

TOSHIBA Bi-CMOS INTEGRATED CIRCUIT SILICON MONOLITHIC

TB62003PG, TB62003FG, TB62004PG, TB62004FG
TB62006PG, TB62006FG, TB62007PG, TB62007FG
TB62008PG, TB62008FG, TB62009PG, TB62009FG

8CH DMOS TRANSISTOR ARRAY WITH GATE

TB62003PG, TB62003FG
 INVERTER & DMOS DRIVER

TB62004PG, TB62004FG
 THROUGH & DMOS DRIVER

TB62006PG, TB62006FG
 NAND & DMOS DRIVER

TB62007PG, TB62007FG
 AND & DMOS DRIVER

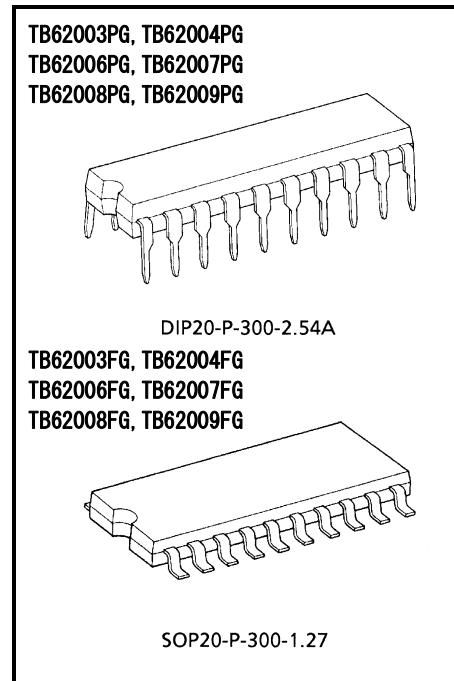
TB62008PG, TB62008FG
 NOR & DMOS DRIVER

TB62009PG, TB62009FG
 OR & DMOS DRIVER

The TB62003 Series are high-voltage, high-current arrays comprised of eight N-ch DMOS pairs.
 This devices are a product for the Pb free(Sn-Ag).

FEATURES

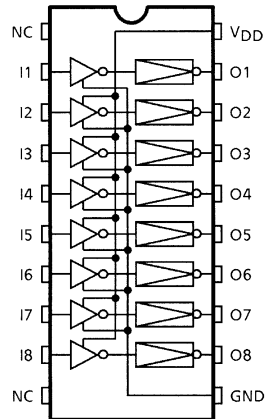
- Package : Type-PG DIP-20 pin
 Type-FG SOP-20 pin (200 mil)
- Output rating : 35 V (Min.) / 200 mA (Max.)
- Low power



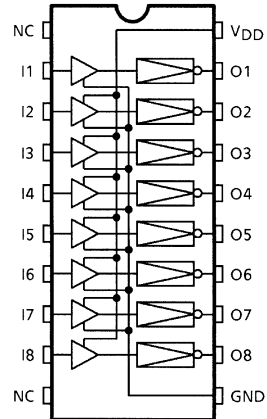
Weight
 DIP20-P-300-2.54 A : 2.25 g (Typ.)
 SOP20-P-300-1.27 : 0.25 g (Typ.)

PIN CONNECTION (TOP VIEW)

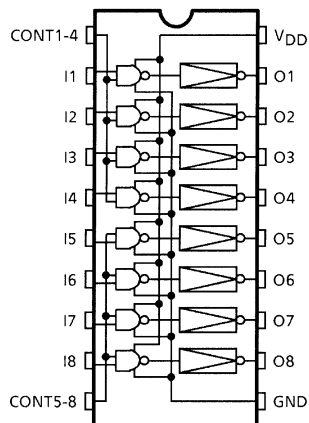
TB62003PG / FG



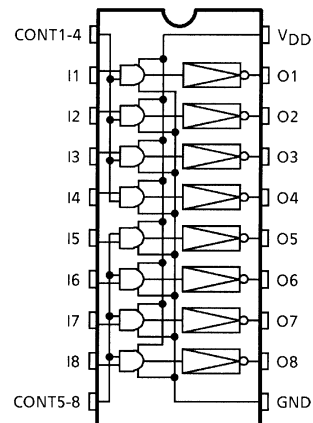
TB62004PG / FG



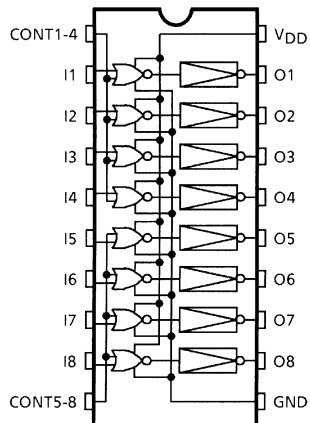
TB62003PG / FG



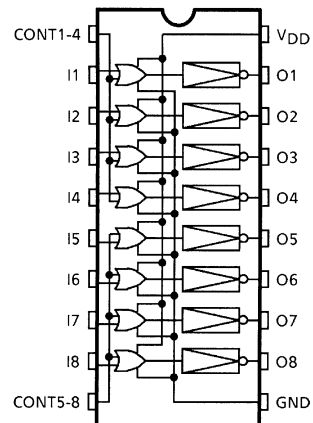
TB62007PG / FG



TB62008PG / FG



TB62009PG / FG



TRUTH TABLE

TB62006PG / FG

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

TB62007PG / FG

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

TB62008PG / FG

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

TB62009PG / FG

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	PG	P _D (Note 1)	1.47	W
	FG		0.96 (Note 2)	
Operating Temperature		T _{opr}	-40~85	°C
Storage Temperature		T _{stg}	-55~150	°C

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

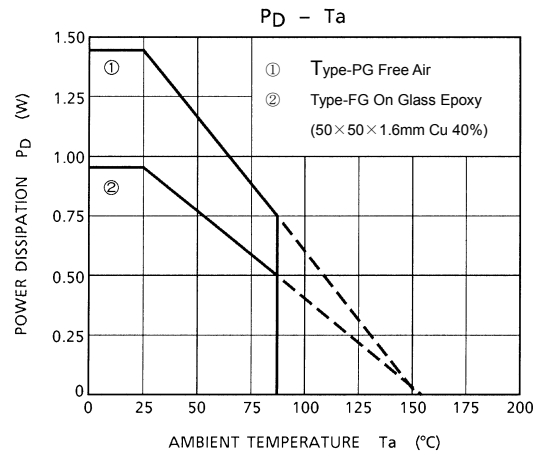
Note 2: Delated above 25°C in the proportion of 7.7 mW / °C (F Type)

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	PG	I _{DS}	Duty 80%	8ch On V _{DD} = 5.0 V	—	—	170	mA / ch
	FG				—	—	90	
	PG		Duty 100%		—	—	150	
	FG				—	—	80	
DC Input Voltage		V _{IN}	—		GND	—	V _{DD}	V

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

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Output Leakage Current	I _{OZ}	—	V _{DS} = 35 V	—	—	50	μA
Low-Level Output Voltage	V _{DS}	—	I _{DS} = 150 mA	—	0.70	0.8	V
		—	I _{DS} = 200 mA	—	0.94	1.2	
Output Resistance	R _{ON}	—	I _{DS} = 200 mA	—	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} = 5 mA	—	0.6	—	V
Turn-On Delay	t _{ON}	—	I _{OUT} = 170 mA	—	300	—	ns
Turn-Off Delay	t _{OFF}	—	—	—	300	—	
Supply Current	I _{DD}	—	—	—	—	10	μA
Input Capacitance	C _{IN}	—	—	—	15	—	pF



PRECAUTIONS for USING

This IC does not integrate protection circuits such as overcurrent and overvoltage protectors.

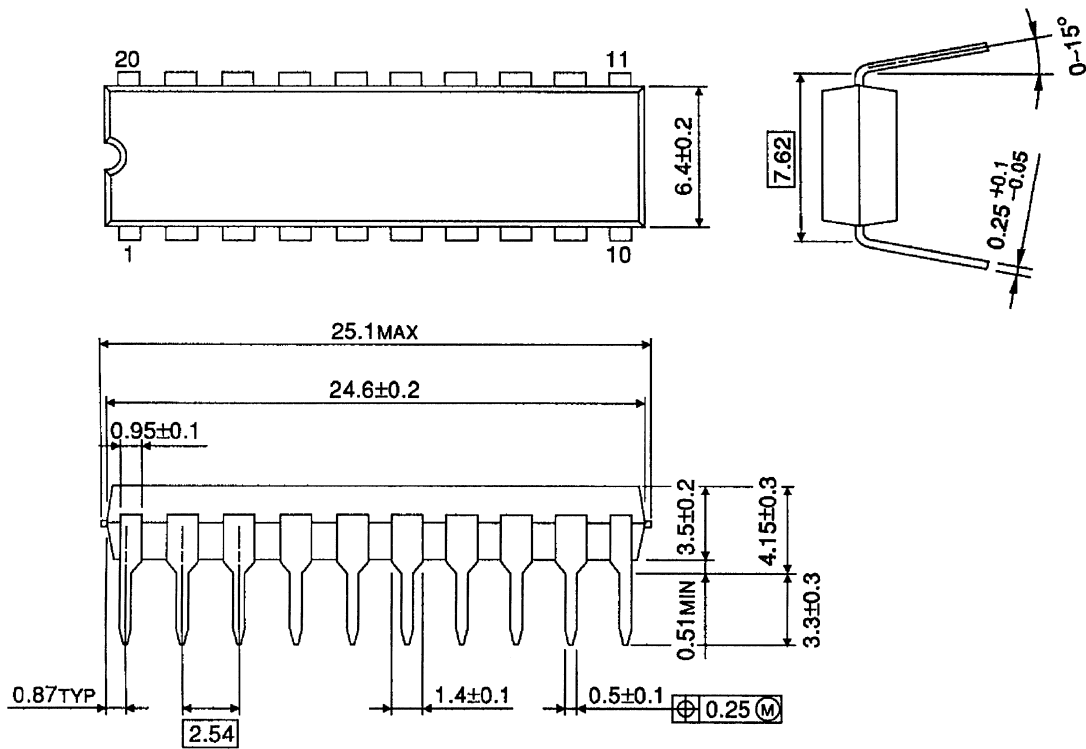
Thus, if excess current or voltage is applied to the IC, the IC may be damaged. Please design the IC so that excess current or voltage will not be applied to the IC.

Utmost care is necessary in the design of the output line, VCC (VDD) and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.

PACKAGE DIMENSIONS

DIP20-P-300-2.54A

Unit: mm

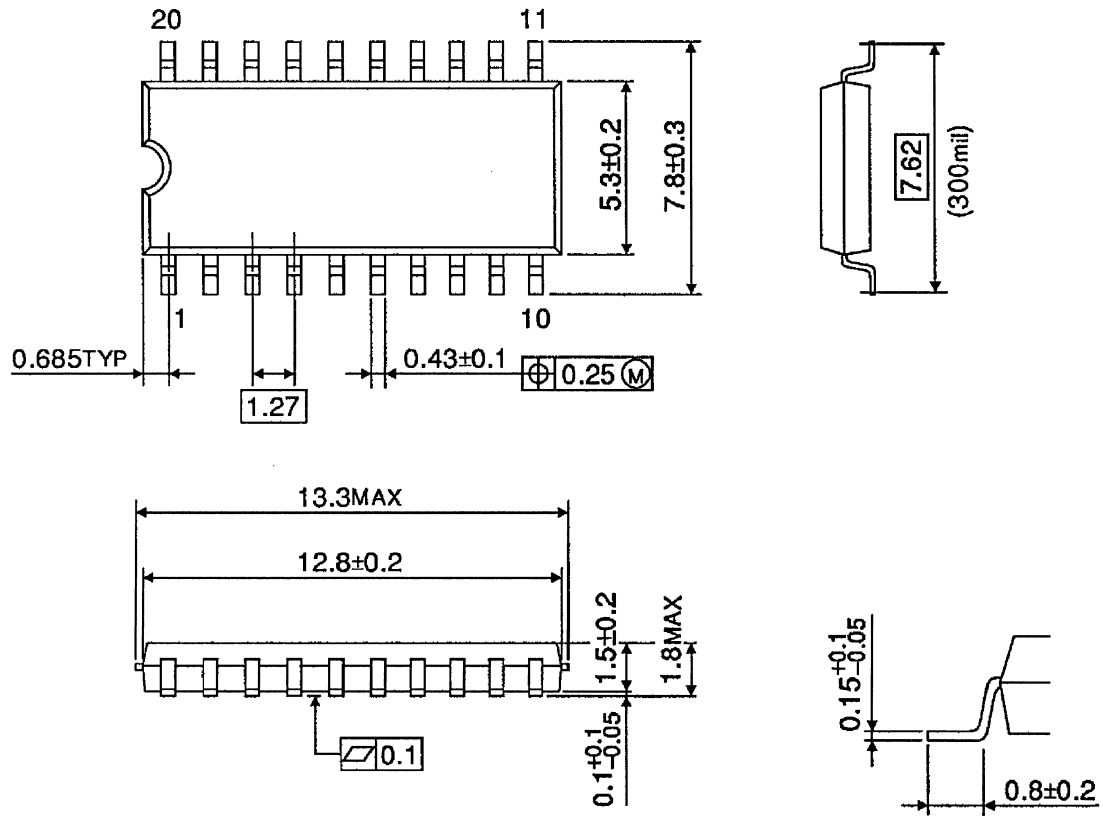


Weight: 2.25 g (Typ.)

PACKAGE DIMENSIONS

SOP20-P-300-1.27

Unit: mm



Weight: 0.25 g (Typ.)

About solderability, following conditions were confirmed

- Solderability

- (1) Use of Sn-63Pb solder Bath

- solder bath temperature = 230°C
 - dipping time = 5 seconds
 - the number of times = once
 - use of R-type flux

- (2) Use of Sn-3.0Ag-0.5Cu solder Bath

- solder bath temperature = 245°C
 - dipping time = 5 seconds
 - the number of times = once
 - use of R-type flux

RESTRICTIONS ON PRODUCT USE

030619EBA

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