

TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

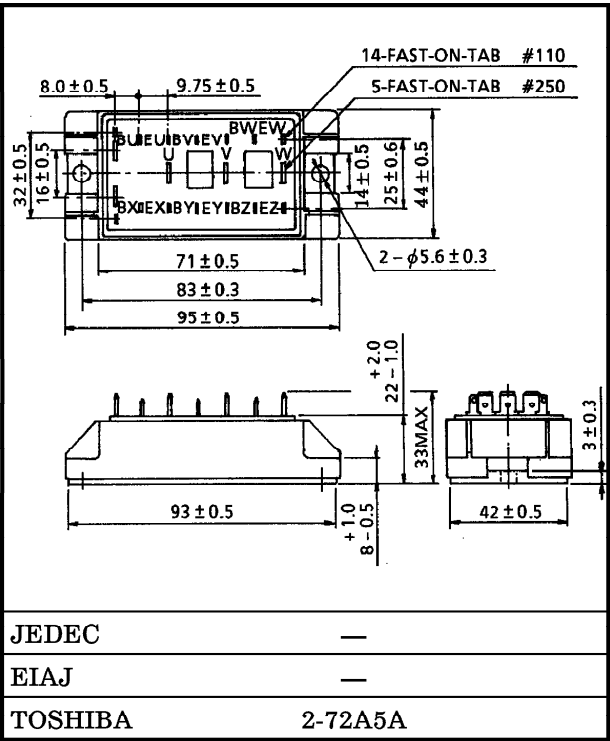
MG30J6ES50

HIGH POWER SWITCHING APPLICATIONS

Unit in mm

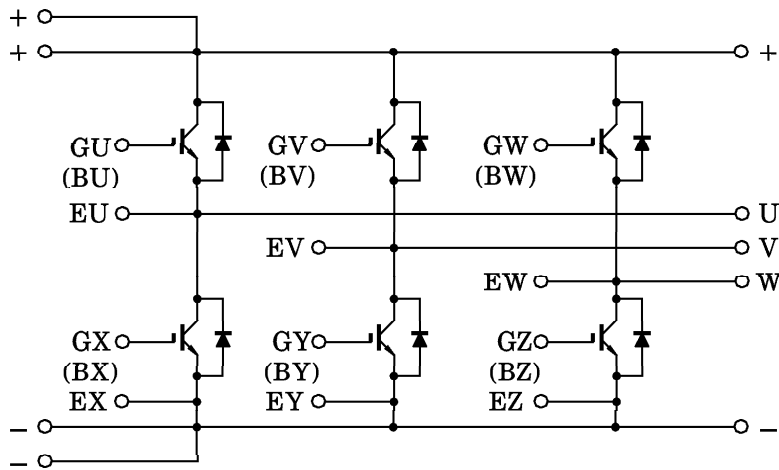
MOTOR CONTROL APPLICATIONS

- The Electrodes are Isolated from Case.
- High Input Impedance.
- 6 IGBTs Built Into 1 Package.
- Enhancement-Mode.
- High Speed : $t_f=0.36\mu s$ (Max.) ($I_C=30A$)
 $t_{rr}=0.15\mu s$ (Max.) ($I_F=30A$)
- Low Saturation Voltage
: $V_{CE(sat)}=2.70V$ (Max.) ($I_C=30A$)



Weight : 225g

EQUIVALENT CIRCUIT



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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	30	A
	1ms	I_{CP}	60	A
Forward Current	DC	I_F	30	A
	1ms	I_{FM}	60	A
Collector Power Dissipation (Tc = 25°C)		P_C	100	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-40~125	°C
Isolation Voltage		V_{Isol}	2500 (AC 1 min.)	V
Screw Torque		—	3	N·m

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}	$V_{CE} = 600V, V_{GE} = 0$	—	—	1.0	mA
Gate-Emitter Cut-Off Voltage		$V_{GE(off)}$	$I_C = 3mA, V_{CE} = 5V$	5.0	—	8.0	V
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 30A, V_{GE} = 15V$	—	2.10	2.70	V
Input Capacitance		C_{ies}	$V_{CE} = 10V, V_{GE} = 0, f = 1MHz$	—	2500	—	pF
Switching Time	Turn-On Delay Time	$t_d(on)$	Inductive Load $V_{CC} = 300V$ $I_C = 30A$ $V_{GE} = \pm 15V$ $R_G = 100\Omega$ (Note 1)	—	0.17	—	μs
	Rise Time	t_r		—	0.11	—	
	Turn-On Time	t_{on}		—	0.50	—	
	Turn-Off Delay Time	$t_d(off)$		—	0.25	—	
	Fall Time	t_f		—	0.18	0.36	
	Turn-Off Time	t_{off}		—	0.55	0.80	
Forward Voltage		V_F	$I_F = 30A, V_{GE} = 0$	—	1.5	2.5	V
Reverse Recovery Time		t_{rr}	$I_F = 30A, V_{GE} = -10V$ $di/dt = 100A/\mu s$	—	0.07	0.15	μs
Thermal Resistance	$R_{th(j-c)}$	Transistor		—	—	1.25	°C/W
		Diode		—	—	1.56	

(Note 1) Switching Time Test Circuit & Timing Chart

