

TOSHIBA

TD62M3704F

TOSHIBA BIPOLAR DIGITAL INTEGRATED CIRCUIT MULTI CHIP

TD62M3704F

LOW SATURATION VOLTAGE H-BRIDGE DRIVER FOR MOTOR

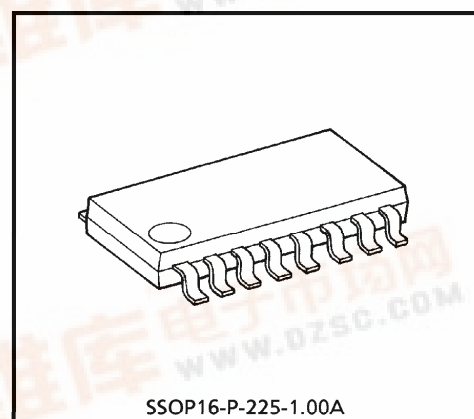
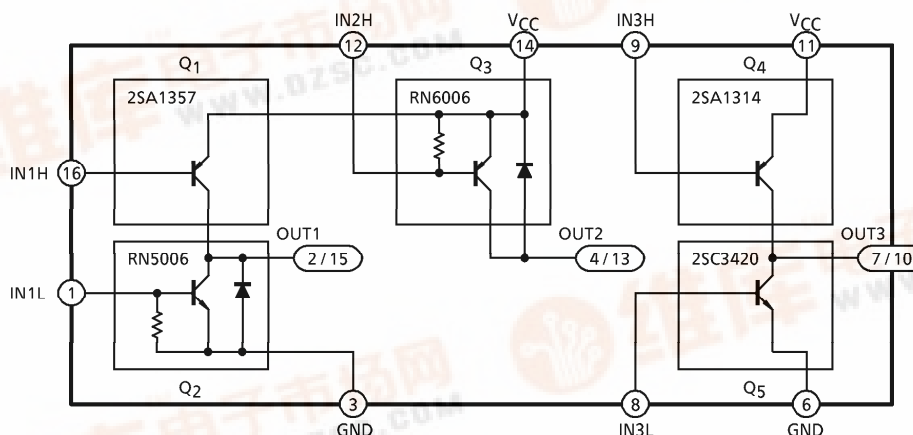
TD62M3704F is Multi Chip IC incorporates 5 low saturation discrete transistors which equipped fly-wheeling diodes and bias resistor.

This IC is suitable for a battery use motor drive applications.

FEATURES

- ch1 (Upper) : 2SA1357
- ch1 (Lower) : RN5006-Fly-wheeling Diode and Bias Resistor equipped
- ch2 (Upper) : RN6006-Fly-wheeling Diode and Bias Resistor equipped
- ch3 (Upper) : 2SA1314
- ch3 (Lower) : 2SC3420
- Suitable for High Efficiency Motor drive circuit
- External Input Resistor
- SSOP16 1mm pitch small package sealed

BLOCK DIAGRAM

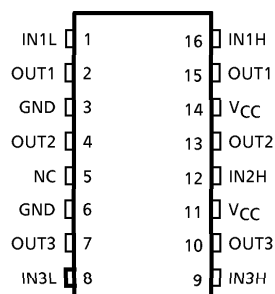


Weight : 0.14g (Typ.)

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PIN CONNECTION (TOP VIEW)



MAXIMUM RATINGS (Ta = 25°C)

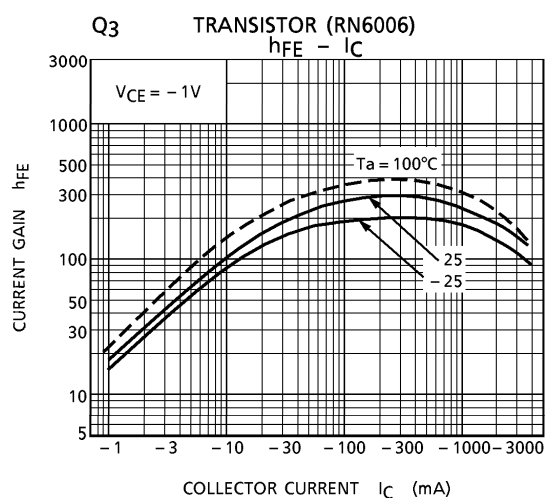
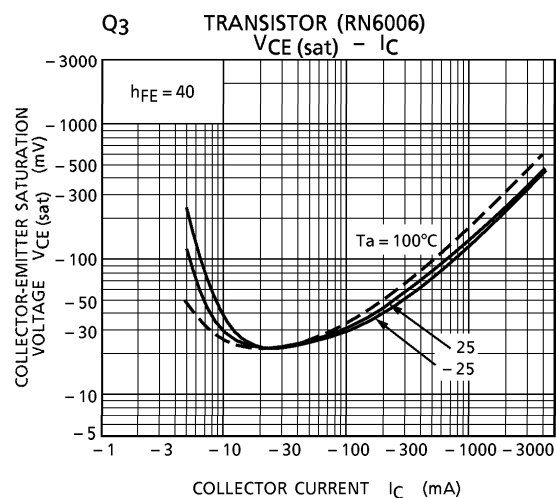
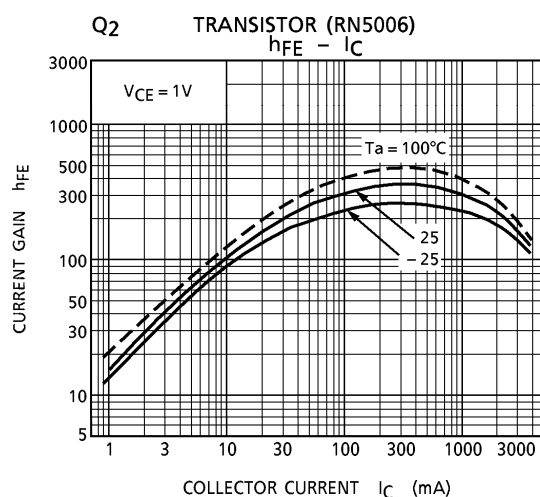
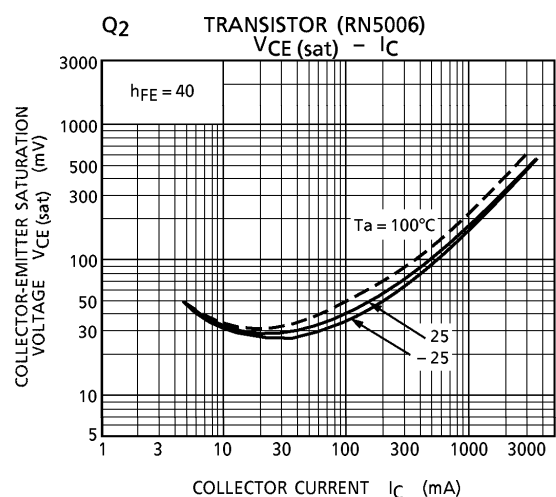
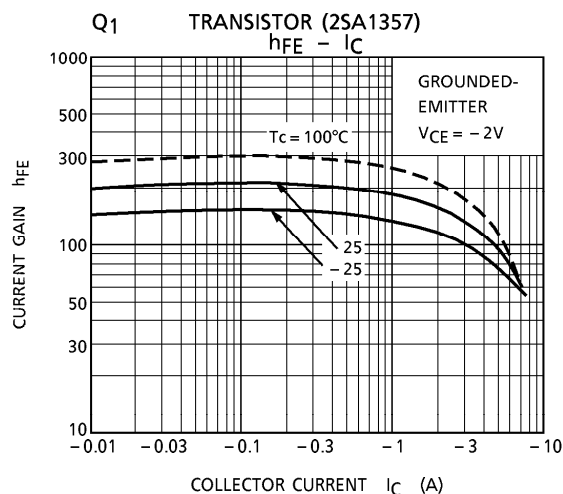
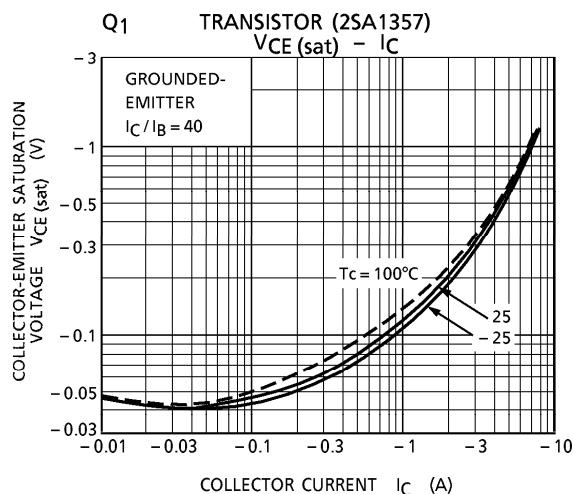
CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V _{CC}	10	V
Breakdown Voltage	V _{CB0}	10	V
	V _{CEO} (Note 2)	10	
	V _{EBO}	Q ₁ , Q ₅	
		Q ₂ , Q ₃	
		Q ₄	
Output Current	I _O (AVE)	Q ₁ , Q ₅	A
		Q ₂ ~Q ₄	
	I _O (PEAK) (Note 1)	Q ₁ , Q ₅	A
		Q ₂ ~Q ₄	
Base Current	I _B	Q ₁ , Q ₅	A
		Q ₂ ~Q ₄	
Power 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

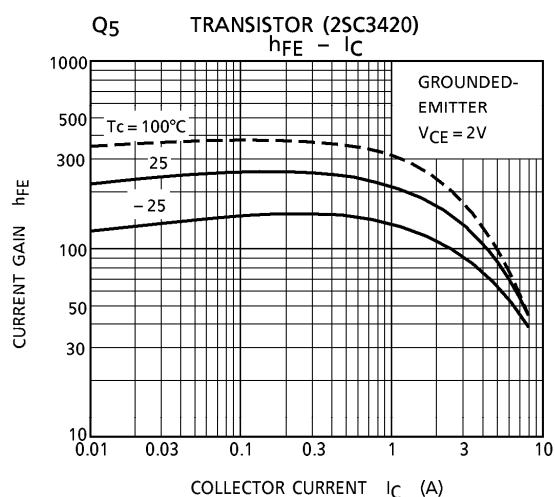
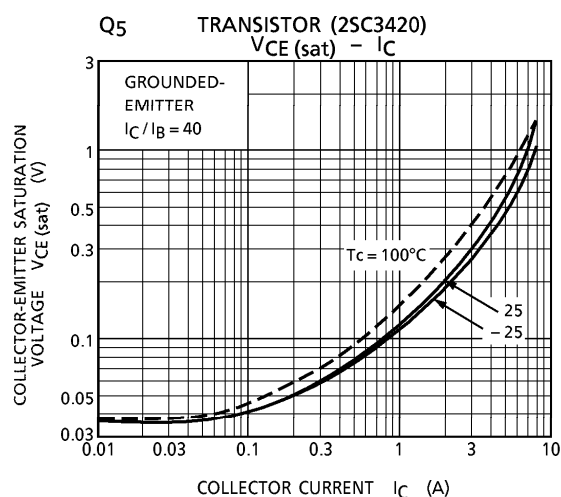
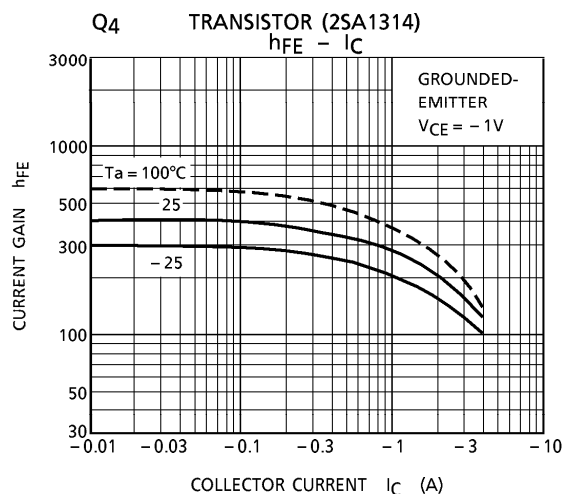
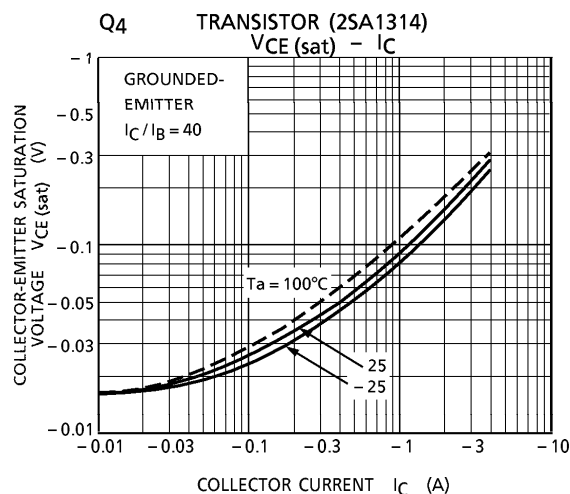
(Note 1) T = 10ms MAX. and maximum duty is less than 30%.

(Note 2) Q₅ : 2SC3420 = 15V

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Current Gain	Q1	$h_{FE} (1)$	—	$V_{CE} = 2V, I_C = 0.5A$	100	—	600	—
		$h_{FE} (2)$	—	$V_{CE} = 2V, I_C = 4.0A$	70	—	—	
	Q5	$h_{FE} (1)$	—	$V_{CE} = 2V, I_C = 0.5A$	140	—	600	
		$h_{FE} (2)$	—	$V_{CE} = 2V, I_C = 4.0A$	70	—	—	
	Q4	$h_{FE} (1)$	—	$V_{CE} = 1V, I_C = 0.5A$	200	—	650	
		$h_{FE} (2)$	—	$V_{CE} = 1V, I_C = 2.0A$	60	130	—	
	Q2, Q3	$h_{FE} (1)$	—	$V_{CE} = 1V, I_C = 0.5A$	160	—	600	
		$h_{FE} (2)$	—	$V_{CE} = 1V, I_C = 2.0A$	60	130	—	
Saturation Voltage	Q1	$V_{CE} (sat)$	—	$I_C = 1A, I_B = 25mA$	—	0.15	0.25	V
				$I_C = 3A, I_B = 75mA$	—	0.38	0.70	
	Q5	$V_{CE} (sat)$	—	$I_C = 1A, I_B = 25mA$	—	0.16	0.25	
				$I_C = 3A, I_B = 75mA$	—	0.40	0.70	
	Q3, Q4	$V_{CE} (sat)$	—	$I_C = 1A, I_B = 25mA$	—	0.14	0.25	
				$I_C = 2A, I_B = 50mA$	—	0.25	0.45	
	Q2	$V_{CE} (sat)$	—	$I_C = 1A, I_B = 25mA$	—	0.17	0.32	
				$I_C = 2A, I_B = 50mA$	—	0.31	0.45	
Fly-wheeling Diode Forward Voltage	Q2, Q3	V_F	—	$I_F = 300mA$	—	0.89	1.2	V
Transition Frequency		f_T	—	$V_{CE} = 2V, I_C = 0.5A$	—	100	—	MHz
Leakage Current		I_{OL}	—	$V_{CC} = 10V$	—	0	10	μA
Base-Emitter Forward Voltage	Q1, Q5	V_{BE}	—	$V_{CE} = 2V, I_C = 3.0A$	—	0.84	1.5	V
	Q2, Q3, Q4		—	$V_{CE} = 1V, I_C = 2.0A$	—	0.84	1.5	
Base-Emitter Resistor		R_{BE}	—	—	7	10	13	k Ω



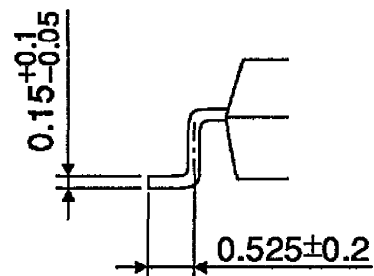
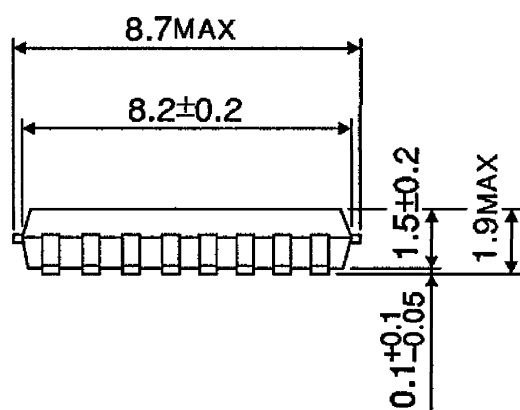
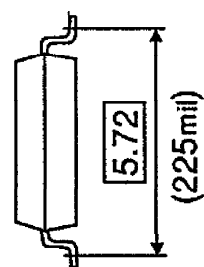
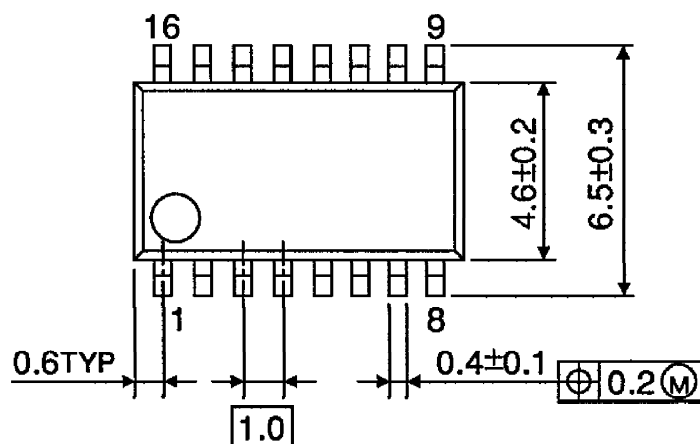


PRECAUTIONS for USING

Utmost care is necessary in the design of the output line, VCC 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.)