

TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

MG90V2YS40

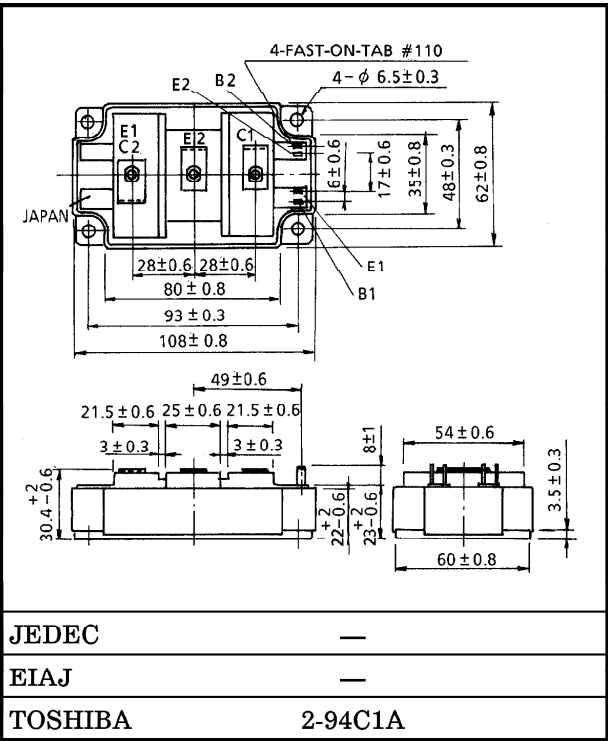
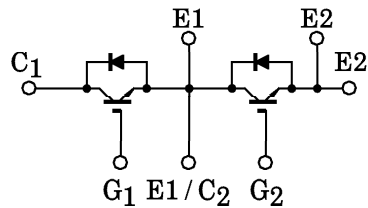
HIGH POWER SWITCHING APPLICATIONS

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 : $t_f=1.5\mu s$ (Max.) ($I_C=90A$)
 $t_{rr}=0.3\mu s$ (Max.) ($I_F=90A$)

EQUIVALENT CIRCUIT



Weight : 430g (TYP.)

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		V_{CES}	1700	V
Gate-Emitter Voltage		V_{GES}	± 20	V
Collector Current	DC	I_C	90	A
	1ms	I_{CP}	180	
Forward Current	DC	I_F	90	A
	1ms	I_{FM}	180	
Collector Power Dissipation ($T_c = 25^{\circ}C$)		P_C	1100	W
Junction Temperature		T_j	150	$^{\circ}C$
Storage Temperature Range		T_{stg}	$-40 \sim 125$	$^{\circ}C$
Isolation Voltage		V_{Isol}	4000 (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		IGES	VGE = ±20V, VCE = 0	—	—	±100	nA
Collector Cut-off Current		ICES	VCE = 1700V, VGE = 0	—	—	1.0	mA
Gate-Emitter Cut-off Voltage		VGE (off)	IC = 90mA, VCE = 5V	4.0	—	8.0	V
Collector-Emitter Saturation Voltage		VCE (sat)	IC = 90A, VGE = 15V	—	3.2	4.5	V
Input Capacitance		Cies	VCE = 10V, VGE = 0, f = 1MHz	—	13000	—	pF
Switching Time	Turn-on Delay Time	td (on)	Inductive Load VCC = 900V IC = 90A VGE = ±15V RG = 5.6Ω (Note 1)	—	0.1	—	μs
	Rise Time	tr		—	0.1	—	
	Turn-on Time	ton		—	0.5	—	
	Turn-off Delay Time	td (off)		—	0.4	—	
	Fall Time	tf		—	0.5	1.5	
	Turn-off Time	toff		—	1.0	—	
Forward Voltage		VF	IF = 90A, VGE = 0	—	3.2	4.5	V
Reverse Recovery Time		trr	IF = 90A, VGE = -15V di / dt = 500A / μs (Note 1)	—	0.2	0.4	μs
Thermal Resistance		Rth (j-c)	Transistor Stage	—	—	0.114	°C / W
			Diode Stage	—	—	0.4	

Note 1 Switching Time and Reverse Recovery Time Test Circuit & Timing Chart

