

**TOSHIBA**

**TD62M4700F**

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT MULTI CHIP

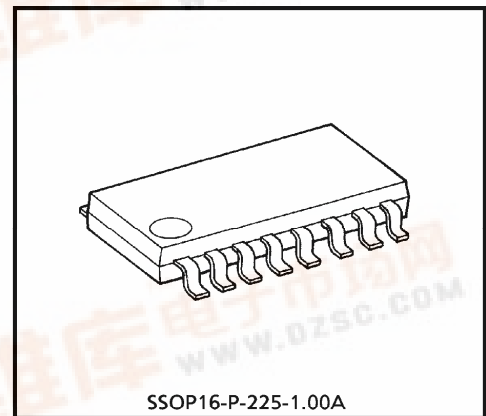
# TD62M4700F

## EXCELLENT LOW SATURATION H-BRIDGE DRIVER

TD62M4700F is low voltage use Multi Chip H-Bridge Driver IC incorporates 4 low saturation discrete Transistors which equipped bias resistor and diode. This IC is designed especially for Camera Winding Motors, FDD Stepper Motors and other portable equipments.

### FEATURES

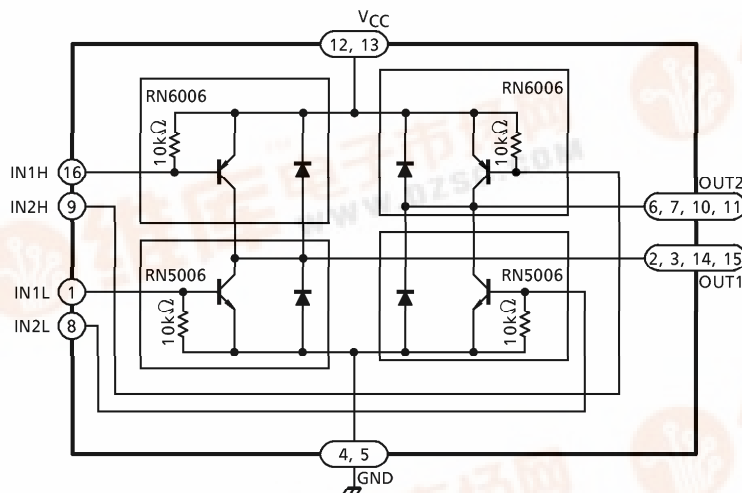
- MFP-16 1mm pitch small package sealed
- Bias resistor and diodes are equipped  
R = 10kΩ
- Excellent low saturation voltage  
 $V_{CE(SAT)} = 0.29V$  (Typ.) at  $I_O = 1A$   
 $V_{CE(SAT)} = 0.53V$  (Typ.) at  $I_O = 2A$   
 (Upper and lower side total)



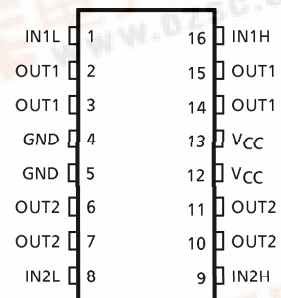
SSOP16-P-225-1.00A

Weight : 0.14g (Typ.)

### BLOCK DIAGRAM

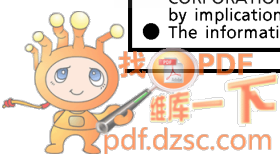


### PIN CONNECTION (TOP VIEW)



961001EBA2

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**MAXIMUM RATINGS (Ta = 25°C)**

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V <sub>CC</sub>	10	V
Breakdown Voltage	V <sub>CBO</sub>	10	V
	V <sub>CER</sub>	10	V
	V <sub>EBO</sub>	6	V
Output Current (Average)	I <sub>OUT</sub>	2	A
Output Current (Peak)	I <sub>O (PEAK)</sub>	(*) 4	A
Base Current	I <sub>B</sub>	± 0.4	A
Base Current (Peak)	I <sub>B (PEAK)</sub>	(*) ± 0.8	A
Diode Forward Current	I <sub>F</sub>	(**) 2	A
Power Dissipation	P <sub>D</sub>	490	mW
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

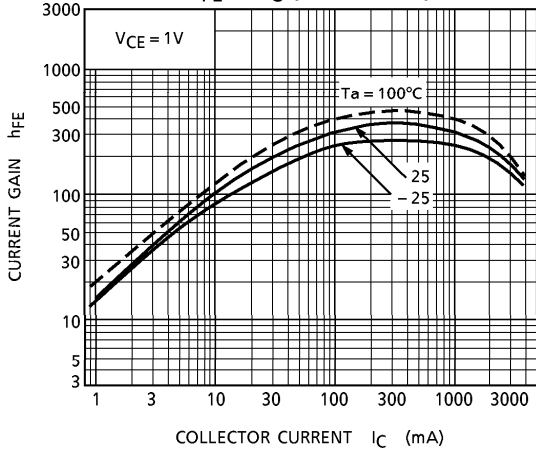
(\*) t = 10ms MAX. and maximum duty is less than 30%.

(\*\*) t = 10ms single pulse

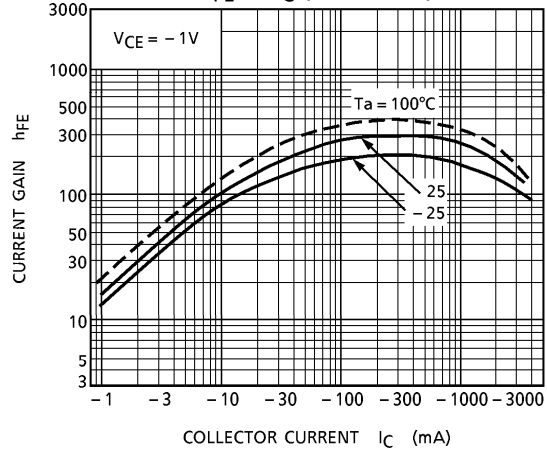
**ELECTRICAL CHARACTERISTICS (Ta = 25°C)**

CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	CONDITION	MIN.	TYP.	MAX.	UNIT
Current Gain		h <sub>FE (1)</sub>	—	V <sub>CE</sub> = 1V, I <sub>C</sub> = 0.5A	160	—	600	—
		h <sub>FE (2)</sub>	—	V <sub>CE</sub> = 1V, I <sub>C</sub> = 2.0A	60	130	—	
Saturation Voltage	Upper Side	V <sub>CE (sat)</sub>	—	I <sub>C</sub> = - 1A, I <sub>B</sub> = - 25mA	—	- 0.16	- 0.22	V
	Lower Side			I <sub>C</sub> = - 2A, I <sub>B</sub> = - 50mA	—	- 0.28	- 0.45	
				I <sub>C</sub> = 1A, I <sub>B</sub> = 25mA	—	0.13	0.22	
				I <sub>C</sub> = 2A, I <sub>B</sub> = 50mA	—	0.25	0.45	
	Summing Total			I <sub>C</sub> = 1A, I <sub>B</sub> = 25mA	—	0.29	0.42	
I <sub>C</sub> = 2A, I <sub>B</sub> = 50mA	—	0.53	0.85					
Transition Frequency		f <sub>T</sub>	—	V <sub>CE</sub> = 2V, I <sub>C</sub> = 0.5A	—	150	—	MHz
Leakage Current	Upper Side	I <sub>OL</sub>	—	V <sub>CC</sub> = - 10V	—	0	- 5	μA
	Lower Side			V <sub>CC</sub> = 10V	—	0	5	
Diode Forward Voltage	Upper Side	V <sub>F</sub>	—	I <sub>F</sub> = - 300mA	—	- 0.89	- 1.2	V
				I <sub>F</sub> = - 450mA 10ms pulse	—	- 1.60	—	
	Lower Side			I <sub>F</sub> = 300mA	—	0.89	1.2	
				I <sub>F</sub> = 450mA 10ms pulse	—	1.60	—	
Base-Emitter Resistor		R <sub>BE</sub>	—	—	7	10	13	kΩ
Base-Emitter Forward Voltage	Upper Side	V <sub>BE (PNP)</sub>	—	V <sub>CE</sub> = - 1V, I <sub>C</sub> = - 2A	—	- 0.84	- 1.5	V
	Lower Side	V <sub>BE (NPN)</sub>	—	V <sub>CE</sub> = 1V, I <sub>C</sub> = 2A	—	0.84	1.5	

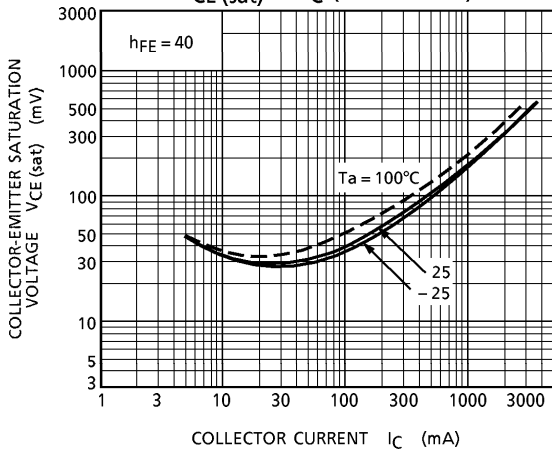
TRANSISTOR (RN5006)  
h<sub>FE</sub> - I<sub>C</sub> (LOWER SIDE)



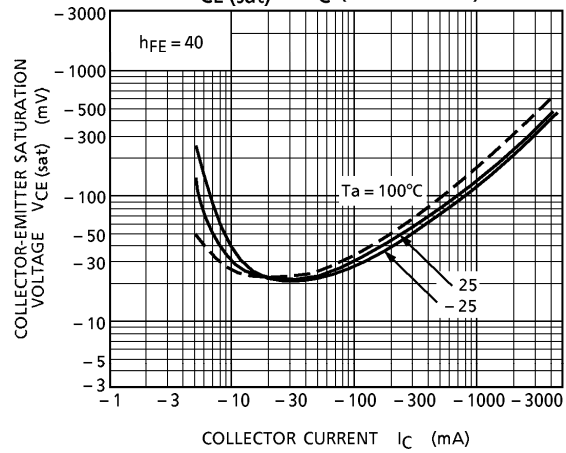
TRANSISTOR (RN6006)  
h<sub>FE</sub> - I<sub>C</sub> (UPPER SIDE)



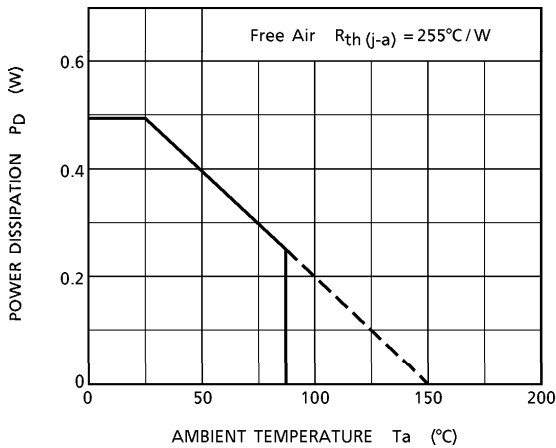
TRANSISTOR (RN5006)  
V<sub>CE</sub>(sat) - I<sub>C</sub> (LOWER SIDE)



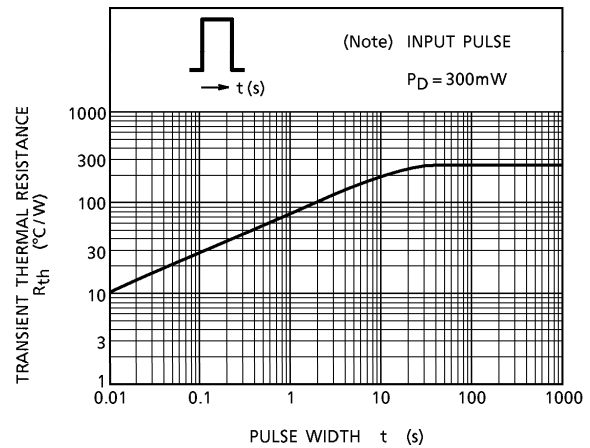
TRANSISTOR (RN6006)  
V<sub>CE</sub>(sat) - I<sub>C</sub> (LOWER SIDE)



P<sub>D</sub> - T<sub>a</sub>

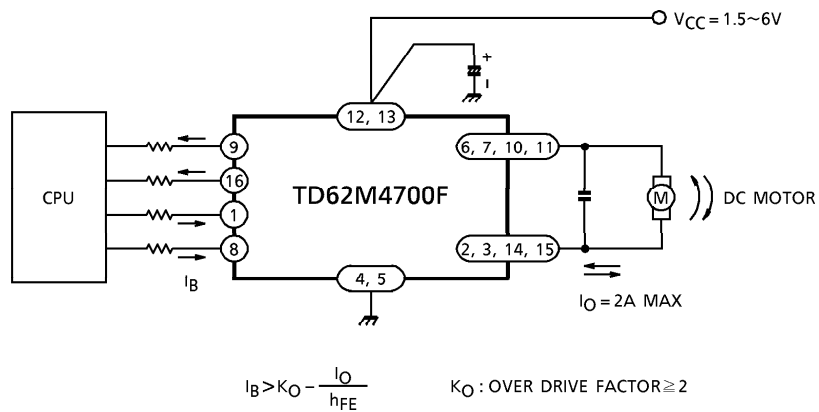


R<sub>th</sub> - t

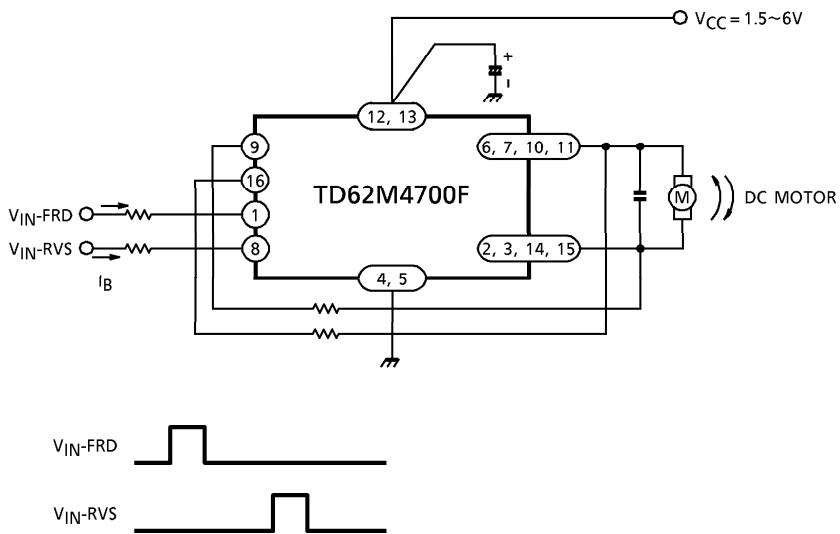


APPLICATION CIRCUIT

(1)



(2)

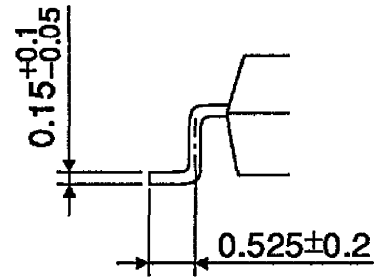
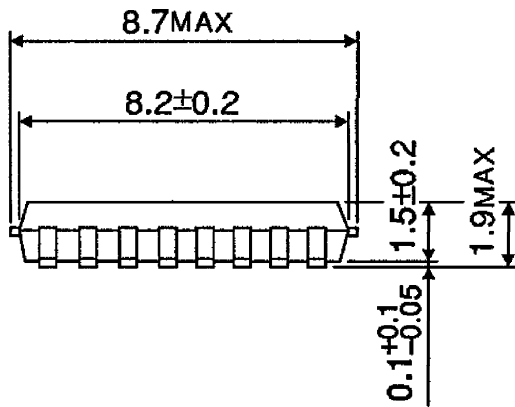
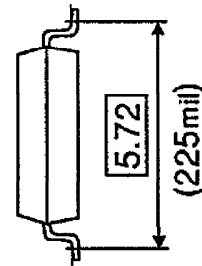
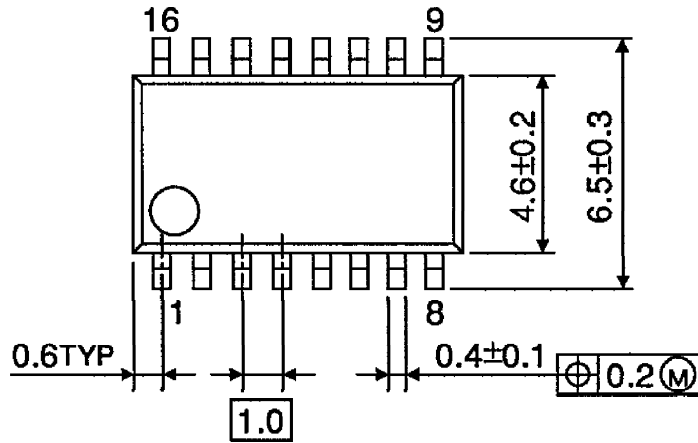


PRECAUTIONS for USING

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.

**OUTLINE DRAWING**  
SSOP16-P-225-1.00A

Unit : mm



Weight : 0.14g (Typ.)