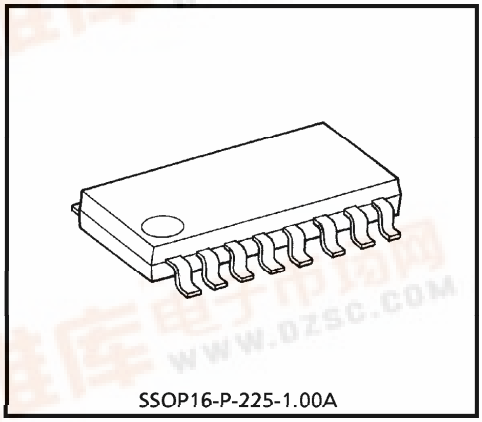
TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT MULTI CHIP

TD62M3700F

3 PHASE FULL-WAVE INVERTER

TD62M3700F is low saturation, high current 3 phase full-wave type inverter IC designed especially for battery use motor drive applications.



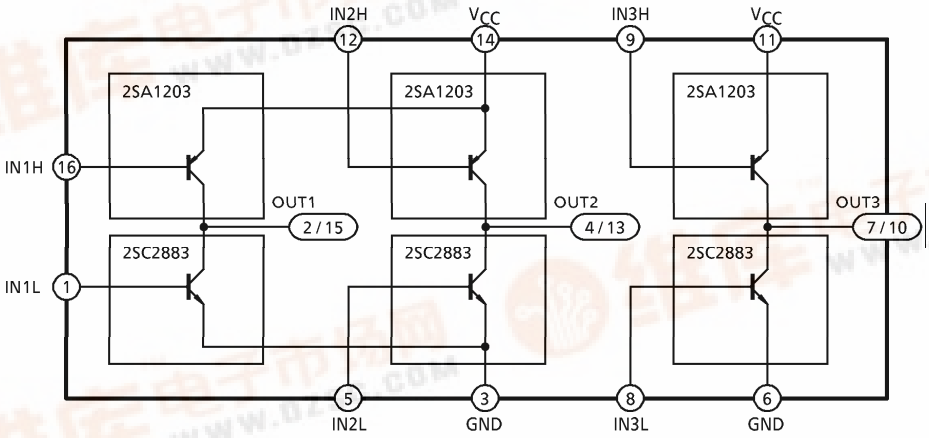
SSOP16-P-225-1.00A

Weight : 0.14g (Typ.)

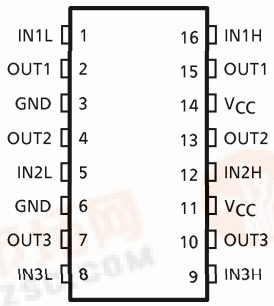
FEATURES

- High current : $I_{O\ (AVE)} = 1.5A$
  $I_{O\ (PEAK)} = 3.0A$
- Sealed in 1mm pitch 16pin surface mount package (SSOP16)

BLOCK DIAGRAM



PIN CONNECTION (TOP VIEW)



961001EBA2

MAXIMUM RATINGS (Ta = 25°C)

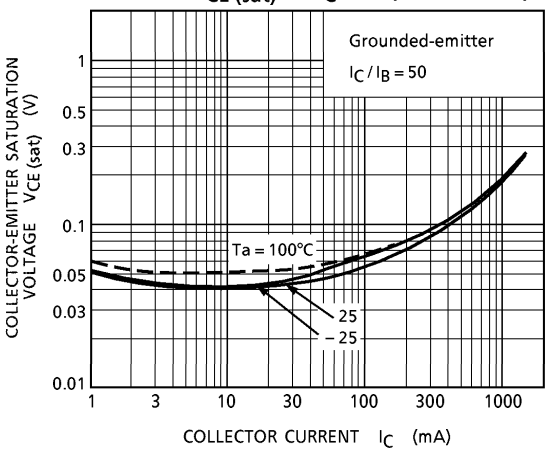
CHARACTERISTIC	SYMBOL	RATING	UNIT
Power Supply Voltage	V_{CC}	30	V
Breakdown Voltage	V_{CBO}	30	V
	V_{CEO}	30	
	V_{EBO}	5	
Output Current (Average)	$I_{O\ (AVE)}$	1.5	A
Output Current (Peak)	$I_{O\ (PEAK)}$	3.0 (Note 1)	A
Base Current	I_B	±0.3	A
Power Dissipation	P_D	490 (Note 2)	mW
Junction Temperature	T_j	150	°C
Operating Temperature	T_{opr}	−40~85	°C
Storage Temperature	T_{stg}	−55~150	°C

(Note 1) T = 10ms single pulse
(Note 2) Free Air

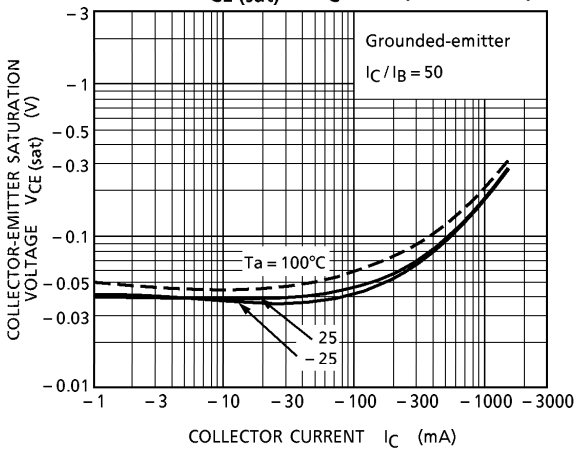
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Current Gain		$h_{FE\ (1)}$	—	V_{CE} = −2V, I_C = −0.5A	160	—	320	—
		$h_{FE\ (2)}$	—	V_{CE} = 0.4V, I_C = 0.2A	160	—	600	
h_{FE} Ratio		$h_{FE\ (1)}$ / $h_{FE\ (2)}$	—	V_{CE} = 0.4V, I_C = 30mA / V_{CE} = 0.4V, I_C = 0.2A	0.75	—	1.25	—
Saturation Voltage	Upper Side	$V_{CE\ (sat)}$	—	I_C = −0.5A, I_B = −5.0mA	—	−0.35	−0.50	V
				I_C = −1.5A, I_B = −30mA	—	—	−2.0	
	Lower Side			I_C = 0.5A, I_B = 5.0mA	—	0.2	0.35	
				I_C = 1.5A, I_B = 30mA	—	—	2.0	
	Summing Total			I_C = 0.5A, I_B = 5.0mA	—	0.55	0.85	
				I_C = 1.5A, I_B = 30mA	—	—	4.0	
Transition Frequency		f_T	—	V_{CE} = 2V, I_C = 0.5A	—	120	—	MHz
Leakage Current	Upper Side	I_{OL}	—	V_{CC} = −30V	—	0	−5	μA
	Lower Side			V_{CC} = 30V	—	0	5	
Base-Emitter Forward Voltage	Upper Side	$V_{BE\ (PNP)}$	—	V_{CE} = −1V, I_C = −2A	—	−0.84	−1.5	V
	Lower Side	$V_{BE\ (NPN)}$	—	V_{CE} = 1V, I_C = 2A	—	0.84	1.5	

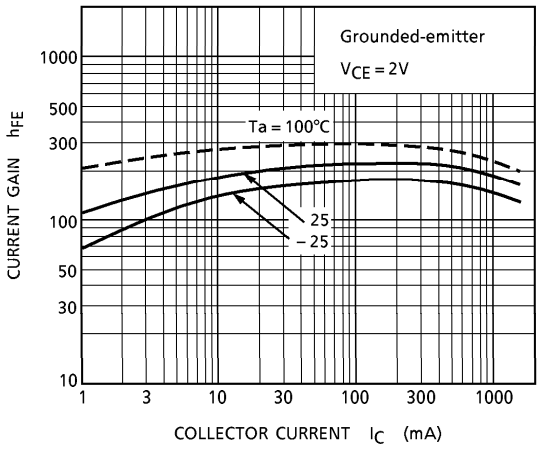
$V_{CE\,(sat)}$ – I_C (LOWER SIDE)



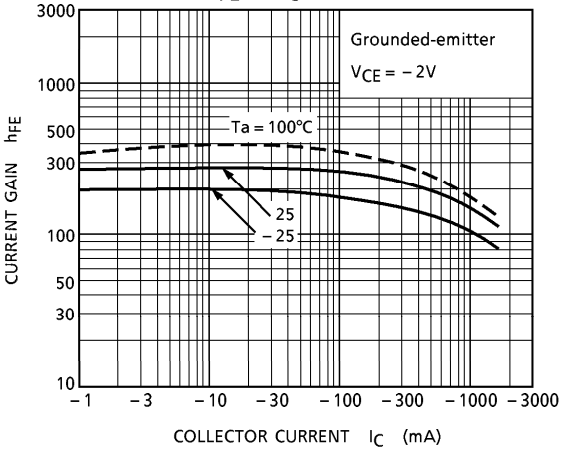
$V_{CE\,(sat)}$ – I_C (UPPER SIDE)



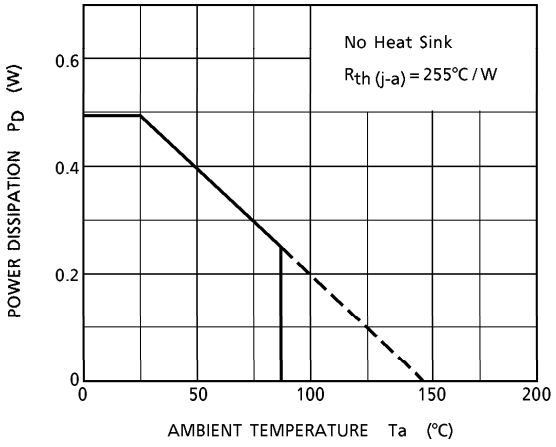
h_{FE} – I_C (LOWER SIDE)



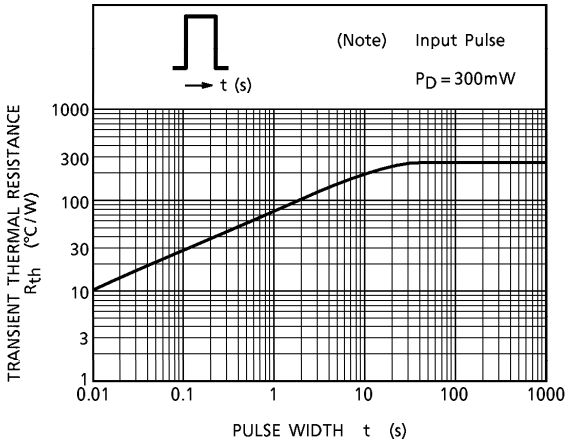
h_{FE} – I_C (UPPER SIDE)



P_D – Ta



MFP-16 R_{th} – t



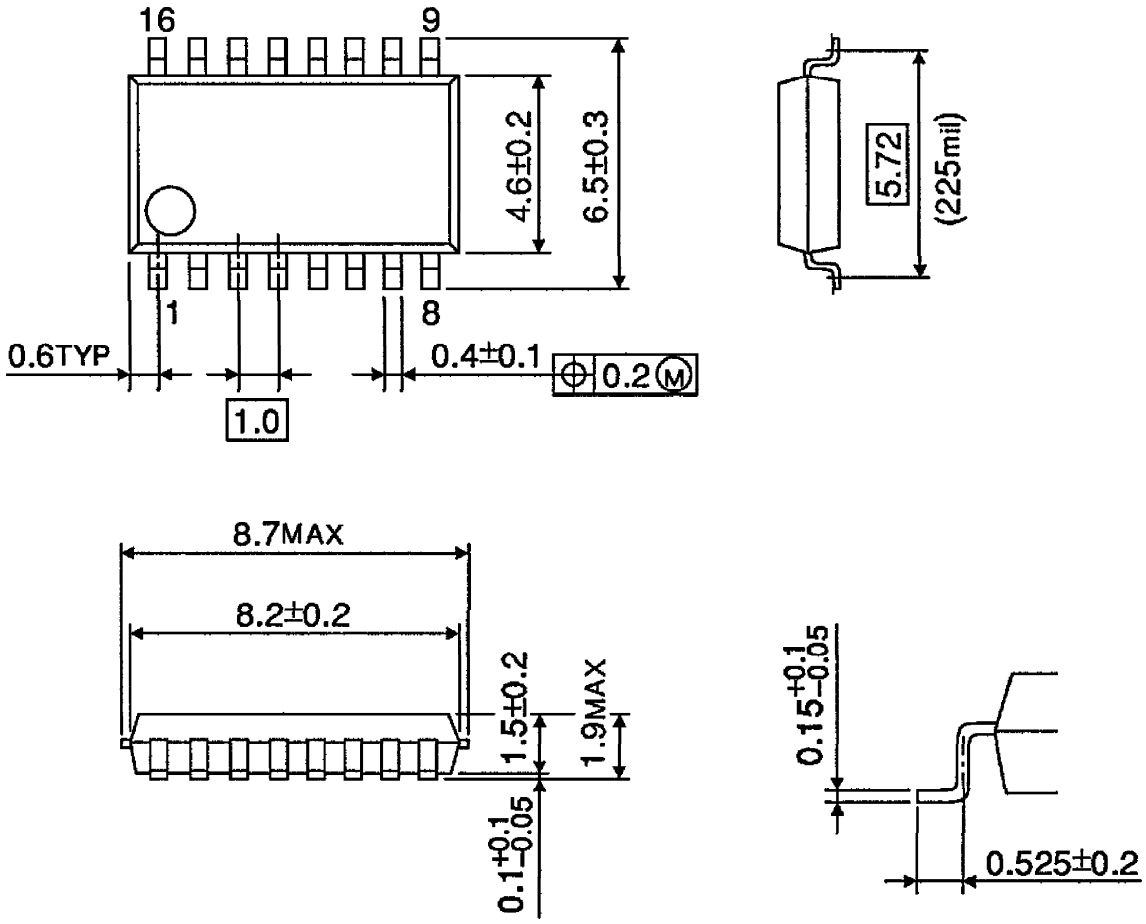
PRECAUTIONS for USING

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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