

**TOSHIBA**

**MG100Q1ZS40**

TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

# MG100Q1ZS40

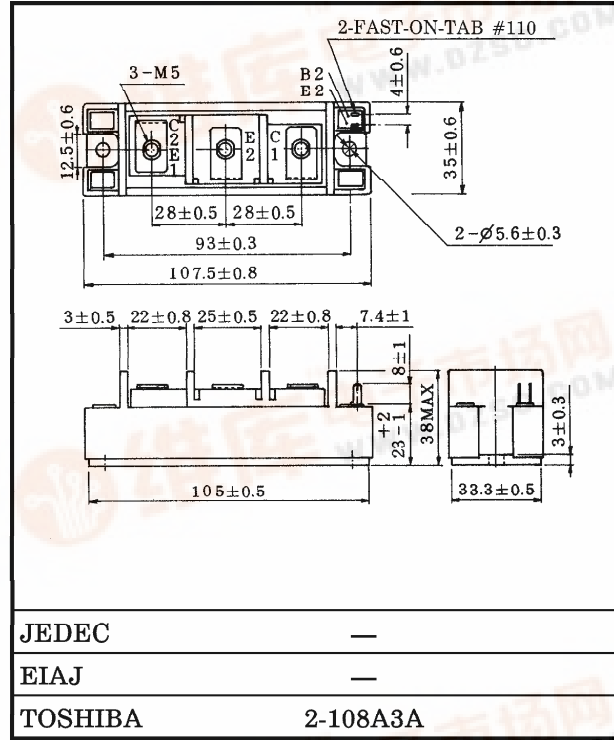
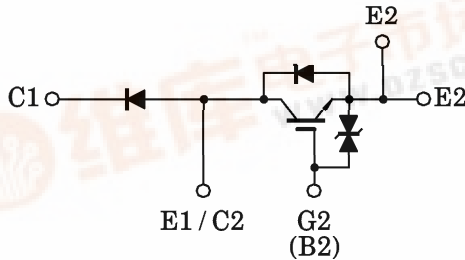
HIGH POWER SWITCHING APPLICATIONS.

Unit in mm

CHOPPER 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.

EQUIVALENT CIRCUIT



MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	$V_{CES}$	1200	V
Gate-Emitter Voltage	$V_{GES}$	$\pm 20$	V
Collector Current	DC	$I_C$	100
	1ms	$I_{CP}$	200
Forward Current	DC	$I_F$	100
	1ms	$I_{FM}$	200
Collector Power Dissipation ( $T_c = 25^\circ C$ )	$P_C$	670	W
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	$-40 \sim 125$	$^\circ C$
Isolation Voltage	$V_{Isol}$	2500 (AC 1 min.)	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		$I_{GES}$	$V_{GE} = \pm 20V, V_{CE} = 0$	—	—	$\pm 10$	$\mu A$
Collector Cut-off Current		$I_{CES}$	$V_{CE} = 1200V, V_{GE} = 0$	—	—	1.0	mA
Collector-Emitter Voltage		$V_{CES}$	$I_C = 1mA, V_{GE} = 0$	1200	—	—	V
Gate-Emitter Cut-off Voltage		$V_{GE} (off)$	$V_{CE} = 5V, I_C = 100mA$	3.0	—	6.0	V
Collector-Emitter Saturation Voltage		$V_{CE} (sat)$	$I_C = 100A, V_{GE} = 15V$	—	3.0	4.0	V
Input Capacitance		$C_{ies}$	$V_{CE} = 10V, V_{GE} = 0$ $f = 1MHz$	—	12000	—	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		$V_F$	$I_F = 100A, V_{GE} = 0$	—	2.0	3.0	V
Reverse Recovery Time		$t_{rr}$	$I_F = 100A, V_{GE} = -10V$ $di / dt = 200A / \mu s$	—	0.25	0.5	$\mu s$
Thermal Resistance	Transistor	$R_{th(j-c)}$	—	—	—	0.19	$^{\circ}C / W$
	Diode			—	—	0.5	

