

TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

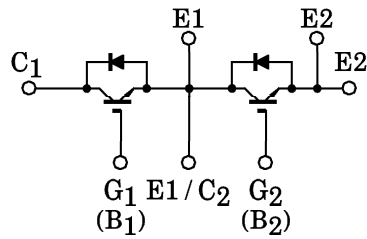
MG50J2YS50

HIGH POWER SWITCHING APPLICATIONS.

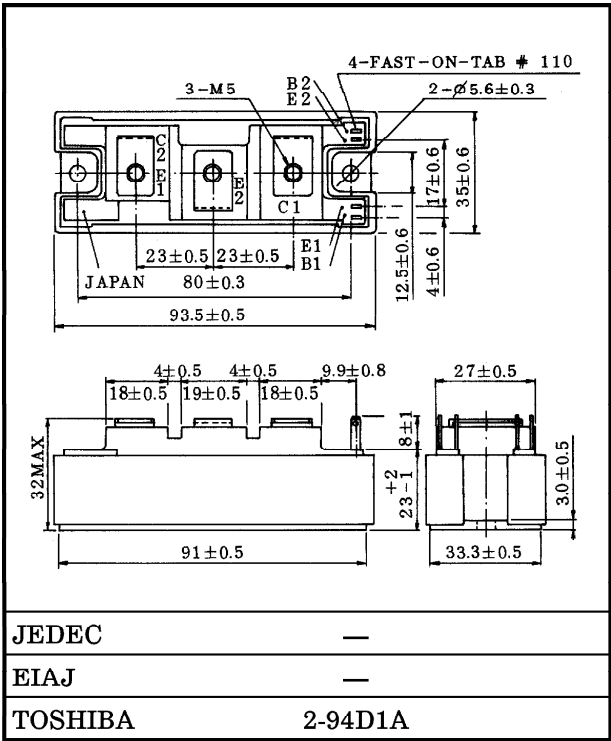
MOTOR CONTROL APPLICATIONS.

- 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.) ($I_C=50A$)
 $t_{rr}=0.15\mu s$ (Max.) ($I_F=50A$)
- Low Saturation Voltage
: $V_{CE(sat)}=2.70V$ (Max.) ($I_C=50A$)

EQUIVALENT CIRCUIT



Unit in mm



JEDEC	—
EIAJ	—
TOSHIBA	2-94D1A

Weight : 202g (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	50	A
	1ms	I_{CP}	100	
Forward Current	DC	I_F	50	A
	1ms	I_{FM}	100	
Collector Power Dissipation (Tc = 25°C)		P_C	280	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	− 40~125	°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		IGES	VGE = ±20V, VCE = 0	—	—	±500	nA
Collector Cut-off Current		ICES	VCE = 600V, VGE = 0	—	—	1.0	mA
Gate-Emitter Cut-off Voltage		VGE (off)	IC = 5mA, VCE = 5V	5.0	7.0	8.0	V
Collector-Emitter Saturation Voltage		VCE (sat)	IC = 50A, VGE = 15V	—	2.10	2.70	V
Input Capacitance		Cies	VCE = 10V, VGE = 0, f = 1MHz	—	4950	—	pF
Switching Time	Turn-on Delay Time	td (on)	Inductive Load VCC = 300V IC = 50A VGE = ±15V RG = 24Ω (Note 1)	—	0.08	0.16	μs
	Rise Time	tr		—	0.12	0.24	
	Turn-on Time	ton		—	0.40	0.80	
	Turn-off Delay Time	td (off)		—	0.20	0.40	
	Fall Time	tf		—	0.15	0.30	
	Turn-off Time	toff		—	0.50	1.00	
Forward Voltage		VF	IF = 50A, VGE = 0	—	2.30	3.00	V
Reverse Recovery Time		trr	IF = 50A, VGE = -10V di / dt = 100A / μs	—	0.08	0.15	μs
Thermal Resistance		Rth (j-c)	Transistor Stage	—	—	0.45	°C / W
			Diode Stage	—	—	0.90	

Note 1 Switching Time Test Circuit & Timing Chart

