

TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

MG200J2YS50

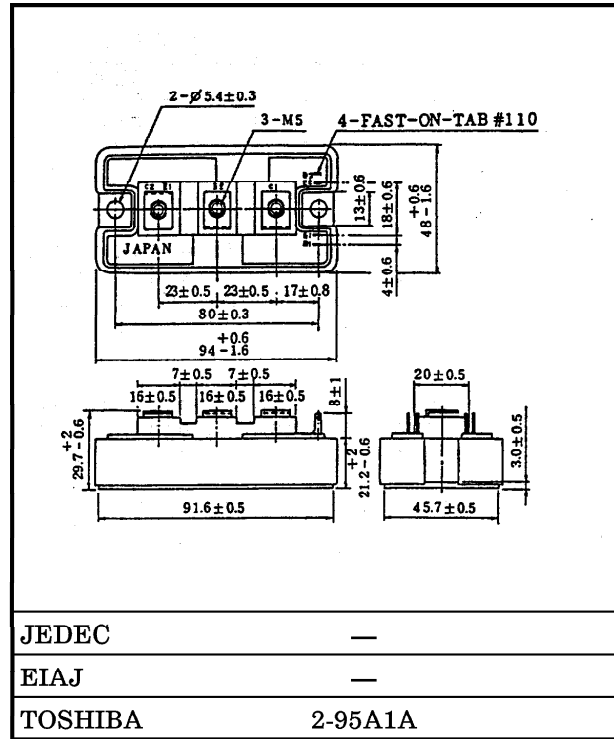
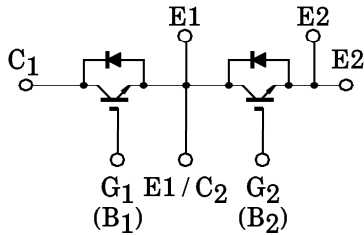
HIGH POWER SWITCHING APPLICATIONS.

Unit in mm

MOTOR CONTROL APPLICATIONS.

- 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.) ($I_C = 200A$)
 $t_{rr} = 0.15 \mu s$ (Max.) ($I_F = 200A$)
- Low Saturation Voltage
: $V_{CE(sat)} = 2.70V$ (Max.) ($I_C = 200A$)

EQUIVALENT CIRCUIT



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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	V_{CES}	600	V
Gate-Emitter Voltage	V_{GES}	± 20	V
Collector Current	DC	I_C	A
	1ms	I_{CP}	
Forward Current	DC	I_F	A
	1ms	I_{FM}	
Collector Power Dissipation ($T_c = 25^\circ C$)	P_C	900	W
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature Range	T_{stg}	-40~125	$^\circ C$
Isolation Voltage	V_{Isol}	2500 (AC 1Min.)	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}	$V_{GE} = \pm 20V, V_{CE} = 0$	—	—	± 500	nA
Collector Cut-off Current	I_{CES}	$V_{CE} = 600V, V_{GE} = 0$	—	—	2.0	mA
Gate-Emitter Cut-off Voltage	$V_{GE} (off)$	$I_C = 20mA, V_{CE} = 5V$	5.0	7.0	8.0	V
Collector-Emitter Saturation Voltage	$V_{CE} (sat)$	$I_C = 200A, V_{GE} = 15V$	—	2.10	2.70	V
Input Capacitance	C_{ies}	$V_{CE} = 10V, V_{GE} = 0, f = 1MHz$	—	18000	—	pF
Switching Time	Turn-on Delay Time	Inductive Load $V_{CC} = 300V$ $I_C = 200A$ $V_{GE} = \pm 15V$ $R_G = 4.2\Omega$ (Note 1)	—	0.15	0.30	μs
	Rise Time		—	0.15	0.30	
	Turn-on Time		—	0.50	1.00	
	Turn-off Delay Time		—	0.20	0.40	
	Fall Time		—	0.15	0.30	
	Turn-off Time		—	0.50	1.00	
Forward Voltage	V_F	$I_F = 200A, V_{GE} = 0$	—	2.30	3.00	V
Reverse Recovery Time	t_{rr}	$I_F = 200A, V_{GE} = -10V$ $di/dt = 200A/\mu s$	—	0.08	0.15	μs
Thermal Resistance	$R_{th(j-c)}$	Transistor Stage	—	—	0.14	$^{\circ}C/W$
		Diode Stage	—	—	0.35	

Note 1 Switching Time Test Circuit & Timing Chart

