

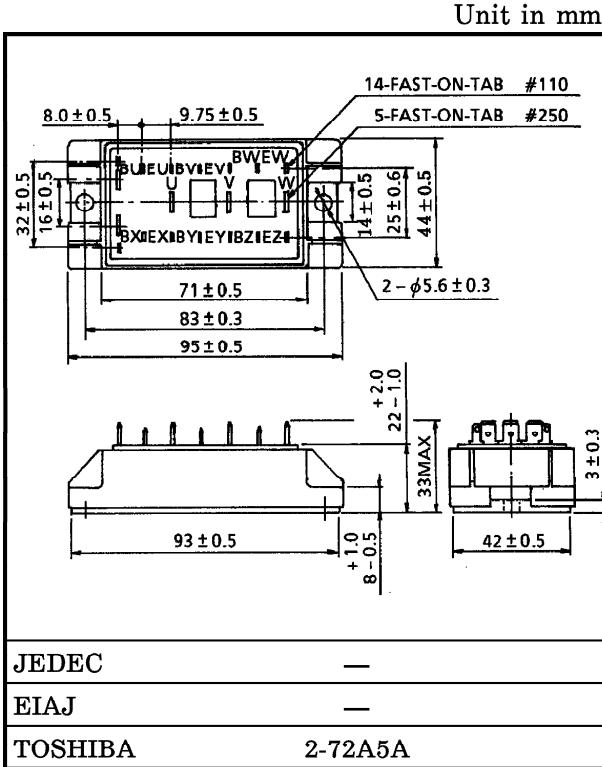
TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

M G 3 0 J 6 E S 5 0

HIGH POWER SWITCHING APPLICATIONS

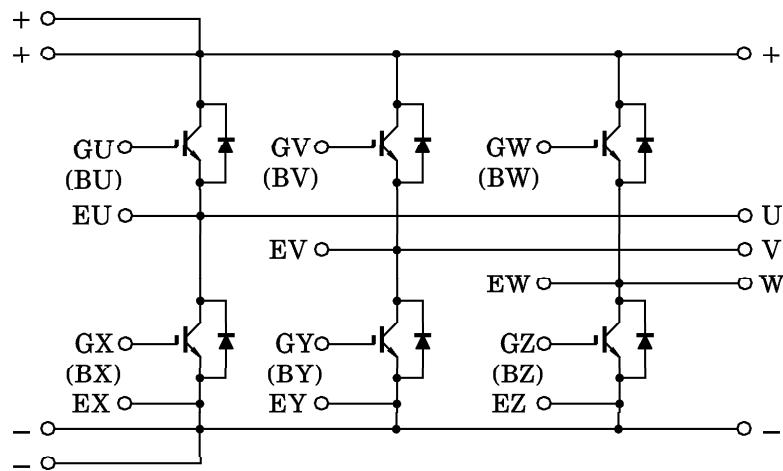
MOTOR CONTROL APPLICATIONS

- 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.) ($I_C = 30A$)



EQUIVALENT CIRCUIT

Weight : 225g



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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 (T _c = 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} = ±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} = ±15V R _G = 100Ω (Note 1)	—	0.17	—
	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 / μs	—	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

