

TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

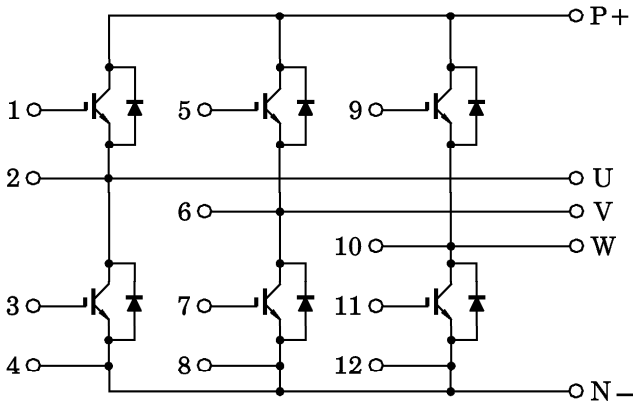
MG50Q6ES50

HIGH POWER SWITCHING APPLICATIONS

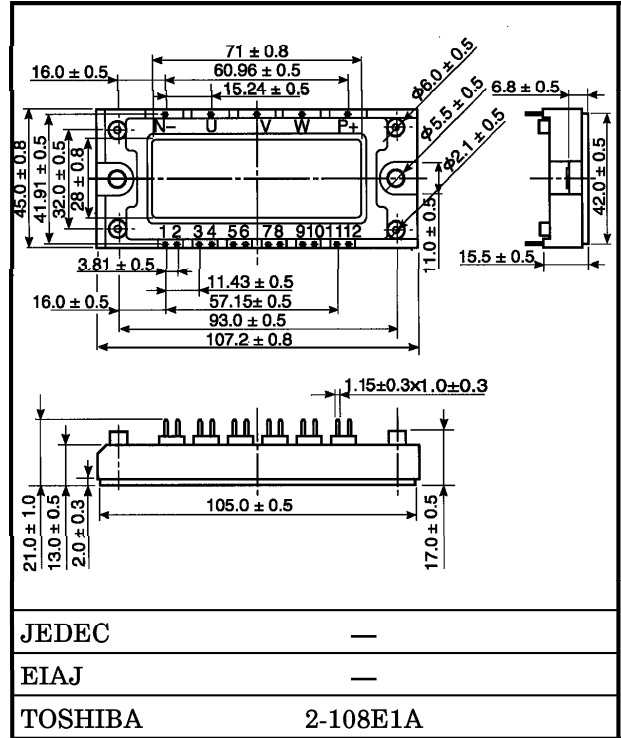
MOTOR CONTROL APPLICATIONS

- The Electrodes are Isolated from Case.
- High Input Impedance.
- 6 IGBTs Built Into 1 Package.

EQUIVALENT CIRCUIT



Unit in mm



Weight : 185g

961001EAA1

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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		V _{CES}	1200	V
Gate-Emitter Voltage		V _{GES}	±20	V
Collector Current	DC	I _C (25°C / 80°C)	72 / 50	A
	1ms	I _{CP} (25°C / 80°C)	144 / 100	A
Forward Current	DC	I _F	50	A
	1ms	I _{FM}	100	A
Collector Power Dissipation (T _c = 25°C)		P _C	350	W
Junction Temperature		T _j	150	°C
Storage Temperature Range		T _{stg}	-40~125	°C
Isolation Voltage		V _{Isol}	2500 (AC 1 minute)	V
Screw Torque		—	6	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} = 1200V, V _{GE} = 0	—	—	0.5	mA	
Gate-Emitter Cut-Off Voltage		V _{GE (off)}	I _C = 50mA, V _{CE} = 5V	3.0	—	6.0	V	
Collector-Emitter Saturation Voltage		V _{CE (sat)}	I _C = 50A, V _{GE} = 15V	T _j = 25°C	—	2.8	3.2	V
				T _j = 125°C	—	3.1	3.7	
Input Capacitance		C _{ies}	V _{CE} = 10V, V _{GE} = 0, f = 1MHz	—	6.0	—	nF	
Switching Time	Rise Time	t _r	V _{CC} = 600V I _C = 50A, V _{GE} = ±15V R _G = 24Ω, T _j = 125°C (Note 1)	—	0.07	0.15	μs	
	Turn-On Time	t _{on}		—	0.15	0.30		
	Fall Time	t _f		—	0.07	0.10		
	Turn-Off Time	t _{off}		—	0.60	0.90		
Forward Voltage		V _F	I _F = 50A, V _{GE} = 0	—	2.0	2.8	V	
Reverse Recovery Time		t _{rr}	I _F = 50A, V _{GE} = -10V di / dt = 700A / μs	—	0.10	0.25	μs	
Thermal Resistance		R _{th (j-c)}	Transistor Stage	—	—	0.35	°C / W	
			Diode Stage	—	—	0.7		

(Note 1) Switching Time Test Circuit & Timing Chart

