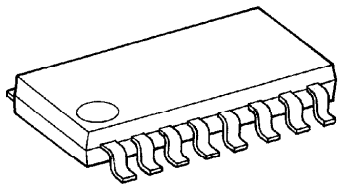
TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT MULTI CHIP

TD62M2702F

LOW SATURATION VOLTAGE H-BRIDGE DRIVER

TD62M2702F is short break use Multi-Chip driver IC incorporates 2 schottky barrier diodes and 4 low saturation discrete transistors which equipped bias-resistor and fly-wheel diode.
This IC is suitable for forward-reverse control on a battery use motor drive applications.



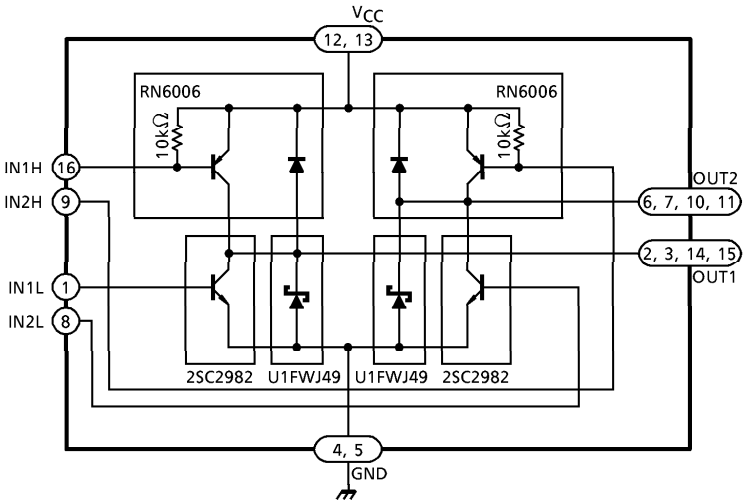
SSOP16-P-225-1.00A

Weight : 0.14g (Typ.)

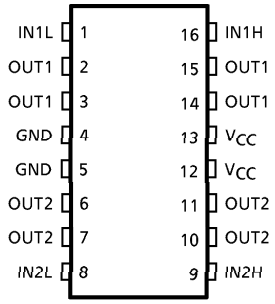
FEATURES

- Built-in fly-wheel diode (upper side)
- Built-in schottky barrier diode (lower side)
- Built-in bias resistor (upper side) : R = 10kΩ (Typ.)
- SSOP16 1mm pitch small package sealed
- Low saturation voltage

BLOCK DIAGRAM



PIN CONNECTION (TOP VIEW)



961001EBA2

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	10	V
Breakdown Voltage	V_{CBO}	10	V
	V_{CER}	10	
	V_{EBO}	6	
Output Current	I_{OUT}	2	A
	$I_{O\ (PEAK)}$	4 (Note 1)	
Base Current	I_B	±0.4	A
	$I_{B\ (PEAK)}$	±0.8 (Note 1)	
Diode Forward Current	I_F	2 (Note 2)	A
Power Dissipation	P_D	490	mW
Junction Temperature	T_j	125	°C
Operating Temperature	T_{opr}	−40~85	°C
Storage Temperature	T_{stg}	−55~150	°C

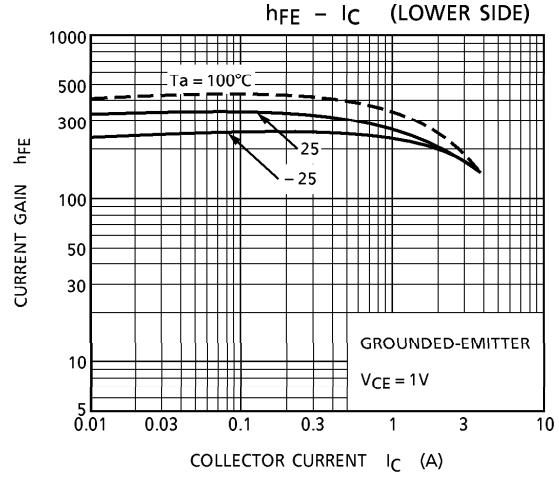
(Note 1) T = 10ms Max. and maximum duty is less than 30%.
(Note 2) T = 10ms single pulse

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

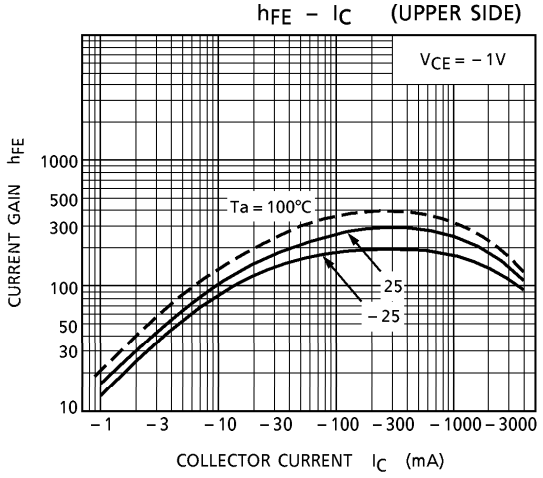
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Current Gain	Upper Side	$h_{FE\ (1)}$	—	V_{CE} = 1V, I_C = 0.5A	160	—	600	—
	Lower Side	$h_{FE\ (1)}$	—	V_{CE} = 1V, I_C = 0.5A	200	—	650	
		$h_{FE\ (2)}$	—	V_{CE} = 1V, I_C = 2.0A	60	130	—	
Saturation Voltage	Upper Side	$V_{CE\ (sat)}$	—	I_C = 1A, I_B = 25mA	—	0.1	0.22	V
				I_C = 2A, I_B = 50mA	—	0.2	0.45	
	Lower Side			I_C = 1A, I_B = 25mA	—	0.1	0.22	
				I_C = 2A, I_B = 50mA	—	0.2	0.45	
	Summing Total			I_C = 1A, I_B = 25mA	—	0.2	0.42	
				I_C = 2A, I_B = 50mA	—	0.4	0.85	
Transition Frequency		f_T	—	V_{CE} = 2V, I_C = 0.5A	—	150	—	MHz
Leakage Current	Upper Side	I_{OL}	—	V_{CC} = 10V	—	0	5	μA
	Lower Side				—	—	200	
	V_{CC}-GND				—	—	5	
Diode Forward Voltage (Note)	Upper Side	V_F	—	I_F = 300mA	—	0.89	1.2	V
				I_F = 450mA, 10ms	—	1.60	—	
	Lower Side			I_F = 1A	—	—	0.58	
Base-Emitter Resistance		R_{BE}	—	—	7	10	13	kΩ
Base-Emitter Forward Voltage		V_{BE}	—	V_{CE} = 1V, I_C = 2A	—	0.84	1.5	V

(Note) Schottky Diode U1FW49 (No Heat Sink) is guaranteed at V_F (Lower Side) = 0.55V (max.) but the TD62M2702F is guaranteed at V_F (Lower Side) = 0.58V (max.) (Voltage shift of 0.03V (I_F = 1A) is due to different package.)

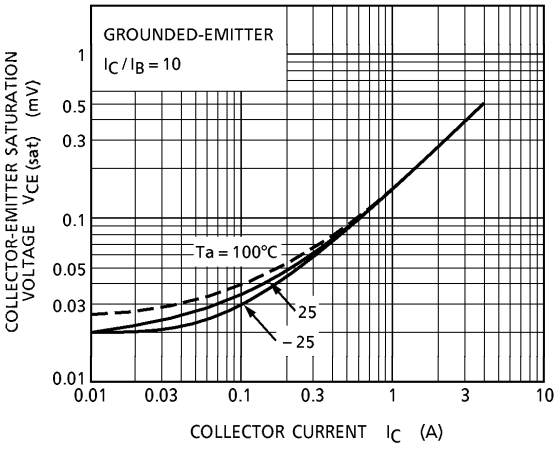
h_{FE} – I_C (LOWER SIDE)



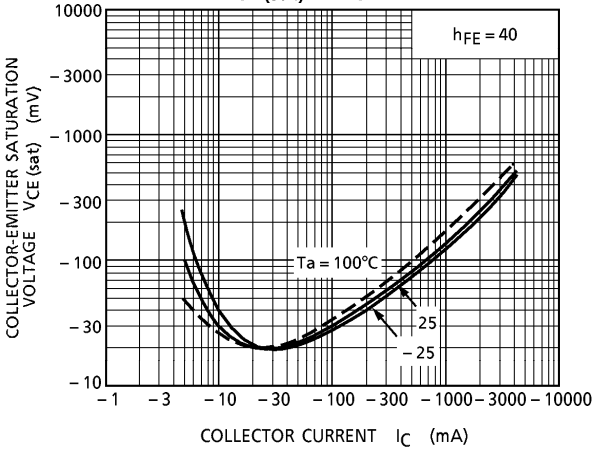
h_{FE} – I_C (UPPER SIDE)



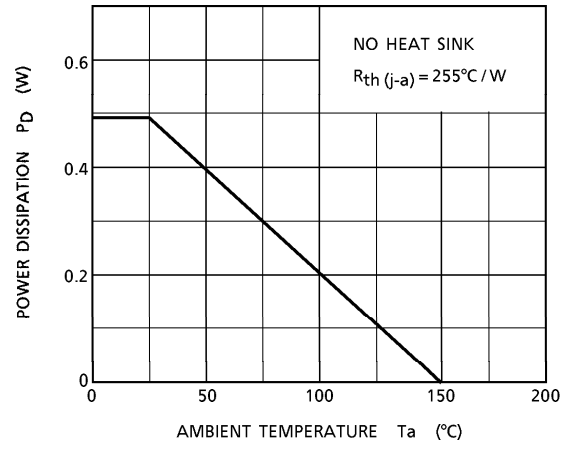
$V_{CE\,(sat)}$ – I_C (LOWER SIDE)



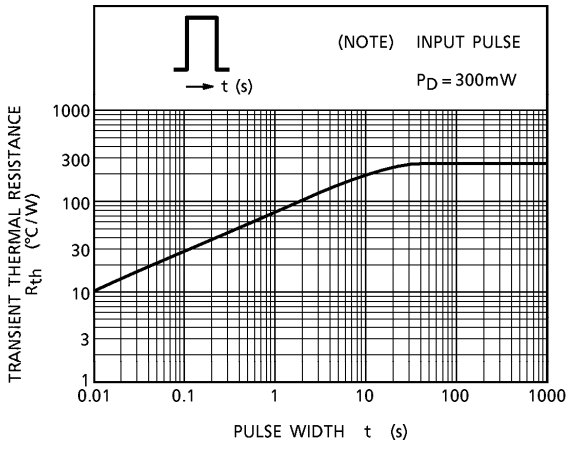
$V_{CE\,(sat)}$ – I_C (UPPER SIDE)



P_D – Ta



R_{th} – t



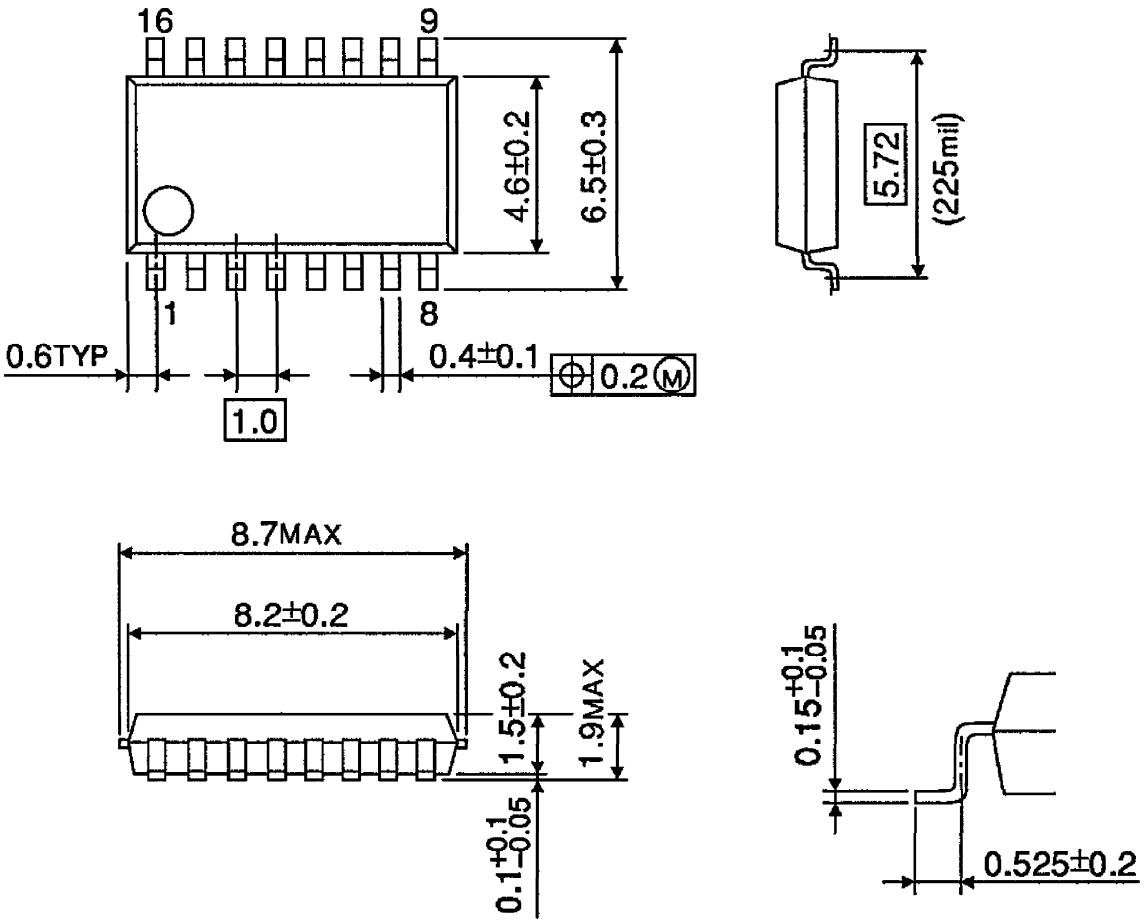
PRECAUTIONS for USING

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



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