

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT MULTI-CHIP

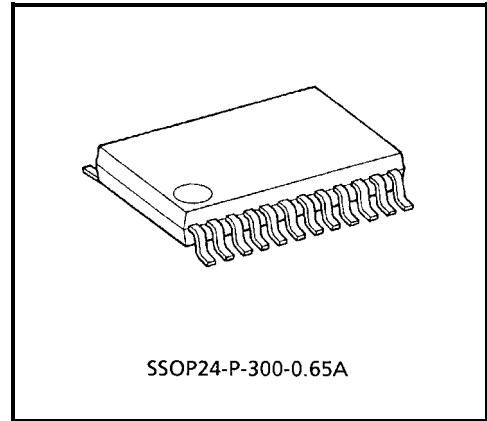
# TD62M4503AFN

## POWER MOS FET 4CH SINK DRIVER

TD62M4503AFN is 1CHIP 4ch FET Sink Driver built in Discrete Power MOS FET (2SK1078) × 4 and Diodes (1SS184).

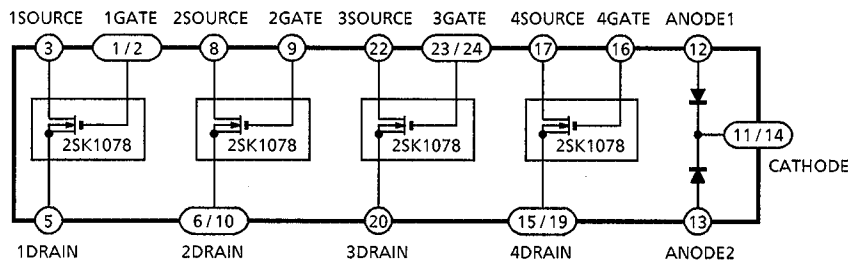
### FEATURES

- 4V Drive
- Low ON Resistance :  $R_{DS(ON)} = 0.58 \Omega$  (Typ.)
- Low Leakage Current
  - :  $I_{GSS} = \pm 3 \mu A$  (Max.) ( $V_{GS} = \pm 16 V$ )
  - :  $I_{GSS} = 100 \mu A$  (Max.) ( $V_{GS} = 60 V$ )
- Enhancement Type
  - :  $V_{th} = 0.8 \sim 2.0 V$  ( $V_{DS} = 10 V, I_D = 1 mA$ )
- Small Package : SSOP 24 (0.65 mm Pitch)

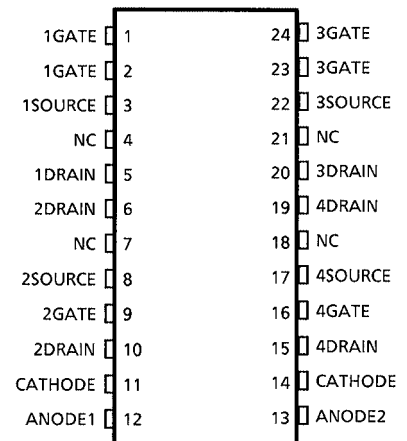


Weight: 0.14 g (Typ.)

### BLOCK DIAGRAM



### PIN CONNECTION (TOP VIEW)



NC: Non Connection

## MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT	
Drain-Source Voltage	V <sub>DSS</sub>	60	V	
Drain-Gate Voltage (R <sub>GS</sub> = 20 kΩ)	V <sub>DGR</sub>	60	V	
Gate-Source Voltage	V <sub>GSS</sub>	±20	V	
Drain Current	DC	I <sub>D</sub>	0.8	A
	Pulse	I <sub>DP</sub>	1.6	A
Diode Reverse Voltage	V <sub>R</sub>	80	V	
Diode Average Rectifier Current	I <sub>O</sub>	0.1	A	
Power Dissipation	—	P <sub>D</sub>	0.78	W
	(Note 1)		0.89	W
Junction Temperature	T <sub>j</sub>	150	°C	
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 × 1.6 mm Cu 40%)

This device is an electrostatic sensitivity device. Please handle with caution.

## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Gate Leakage Current	I <sub>GSS</sub>	—	V <sub>GS</sub> = ±16 V, V <sub>DS</sub> = 0 V	—	—	±3	μA
Drain Cut-off Current	I <sub>DSS</sub>	—	V <sub>DS</sub> = 60 V, V <sub>GS</sub> = 0 V	—	—	100	μA
Drain Source Braekdown Voltage	V (BR) DSS	—	I <sub>D</sub> = 10 mA, V <sub>GS</sub> = 0 V	60	—	—	V
Gate Thresold Voltage	V <sub>th</sub>	—	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 1 mA	0.8	—	2.0	V
Drain ON Current	I <sub>D (ON)</sub>	—	V <sub>DS</sub> = 4 V, V <sub>GS</sub> = 4 V	0.8	—	—	A
Drain-Source ON Resistance	R <sub>DS (ON)</sub>	—	V <sub>GS</sub> = 4 V, I <sub>D</sub> = 0.4 A	—	0.75	1.1	Ω
			V <sub>GS</sub> = 10 V, I <sub>D</sub> = 0.4 A	—	0.58	0.70	Ω
Diode Forward Voltage	V <sub>F (1)</sub>	—	I <sub>F</sub> = 1 mA	—	0.60	—	V
	V <sub>F (2)</sub>	—	I <sub>F</sub> = 10 mA	—	0.72	—	
	V <sub>F (3)</sub>	—	I <sub>F</sub> = 100 mA	—	1.0	1.4	
Diode Reverse Current	I <sub>R (1)</sub>	—	V <sub>R</sub> = 30 V	—	—	0.1	μA
	I <sub>R (2)</sub>	—	V <sub>R</sub> = 80 V	—	—	0.5	μA

## PRECAUTIONS for USING

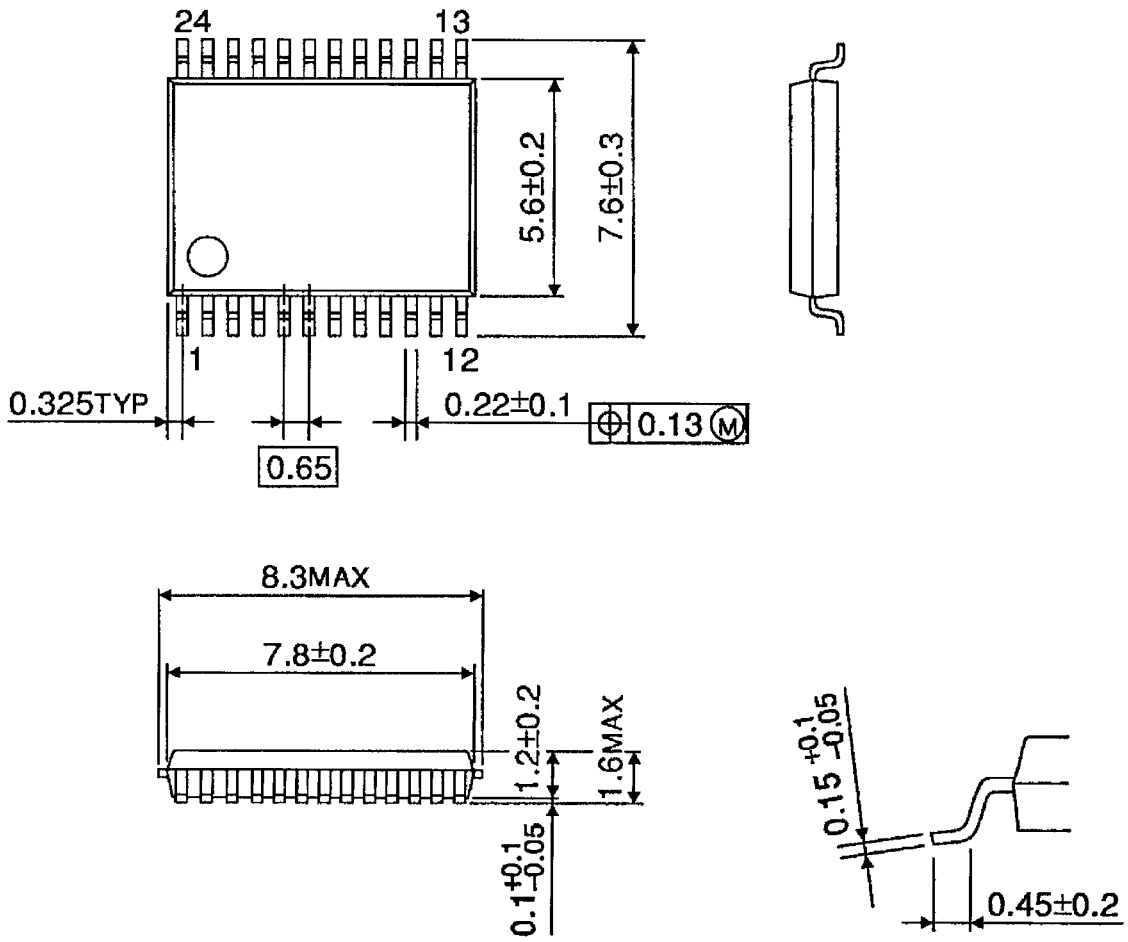
This IC does not integrate protection circuits such as overcurrent and overvoltage protectors. Thus, if excess current or voltage is applied to the IC, the IC may be damaged. Please design the IC so that excess current or voltage will not be applied to the IC.

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

## PACKAGE DIMENSIONS

SSOP24-P-300-0.65A

Unit: mm



Weight: 0.14 g (Typ.)

**RESTRICTIONS ON PRODUCT USE**

000707EBA

- TOSHIBA is continually working to improve the quality and 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 comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products 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 TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc..
- The TOSHIBA products listed in this document are intended for usage in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These TOSHIBA products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury ("Unintended Usage"). Unintended Usage include atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, medical instruments, all types of safety devices, etc.. Unintended Usage of TOSHIBA products listed in this document shall be made at the customer's own risk.
- The products described in this document are subject to the foreign exchange and foreign trade 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.