

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT MULTI CHIP

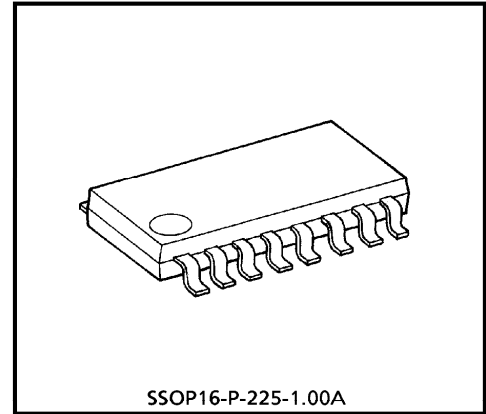
# TD62M3701F

## LOW SATURATION VOLTAGE DRIVER FOR MOTOR

TD62M3701F is Multi Chip IC incorporates 6 low saturation discrete transistors which equipped bias resistor and fly-wheel diode. This IC is suitable for a battery use motor drive applications.

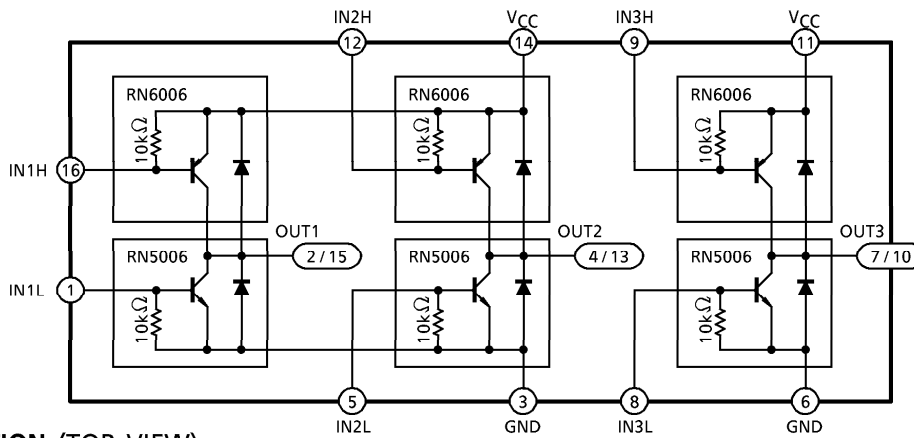
**FEATURES**

- Suitable for high efficiency motor drive circuit
- Built-in fly-wheel diode
- Built-in bias resistor :  $R = 10k\Omega$  (Typ.)
- SSOP16 1mm pitch small package sealed
- 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)

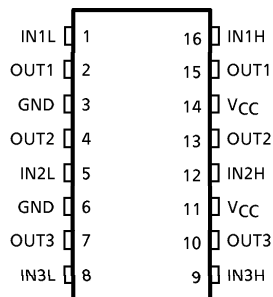


Weight : 0.14g (Typ.)

**BLOCK DIAGRAM**



**PIN CONNECTION (TOP VIEW)**



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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>CB0</sub>	10	V
	V <sub>CEO</sub>	10	
	V <sub>EBO</sub>	6	
Output Current	I <sub>O</sub>	2	A
	I <sub>O</sub> (PEAK)	4 (Note 1)	
Base Current	I <sub>B</sub>	±0.4	A
	I <sub>B</sub> (PEAK)	±0.8 (Note 1)	
Diode Forward Current	I <sub>F</sub>	2 (Note 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

(Note 1) T = 10ms Max. and maximum duty is less than 30%.

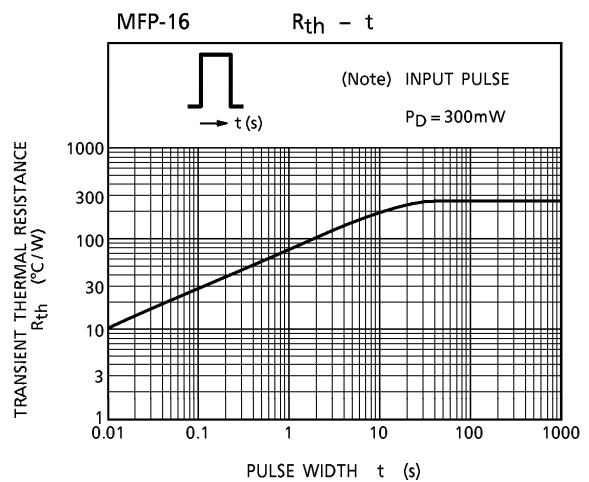
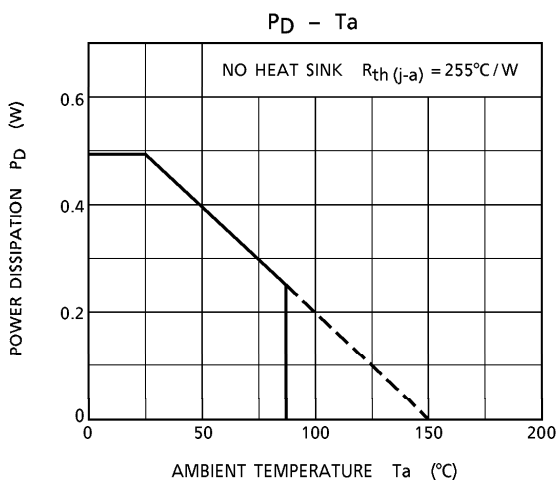
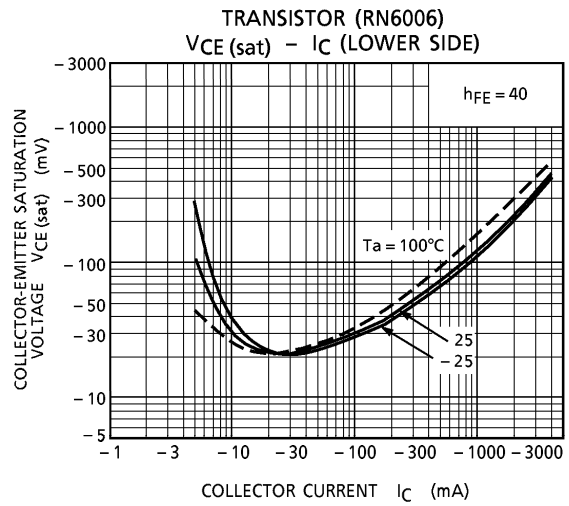
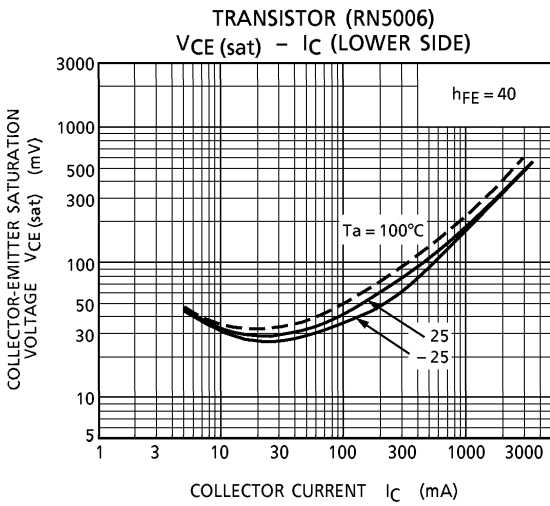
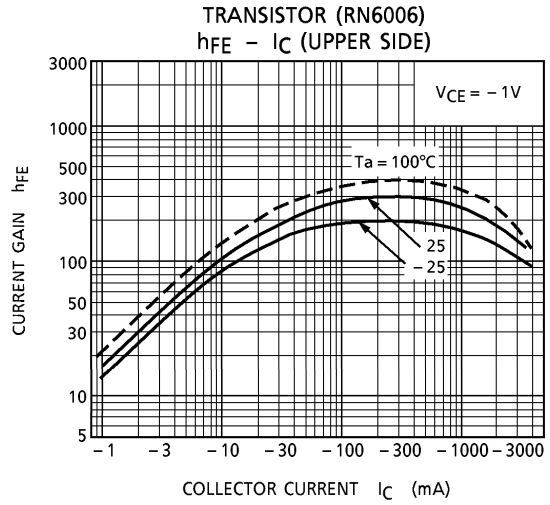
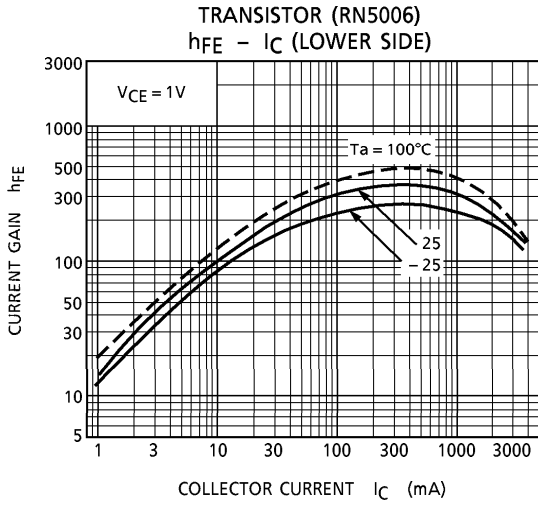
(Note 2) T = 10ms single pulse

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

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Current Gain	h <sub>FE</sub> (1)	—	V <sub>CE</sub> = 1V, I <sub>C</sub> = 0.5A	160	—	600	—	
	h <sub>FE</sub> (2)	—	V <sub>CE</sub> = 1V, I <sub>C</sub> = 2.0A	60	130	—		
Saturation Voltage	Upper Side	V <sub>CE</sub> (sat)	—	I <sub>C</sub> = -1A, I <sub>B</sub> = -25mA	—	-0.16	-0.22	V
				I <sub>C</sub> = -2A, I <sub>B</sub> = -50mA	—	-0.28	-0.45	
	Lower Side			I <sub>C</sub> = 1A, I <sub>B</sub> = 25mA	—	0.13	0.22	
	Summing Total			I <sub>C</sub> = 2A, I <sub>B</sub> = 50mA	—	0.25	0.45	
				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	V <sub>BE</sub> (PNP)	—	V <sub>CE</sub> = -1V, I <sub>C</sub> = -2A	—	-0.84	-1.5	V	
	V <sub>BE</sub> (NPN)	—	V <sub>CE</sub> = 1V, I <sub>C</sub> = 2A	—	0.84	1.5		

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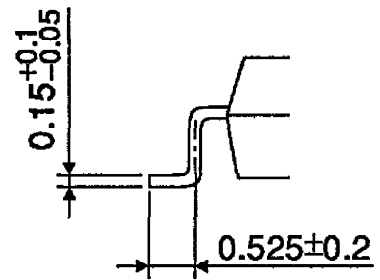
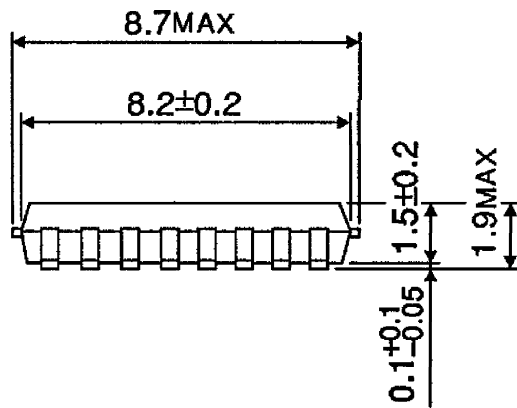
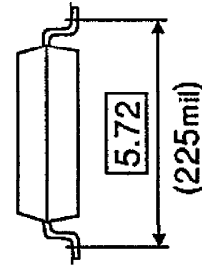
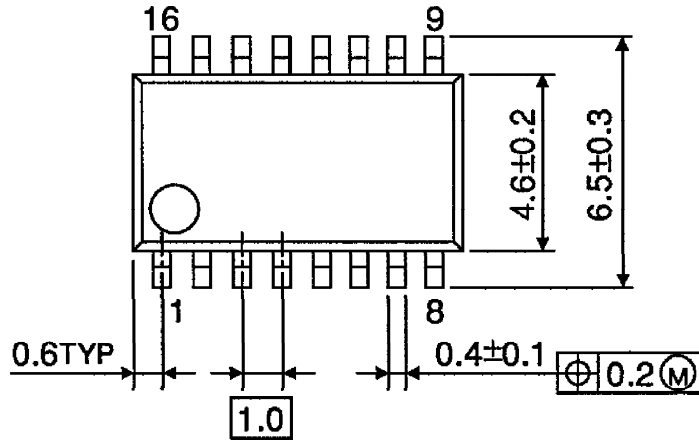


**PRECAUTIONS for USING**

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.)