

TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

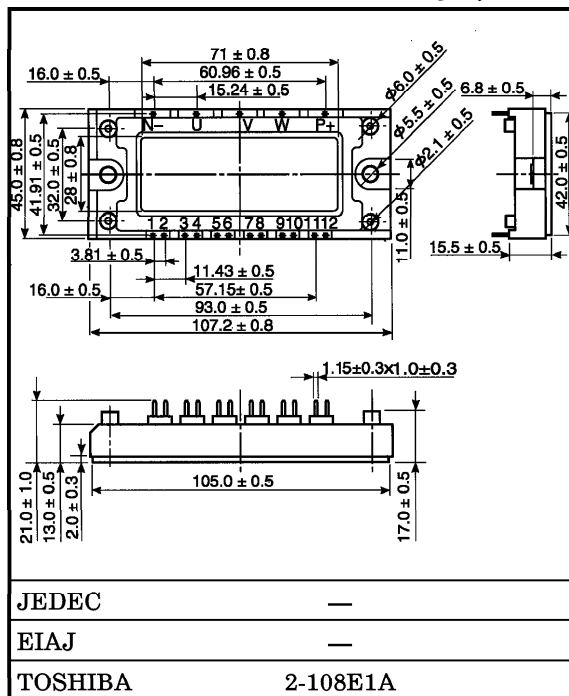
MG50Q6ES51

HIGH POWER SWITCHING APPLICATIONS

Unit in mm

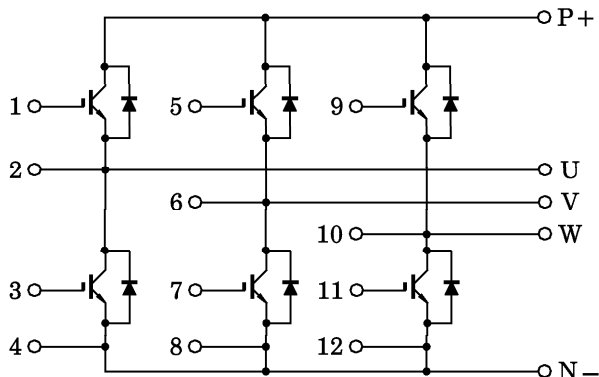
MOTOR CONTROL APPLICATIONS

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



Weight : 185 g

EQUIVALENT CIRCUIT



961001EAA1

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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		V _{CE}	1200	V
Gate-Emitter Voltage		V _{GE}	±20	V
Collector Current	DC	I _C (25°C / 80°C)	72 / 50	A
	1 ms	I _{CP} (25°C / 80°C)	144 / 100	
Forward Current	DC	I _F	50	A
	1 ms	I _{FM}	100	
Collector Power Dissipation (Tc = 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} = ±20 V, V _{CE} = 0	—	—	±500	nA
Collector Cut-off Current		I _{CES}	V _{CE} = 1200 V, V _{GE} = 0	—	—	0.5	mA
Gate-Emitter Cut-off Voltage		V _{GE (off)}	I _C = 50 mA, V _{CE} = 5 V	—	6.0	—	V
Collector-Emitter Saturation Voltage		V _{CE (sat)}	I _C = 50 A, T _j = 25°C	—	2.8	3.2	V
			V _{GE} = 15 V, T _j = 125°C	—	3.1	—	
Input Capacitance		C _{ies}	V _{CE} = 10 V, V _{GE} = 0, f = 1 MHz	—	6.0	—	nF
Switching Time	Rise Time	t _r	V _{CC} = 600 V I _C = 50 A, V _{GE} = ±15 V R _G = 24 Ω, 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 = 50 A, V _{GE} = 0	—	2.0	2.8	V
Reverse Recovery Time		t _{rr}	I _F = 50 A, V _{GE} = -10 V, di / dt = 700 A / 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

