

TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

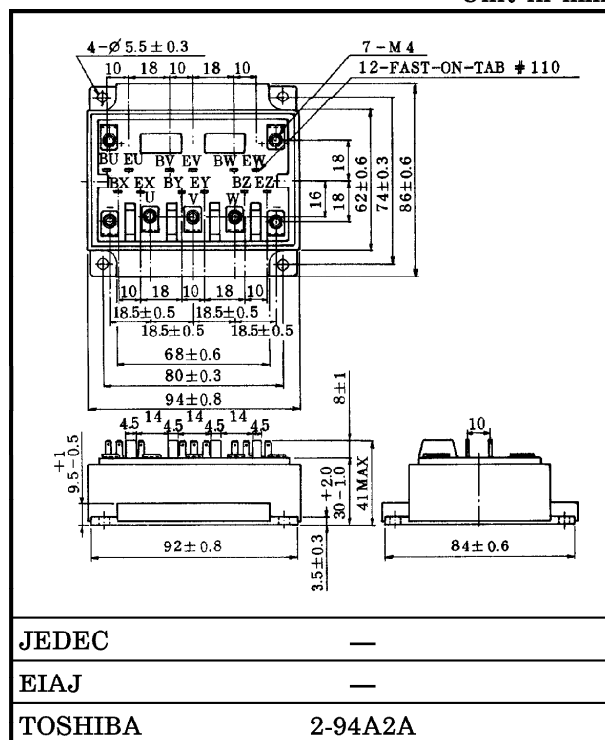
M G 5 0 J 6 E S 5 0

HIGH POWER SWITCHING APPLICATIONS.

Unit in mm

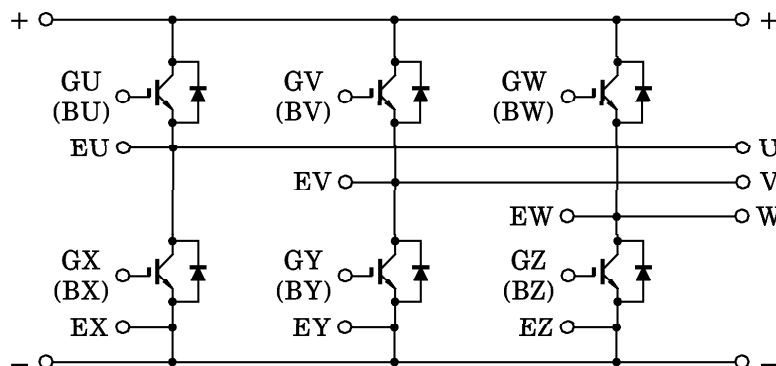
MOTOR CONTROL APPLICATIONS.

- The Electrodes are Isolated from Case.
- High Input Impedance.
- 6 IGBTs Built Into 1 Package.
- Enhancement-Mode.
- High Speed : $t_f = 0.30 \mu s$ (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

Weight : 505g (Typ.)



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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	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)		—	2 / 3	N·m

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I _{GES}	V _{GE} = ±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 = 5mA, V _{CE} = 5V	5.0	7.0	8.0	V
Collector-Emitter Saturation Voltage		V _{CE (sat)}	I _C = 50A, V _{GE} = 15V	—	2.10	2.70	V
Input Capacitance		C _{ies}	V _{CE} = 10V, V _{GE} = 0, f = 1MHz	—	4950	—	pF
Switching Time	Turn-on Delay Time	t _{d (on)}	Inductive Load V _{CC} = 300V I _C = 50A V _{GE} = ±15V R _G = 24Ω (Note 1)	—	0.08	0.16	μs
	Rise Time	t _r		—	0.12	0.24	
	Turn-on Time	t _{on}		—	0.40	0.80	
	Turn-off Delay Time	t _{d (off)}		—	0.20	0.40	
	Fall Time	t _f		—	0.15	0.30	
	Turn-off Time	t _{off}		—	0.50	1.00	
Forward Voltage		V _F	I _F = 50A, V _{GE} = 0	—	2.30	3.00	V
Reverse Recovery Time		t _{rr}	I _F = 50A, V _{GE} = −10V di / dt = 100A / μs	—	0.08	0.15	μs
Thermal Resistance	R _{th (j-c)}	Transistor		—	—	0.45	°C / W
		Diode		—	—	0.90	

Note 1 Switching Time Test Circuit & Timing Chart

