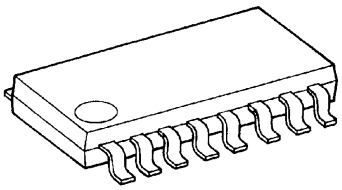
TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT MULTI CHIP

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.



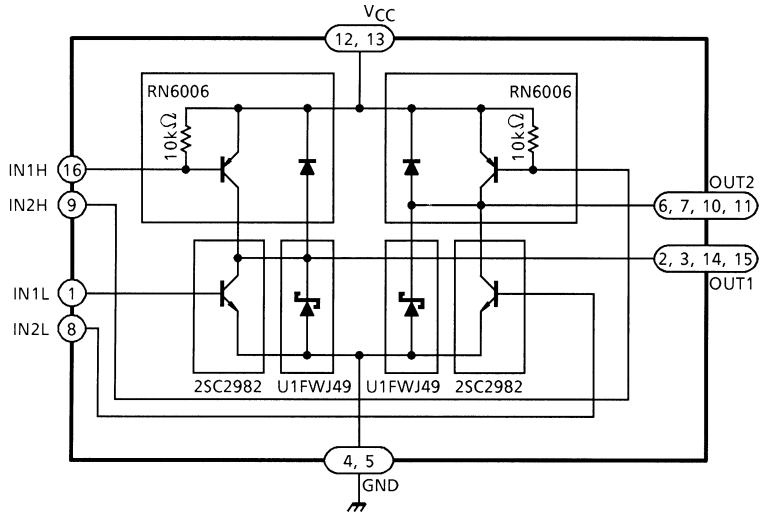
SSOP16-P-225-1.00A

Weight: 0.14 g (Typ.)

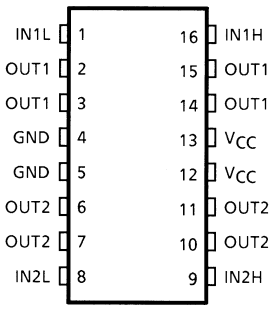
FEATURES

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

BLOCK DIAGRAM



PIN CONNECTION (TOP VIEW)



MAXIMUM RATINGS (Ta = 25°C)

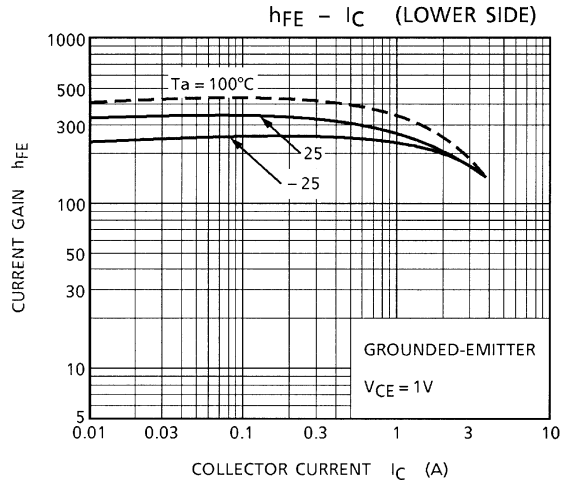
CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	10	V
Breakdown Voltage	V_{CBO}	10	V
	V_{CER}	10	
	V_{EBO}	6	
Output Current	I_{OUT}	2	A
	$I_{O\ (PEAK)}$	4 (Note 1)	
Base Current	I_B	±0.4	A
	$I_{B\ (PEAK)}$	±0.8 (Note 1)	
Diode Forward Current	I_F	2 (Note 2)	A
Power Dissipation	P_D	490	mW
Junction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

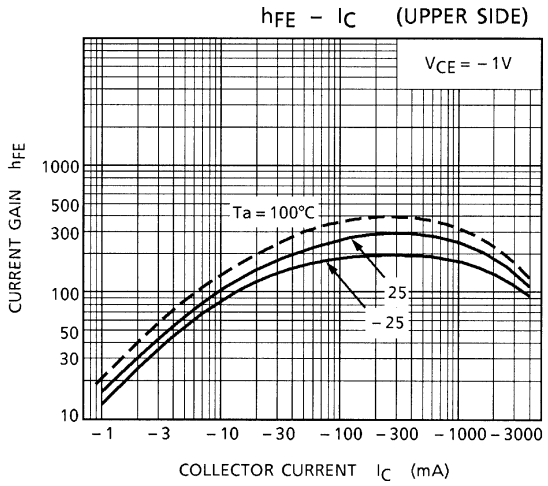
Note 1: T = 10 ms Max. and maximum duty is less than 30%.
Note 2: T = 10 ms single pulse

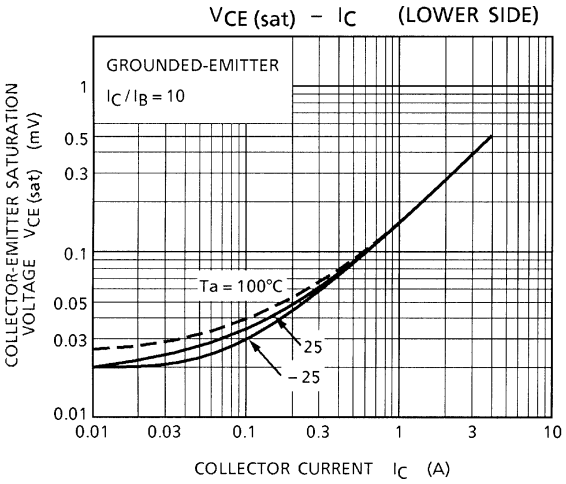
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

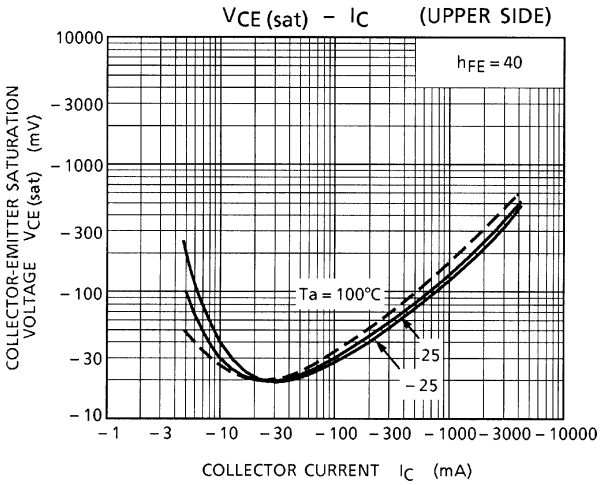
CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Current Gain	Upper Side	$h_{FE\ (1)}$	—	V_{CE} = 1 V, I_C = 0.5 A	160	—	600	—
	Lower Side	$h_{FE\ (1)}$	—	V_{CE} = 1 V, I_C = 0.5 A	200	—	650	
		$h_{FE\ (2)}$	—	V_{CE} = 1 V, I_C = 2.0 A	60	130	—	
Saturation Voltage	Upper Side	$V_{CE\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

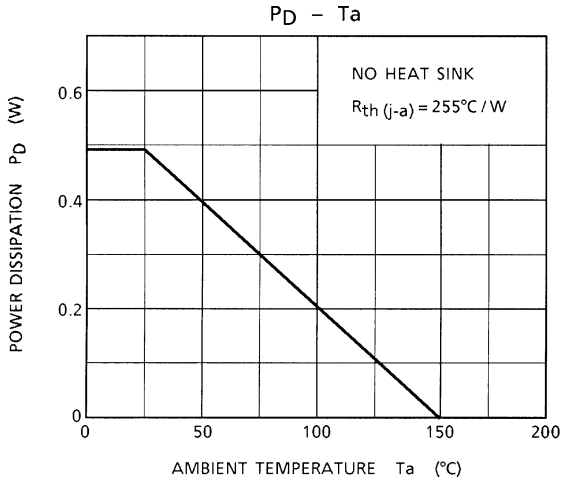
Note: Schottky Diode U1FW49 (No Heat Sink) is guaranteed at V_F (Lower Side) = 0.55 V (max.) but the TD62M2702F is guaranteed at V_F (Lower Side) = 0.58 V (max.)
(Voltage shift of 0.03 V (I_F = 1 A) is due to different package.)

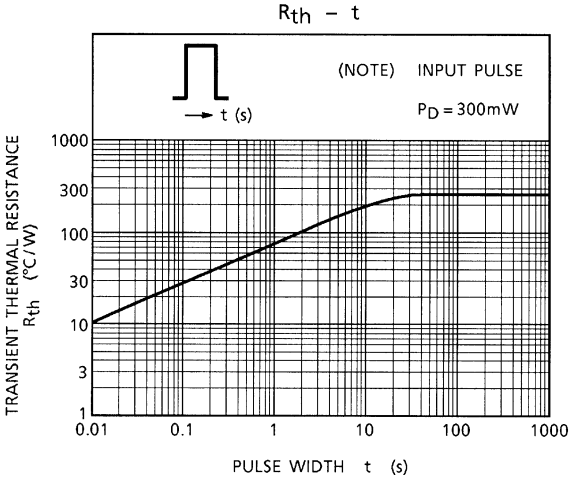










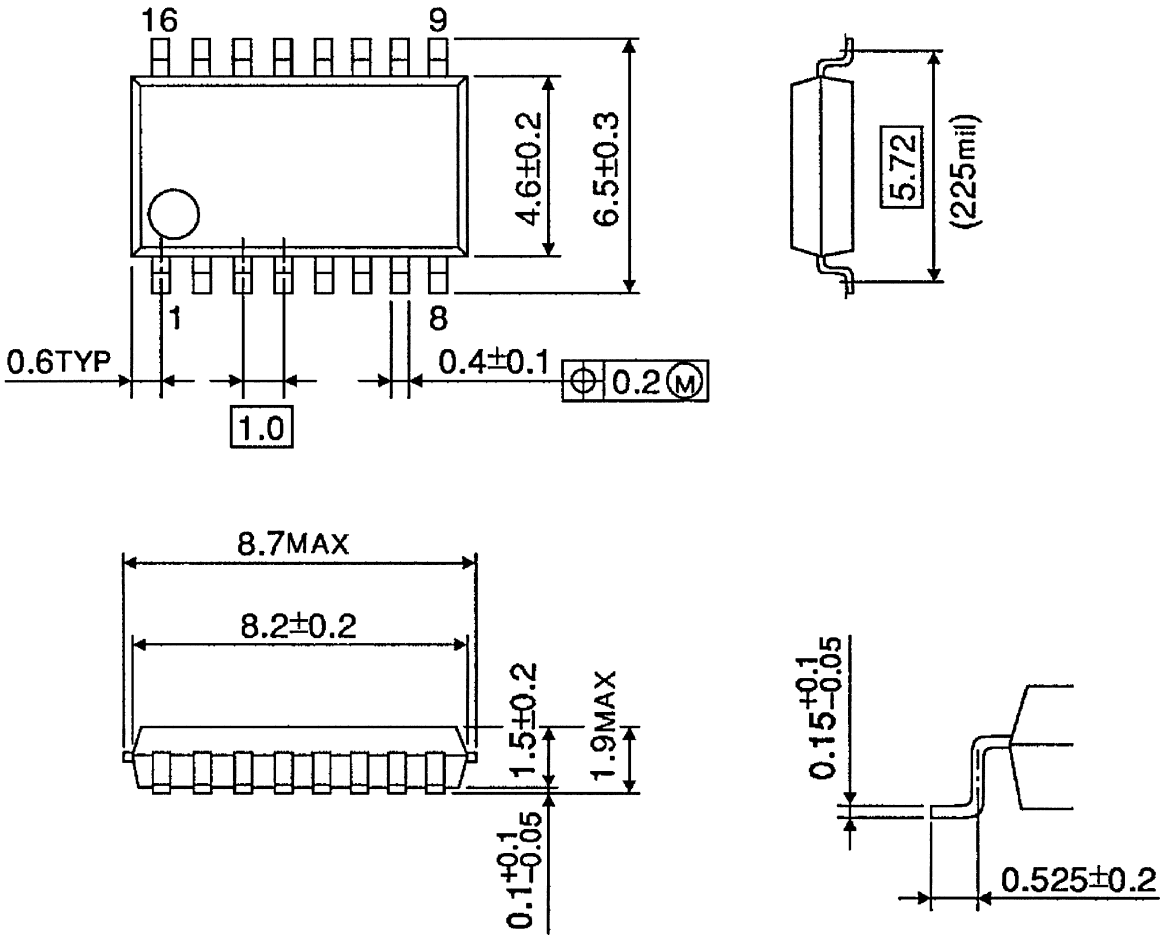


PRECAUTIONS for USING

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, V_{CC} and GND line since IC may be destroyed due to short−circuit between outputs, air contamination fault, or fault by improper grounding.

PACKAGE DIMENSIONS

SSOP16−P−225−1.00A Unit: mm



Weight: 0.14 g (Typ.)

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