

TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

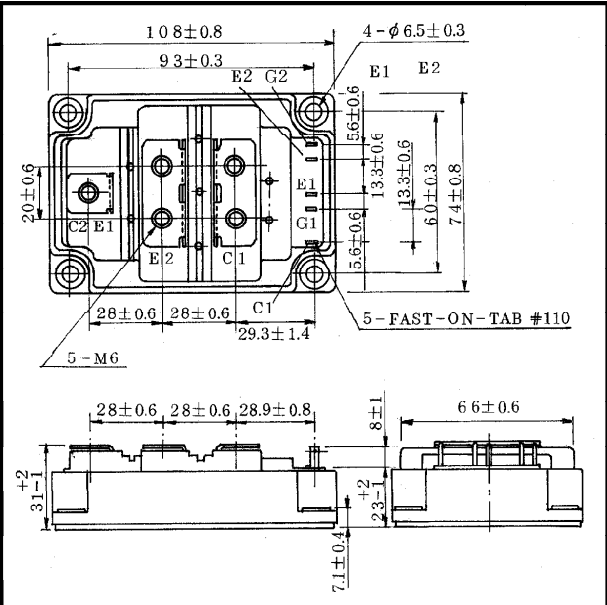
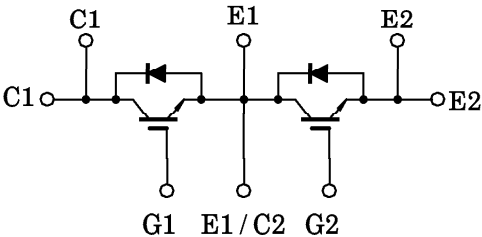
MG400J2YS50

HIGH POWER SWITCHING APPLICATIONS.
MOTOR CONTROL APPLICATIONS.

Unit in mm

- The Electrodes are Isolated from Case.
- High Input Impedance
- Includes a Complete Half Bridge in One Package.
- Enhancement-Mode
- High Speed : $t_f=0.30\mu s$ (Max.) ($I_C=400A$)
 $t_{rr}=0.15\mu s$ (Max.) ($I_F=400A$)
- Low Saturation Voltage
: $V_{CE(sat)}=2.70V$ (Max.) ($I_C=400A$)

EQUIVALENT CIRCUIT



JEDEC	—
EIAJ	—
TOSHIBA	2-109D1A

Weight : 540g (TYP.)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		V_{CES}	600	V
Gate-Emitter Voltage		V_{GES}	± 20	V
Collector Current	DC	I_C	400	A
	1ms	I_{CP}	800	
Forward Current	DC	I_F	400	A
	1ms	I_{FM}	800	
Collector Power Dissipation (Tc=25°C)		P_C	1800	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-40~125	°C
Isolation Voltage		V_{Isol}	2500 (AC 1minute)	V
Screw Torque (Terminal / Mounting)		—	3 / 3	N · m

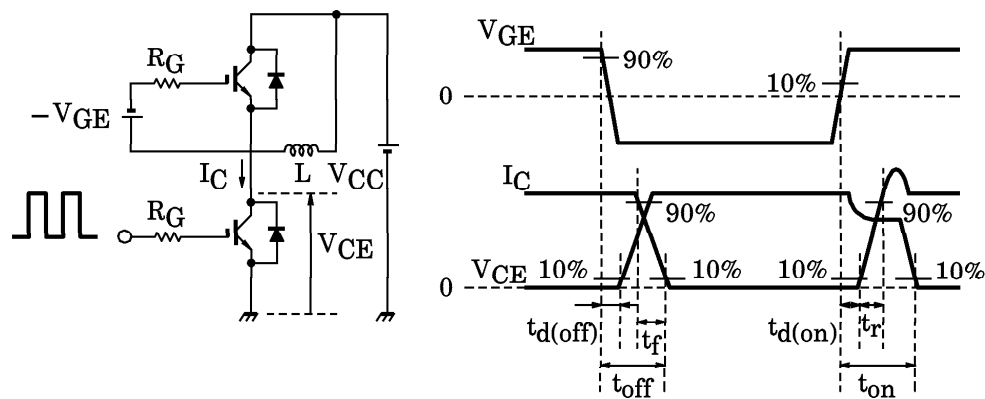
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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I _{GES}	V _{GE} = ± 20V, V _{CE} = 0	—	—	± 500	nA
Collector Cut-off Current		I _{CES}	V _{CE} = 600V, V _{GE} = 0	—	—	3.0	mA
Gate-Emitter Cut-off Voltage		V _{GE(off)}	I _C = 40mA, V _{CE} = 5V	5.0	7.0	8.0	V
Collector-Emitter Saturation Voltage		V _{CE(sat)}	I _C = 400A, V _{GE} = 15V	—	2.10	2.70	V
Input Capacitance		C _{ies}	V _{CE} = 10V, V _{GE} = 0 f = 1MHz	—	46500	—	pF
Switching Time	Turn-on Delay Time	t _{d(on)}	Inductive Load V _{CC} = 300V I _C = 400A V _{GE} = ± 15V R _G = 2.4Ω (Note 1)	—	0.25	0.50	μs
	Rise Time	t _r		—	0.12	0.24	
	Turn-on Time	t _{on}		—	0.40	0.80	
	Turn-off Delay Time	t _{d(off)}		—	0.30	0.60	
	Fall Time	t _f		—	0.15	0.30	
	Turn-off Time	t _{off}		—	0.50	1.00	
Forward Voltage		V _F	I _F = 400A, V _{GE} = 0	—	2.30	3.00	V
Reverse Recovery Time		t _{rr}	I _F = 400A, V _{GE} = − 10V di / dt = 400A / μs	—	0.08	0.15	μs
Thermal Resistance		R _{th(j-c)}	Transistor Stage	—	—	0.069	°C / W
			Diode stage	—	—	0.17	
		R _{th(c-f)}	Case to Fin (Note 2)	—	—	0.10	

Note 1 Switching Time Test Circuit & Timing Chart



Note 2 Silecone Grease is applied.

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