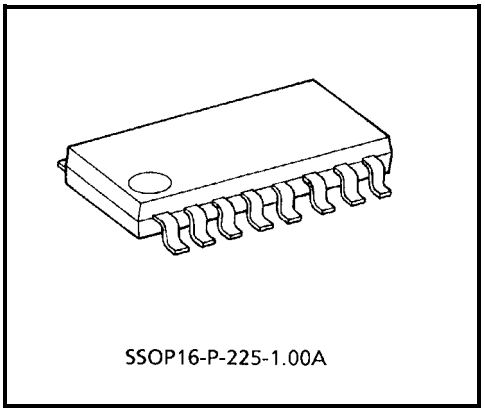
TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT MULTI CHIP

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.

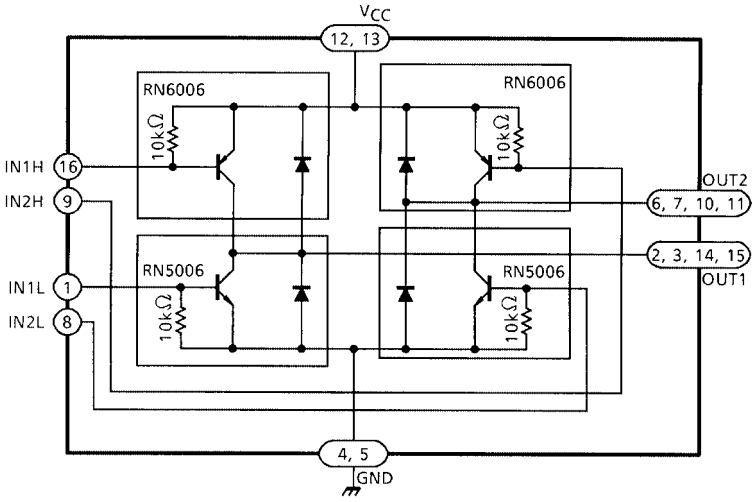


Weight: 0.14 g (Typ.)

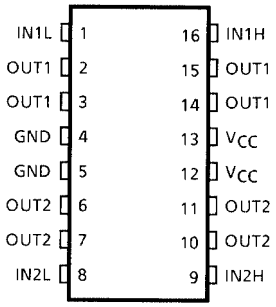
FEATURES

- SSOP16 (1mm pitch) small package sealed
- Bias resistor and diodes are equipped
  R = 10 kΩ
- Excellent low saturation voltage
  $V_{CE\ (sat)}$ = 0.29 V (Typ.) at I_O = 1 A
  $V_{CE\ (sat)}$ = 0.53 V (Typ.) at I_O = 2 A
  (Upper and lower side total)

BLOCK DIAGRAM



PIN CONNECTION (TOP VIEW)



MAXIMUM RATINGS (Ta = 25°C)

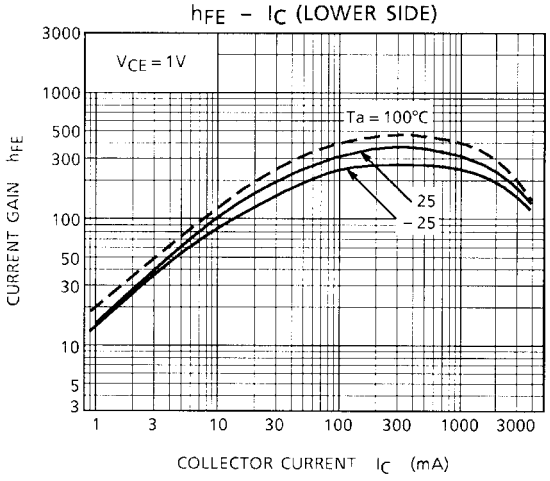
CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	10	V
Breakdown Voltage	V_{CBO}	10	V
	V_{CER}	10	V
	V_{EBO}	6	V
Output Current (Average)	I_{OUT}	2	A
Output Current (Peak)	$I_{O\ (PRAK)}$	4 (Note 1)	A
Base Current	I_B	±0.4	A
Base Current (Peak)	$I_{B\ (PRAK)}$	±0.8 (Note 1)	A
Diode Forward Current	I_F	2 (Note 2)	A
Power Dissipation	P_D	490	mW
Junction Temperature	T_j	150	°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

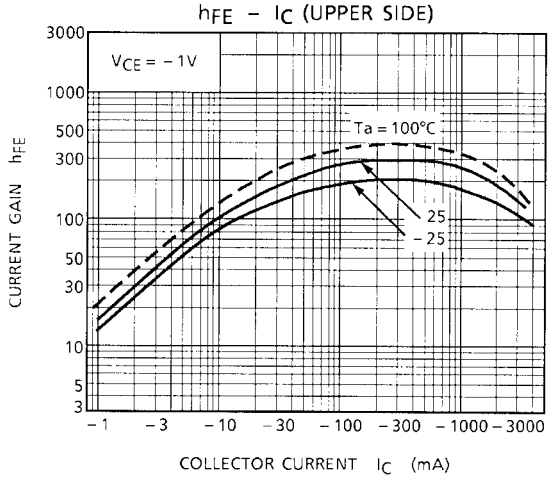
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Current Gain		$h_{FE\ (1)}$	—	V_{CE} = 1 V, I_C = 0.5 A	160	—	600	—
		$h_{FE\ (2)}$	—	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	—	−0.16	−0.22	V
				I_C = −2 A, I_B = −50 mA	—	−0.28	−0.45	
	Lower Side			I_C = 1 A, I_B = 25 mA	—	0.13	0.22	
				I_C = 2 A, I_B = 50 mA	—	0.25	0.45	
	Summing Total			I_C = 1 A, I_B = 25 mA	—	0.29	0.42	
				I_C = 2 A, I_B = 50 mA	—	0.53	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			V_{CC} = 10 V	—	0	5	
Diode Forward Voltage	Upper Side	V_F	—	I_F = −300 mA	—	−0.89	−1.2	V
				I_F = −450 mA, 10 ms pulse	—	−1.60	—	
	Lower Side			I_F = 300 mA	—	0.89	1.2	
				I_F = 450 mA, 10 ms pulse	—	1.60	—	
Base−Emitter Resistor		R_{BE}	—	—	7	10	13	kΩ
Base−Emitter Forward Voltage	Upper Side	$V_{BE\ (PNP)}$	—	V_{CE} = −1 V, I_C = −2 A	—	−0.84	−1.5	V
	Lower Side	$V_{BE\ (NPN)}$	—	V_{CE} = 1 V, I_C = 2 A	—	0.84	1.5	

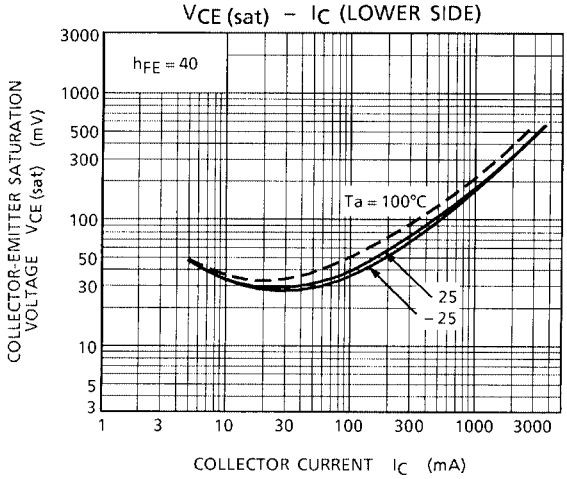
TRANSISTOR (RN5006)
h_{FE} – I_C (LOWER SIDE)



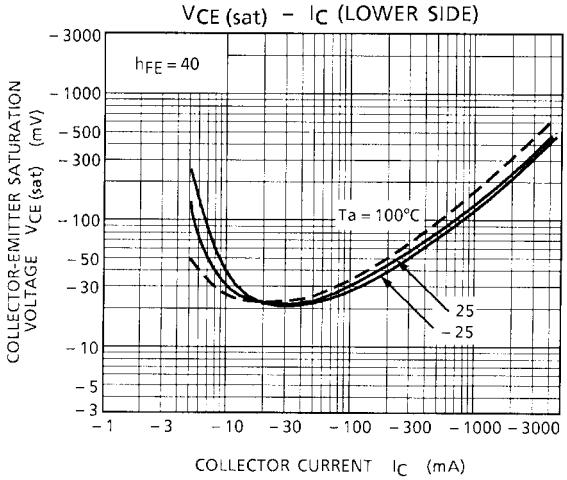
TRANSISTOR (RN6006)
h_{FE} – I_C (UPPER SIDE)



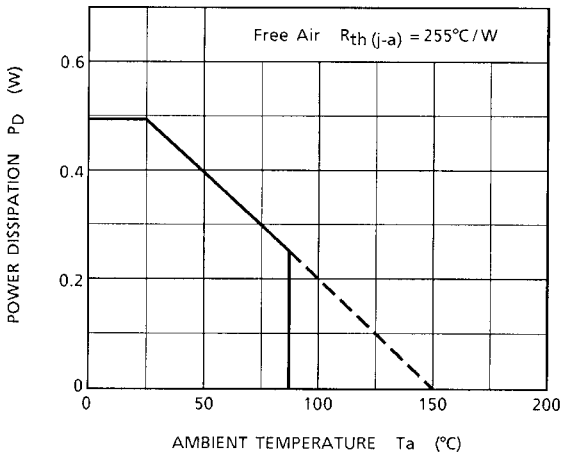
TRANSISTOR (RN5006)
$V_{CE\,(sat)}$ – I_C (LOWER SIDE)



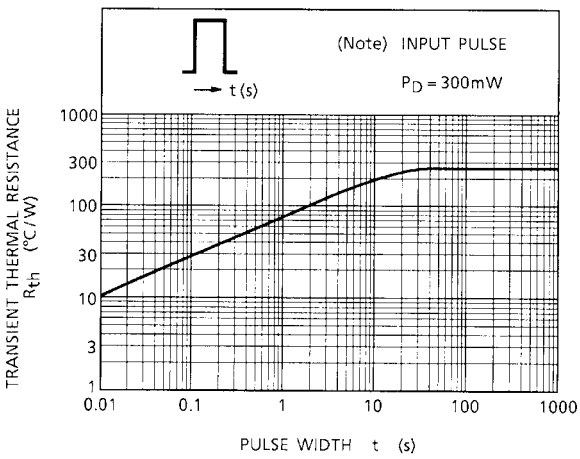
TRANSISTOR (RN6006)
$V_{CE\,(sat)}$ – I_C (LOWER SIDE)



P_D – Ta

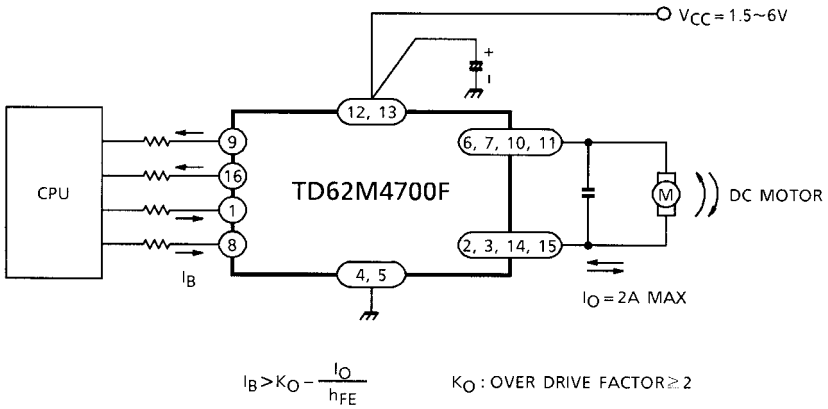


R_{th} – t

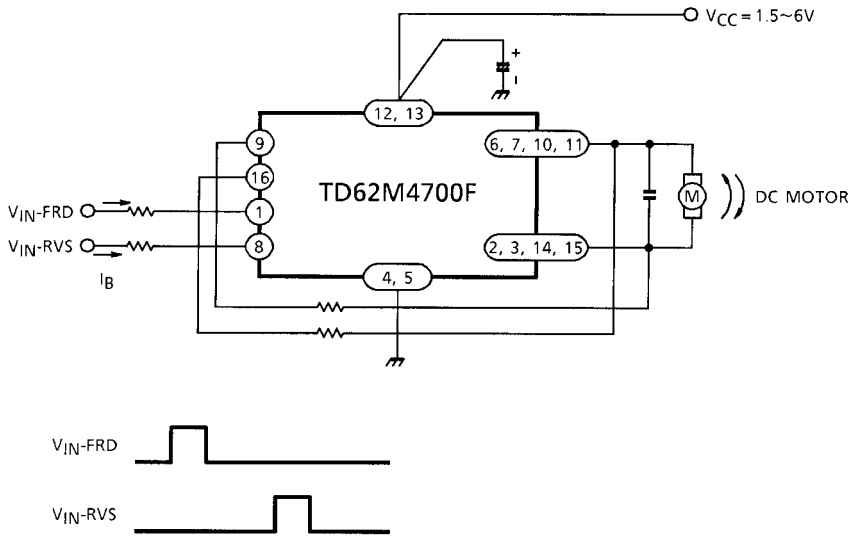


APPLICATION CIRCUIT

(1)



(2)



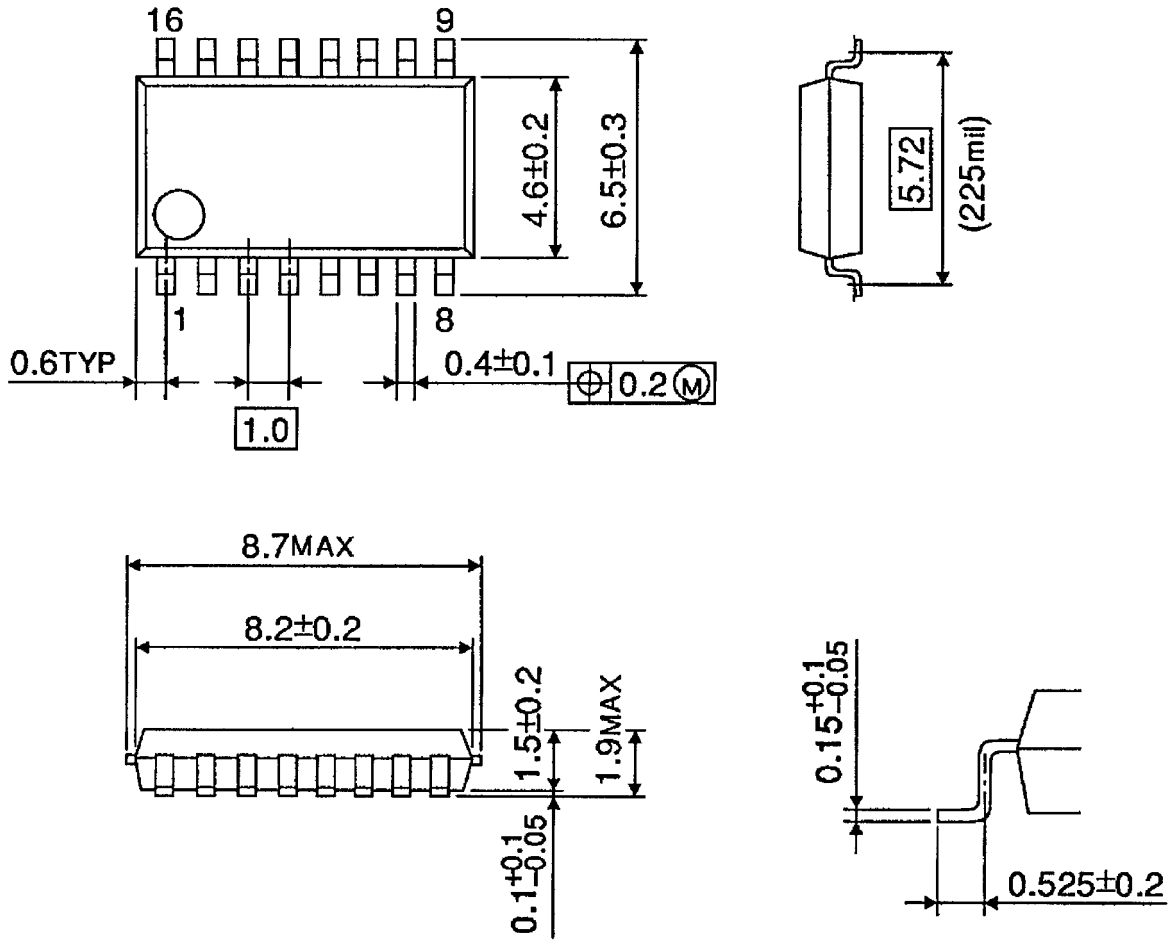
PRECAUTIONS for USING

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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000707EBA

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