

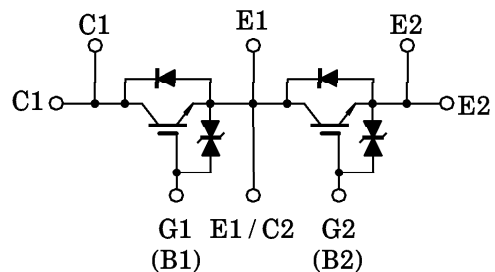
TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

# MG300Q2YS40

HIGH POWER SWITCHING APPLICATIONS.  
MOTOR CONTROL APPLICATIONS.

- High Input Impedance
- High Speed :  $t_f = 0.5\mu s$  (Max.)  
 $t_{rr} = 0.5\mu s$  (Max.)
- Low Saturation Voltage :  $V_{CE(sat)} = 4.0V$  (Max.)
- Enhancement-Mode
- The Electrodes are Isolated from Case.
- Outline : TOSHIBA 2-109D2A  
(See page 3 for the device outline)
- Weight : 550g (Typ.)

EQUIVALENT CIRCUIT



MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		$V_{CES}$	1200	V
Gate-Emitter Voltage		$V_{GES}$	$\pm 20$	V
Collector Current	DC	$I_C$	300	A
	1ms	$I_{CP}$	600	
Forward Current	DC	$I_F$	300	A
	1ms	$I_{FM}$	600	
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 1 minute)	V
Screw Torque (Terminal / Mounting)		—	3 / 3	N · m

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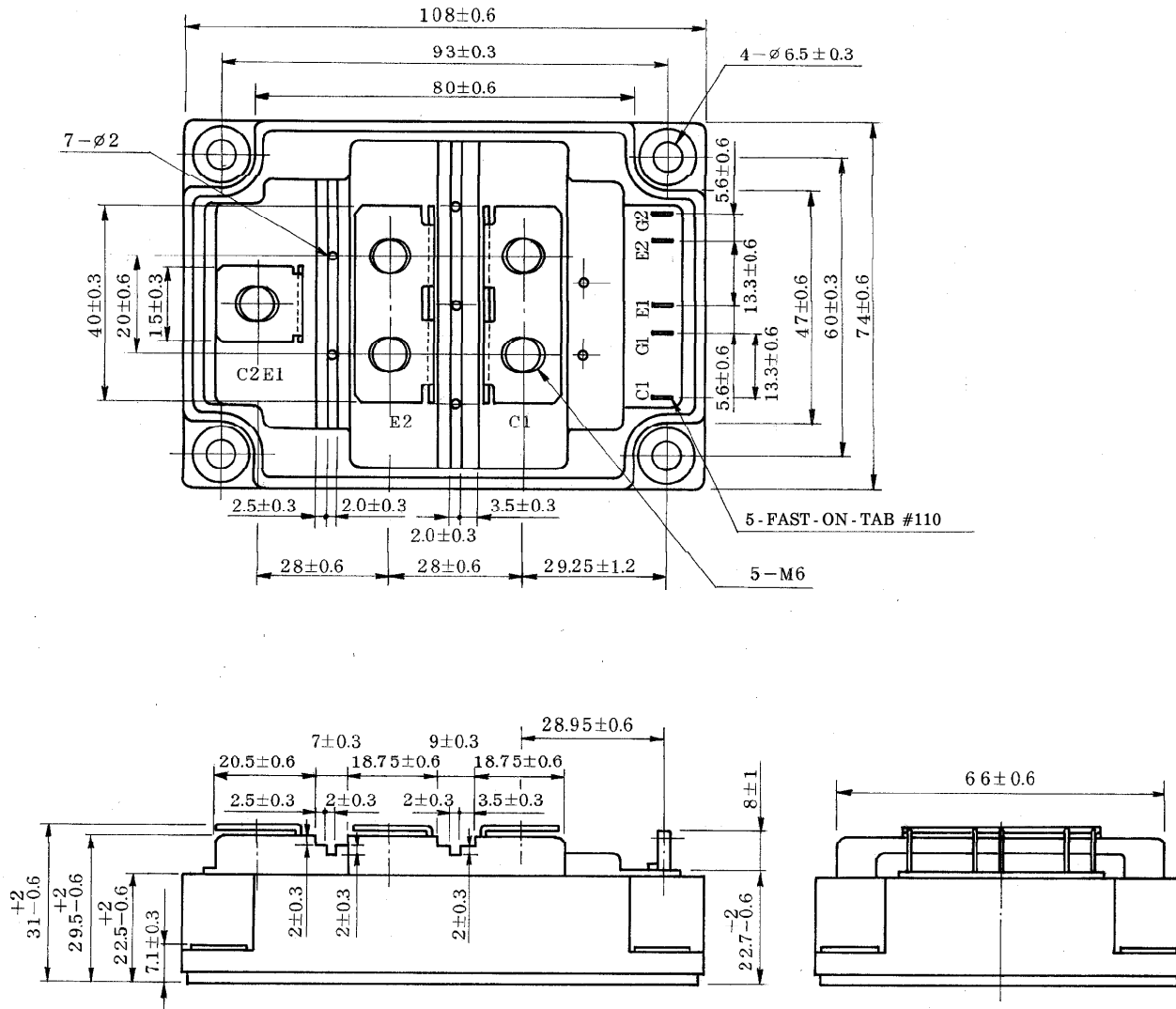
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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		$I_{GES}$	$V_{GE} = \pm 20V, V_{CE} = 0$	—	—	$\pm 30$	$\mu A$
Collector Cut-off Current		$I_{CES}$	$V_{CE} = 1200V, V_{GE} = 0$	—	—	3.0	mA
Gate-Emitter Cut-off Voltage		$V_{GE(OFF)}$	$I_C = 300mA, V_{CE} = 5V$	3.0	—	6.0	V
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 300A, V_{GE} = 15V$	—	3.0	4.0	V
Input Capacitance		$C_{ies}$	$V_{CE} = 10V, V_{GE} = 0, f = 1MHz$	—	36000	—	pF
Switching Time	Rise Time	$t_r$		—	0.3	0.6	$\mu s$
	Turn-on Time	$t_{on}$		—	0.4	0.8	
	Fall Time	$t_f$		—	0.2	0.5	
	Turn-off Time	$t_{off}$		—	0.8	1.5	
Forward Voltage		$V_F$	$I_F = 300A, V_{GE} = 0$	—	2.0	3.0	V
Reverse Recovery Time		$t_{rr}$	$I_F = 300A, V_{GE} = -10V$ $di/dt = 300A/\mu s$	—	0.25	0.5	$\mu s$
Thermal Resistance		$R_{th(j-c)}$	Transistor	—	—	0.069	$^{\circ}C/W$
			Diode	—	—	0.25	

OUTLINE : TOSHIBA 2-109D2A

Unit in mm



Weight : 550g (Typ.)

