

TENTATIVE

TOSHIBA IGBT MODULE SILICON N CHANNEL IGBT

# MG800J2YS50A

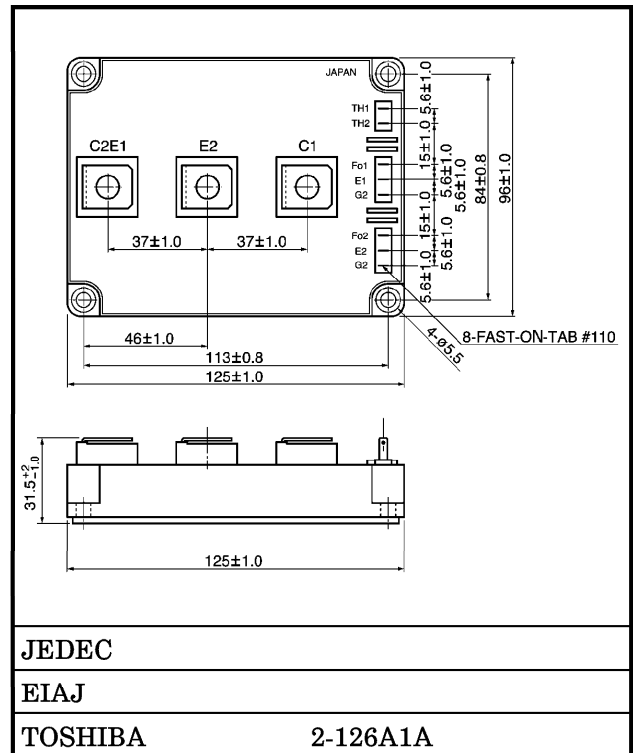
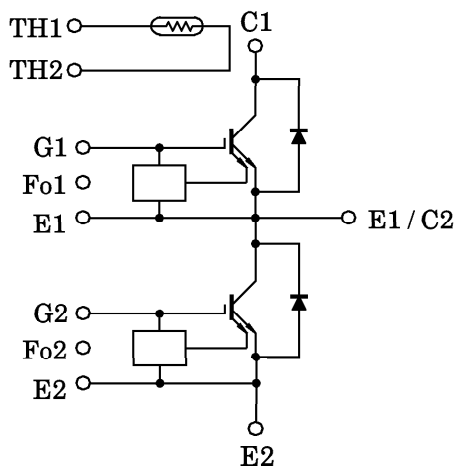
HIGH POWER SWITCHING APPLICATIONS

Unit in mm

MOTOR CONTROL APPLICATIONS

- The Electrodes are Isolated from Case.
- Enhancement-Mode
- Thermal Output Terminal (TH)

EQUIVALENT CIRCUIT



JEDEC

EIAJ

TOSHIBA

2-126A1A

Weight : 680 g

000707EAA1

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## MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		V <sub>CES</sub>	600	V
Gate-Emitter Voltage		V <sub>GES</sub>	±20	V
Collector Current	DC	I <sub>C</sub>	800	A
Forward Current	DC	I <sub>F</sub>	800	A
Collector Power Dissipation (T <sub>c</sub> = 25°C)		P <sub>C</sub>	2900	W
Junction Temperature		T <sub>j</sub>	150	°C
Storage Temperature Range		T <sub>stg</sub>	-40~125	°C
Isolation Voltage		V <sub>Isol</sub>	2500 (AC 1 min)	V
Screw Torque	Terminal : M8	—	10	N·m
	Mounting : M5	—	3	N·m

## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Gate Leakage Current		I <sub>GES</sub>	V <sub>GE</sub> = ±20 V, V <sub>CE</sub> = 0 V	—	—	±10	μA	
Collector Cut-Off Current		I <sub>CES</sub>	V <sub>CE</sub> = 600 V, V <sub>GE</sub> = 0 V	—	—	1	mA	
Gate-Emitter Cut-Off Voltage		V <sub>GE (off)</sub>	I <sub>C</sub> = 800 mA, V <sub>CE</sub> = 5 V	—	6.5	—	V	
Collector-Emitter Saturation Voltage		V <sub>CE (sat)</sub>	I <sub>C</sub> = 800 A, V <sub>GE</sub> = 15 V	T <sub>j</sub> = 25°C	—	2.4	3.0	V
				T <sub>j</sub> = 125°C	—	2.6	3.3	
Input Capacitance		C <sub>ies</sub>	V <sub>CE</sub> = 10 V, V <sub>GE</sub> = 0 V, f = 1 MHz	—	93000	—	pF	
Gate-Emitter Voltage		V <sub>GE</sub>	—	13	15	17	V	
Gate Resistance		R <sub>G</sub>	—	4.7	—	15	Ω	
Switching Time	Turn-On Delay Time	t <sub>d (on)</sub>	Inductive Load V <sub>CC</sub> = 300 V I <sub>C</sub> = 800 A V <sub>GE</sub> = ±15 V R <sub>G</sub> = 4.7 Ω  (Note)	—	0.3	—	μs	
	Rise Time	t <sub>r</sub>		—	0.25	—		
	Turn-On Time	t <sub>on</sub>		—	0.55	—		
	Turn-Off Delay Time	t <sub>d (off)</sub>		—	0.85	—		
	Fall Time	t <sub>f</sub>		—	0.15	0.30		
	Turn-Off Time	t <sub>off</sub>		—	1.05	—		
Forward Voltage		V <sub>F</sub>	I <sub>F</sub> = 800 A, V <sub>GE</sub> = 0 V	T <sub>j</sub> = 25°C	—	2.3	3.0	V
				T <sub>j</sub> = 125°C	—	2.5	—	
Reverse Recovery Time		t <sub>rr</sub>	I <sub>F</sub> = 800 A, V <sub>GE</sub> = -10 V di/dt = 2000 A/μs	—	—	0.5	μs	
Thermal Resistance		R <sub>th (j-c)</sub>	Transistor Stage	—	—	0.043	°C/W	
			Diode Stage	—	—	0.056		
RTC Operating Current		I <sub>rtc</sub>	T <sub>j</sub> = 25°C	1600	—	—	A	

THERMISTOR

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Zero Power Resistance	R25	Tc = 25°C	—	100	—	kΩ
B Value	B25 / 85	Tc = 25°C / Tc = 85°C	—	4390	—	K
Isolation Voltage		Tc = 25°C	2500	—	—	Vrms

(Note) : Switching time measurement circuit and input/output waveforms

