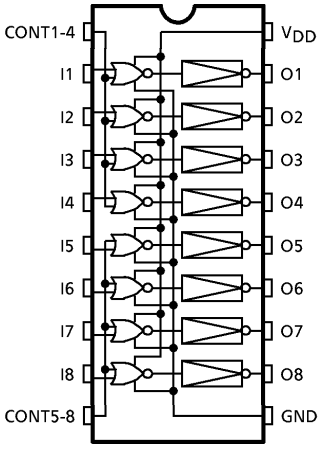
TB62006P / F / FW



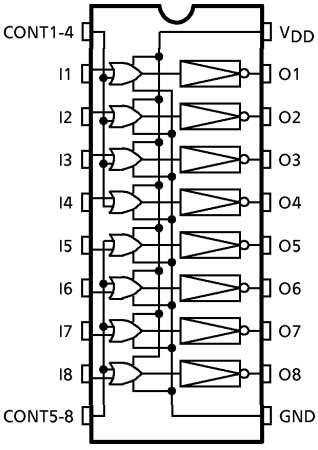
TB62007P / F / FW



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_{DD}	7	V
DC Output Voltage		V_{DS}	−0.5~35	V
DC Output Current		I_{DS}	200	mA / ch
DC Input Voltage		V_{IN}	$-0.4 + V_{DD} + 0.4$	V
DC Input Current		I_{IN}	±5	mA
Input Diode Current		I_{ID}	±5	mA
Output Diode Current		I_{OK}	5	mA
Power Dissipation	P	P_D	1.47	W
	F		0.96 (Note 1)	
	FW		1.00 (Note 2)	
Operating Temperature		T_{opr}	−40~85	°C
Storage Temperature		T_{stg}	−55~150	°C

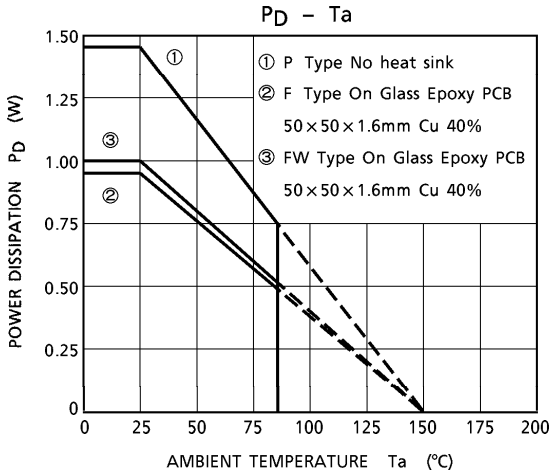
(Note 1) On Glass Epoxy PCB (50 × 50 × 1.6mm Cu 40%)
(Note 2) Delated above 25°C in the proportion of 7.7mW / °C (F Type), 8.0mW / °C (FW Type).

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

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

ELECTRICAL CHARACTERISTICS (Ta = 25°C, V_{DD} = 5.0V)

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



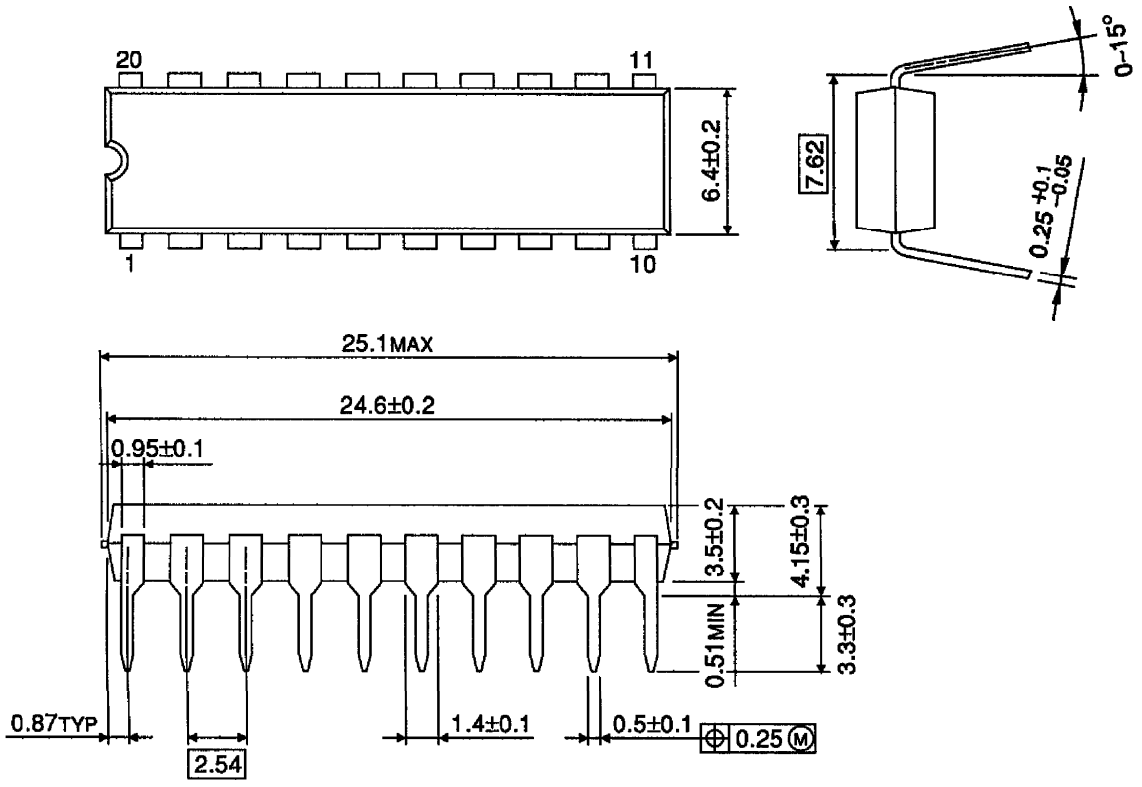
PRECAUTIONS for USING

Utmost care is necessary in the design of the output line, V_{CC} (V_{DD}) 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

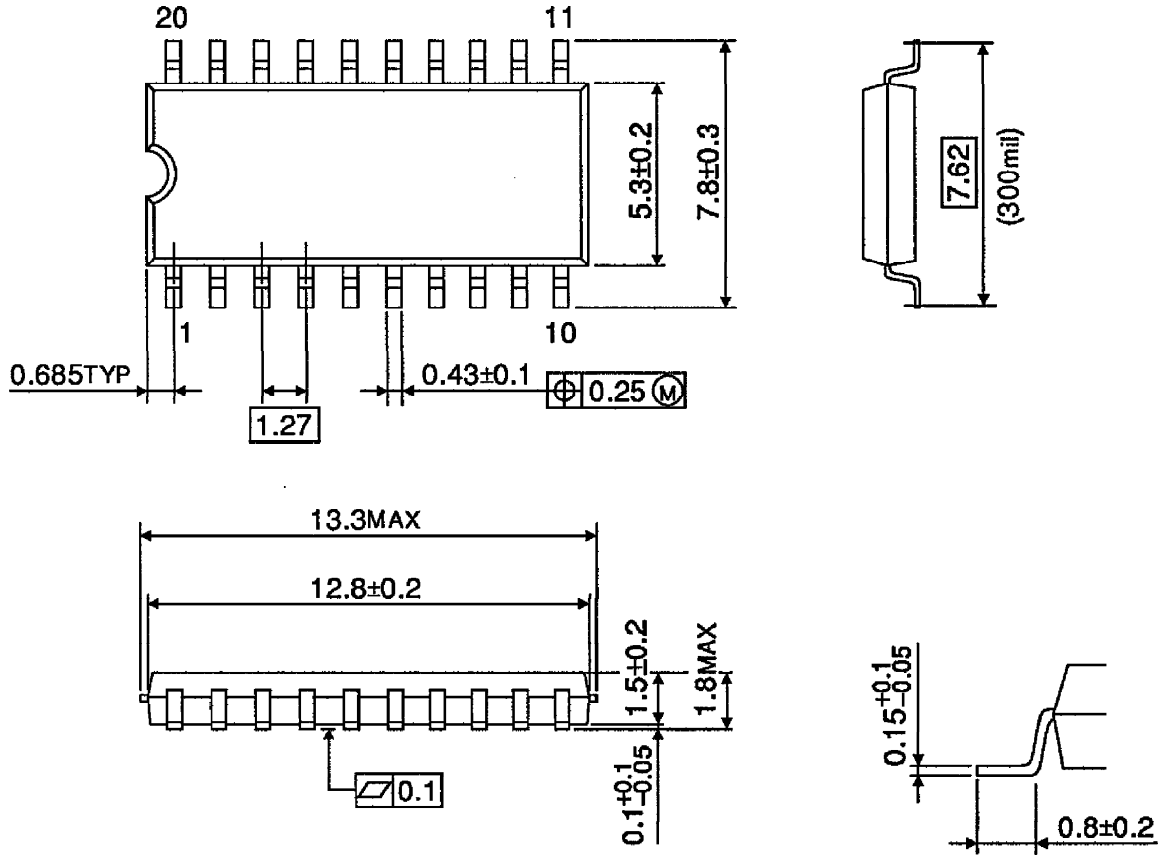


Weight : 2.25g (Typ.)

OUTLINE DRAWING

SOP20-P-300-1.27

Unit : mm

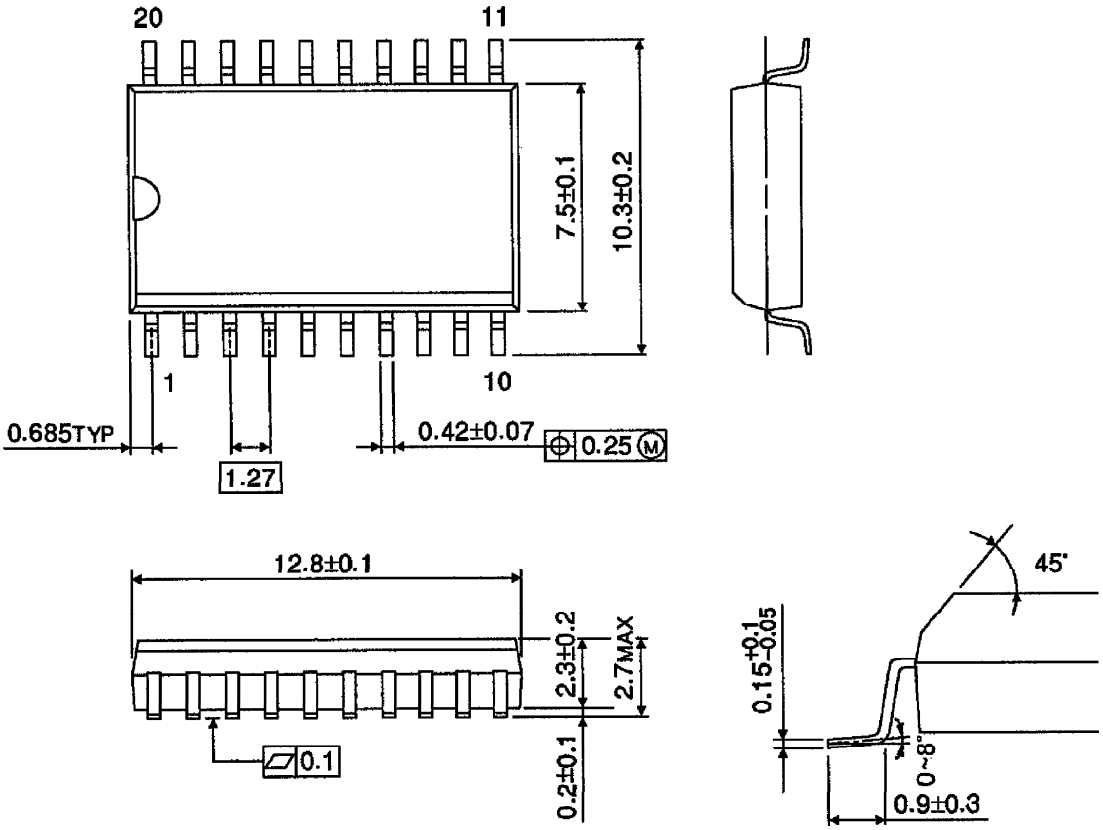


Weight : 0.25g (Typ.)

OUTLINE DRAWING

SOL20-P-300-1.27

Unit : mm



Weight : 0.48g (Typ.)