TOSHIBA GTR MODULE SILICON N−CHANNEL IGBT

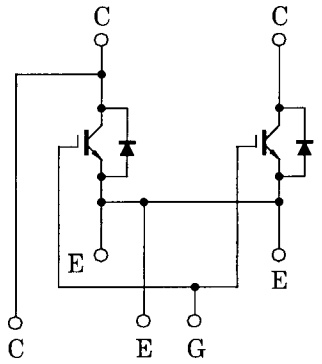
MG1200V1US51

HIGH POWER SWITCHING APPLICATIONS
MOTOR CONTROL APPLICATIONS

FEATURES

- High Input Impedance
- Enhancement Mode
- Electrodes are isolated from case.

EQUIVALENT CIRCUIT



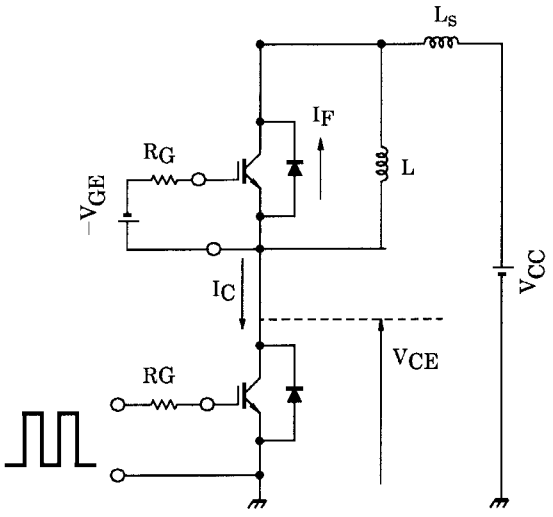
MAXIMUM RATINGS (Ta = 25°C)

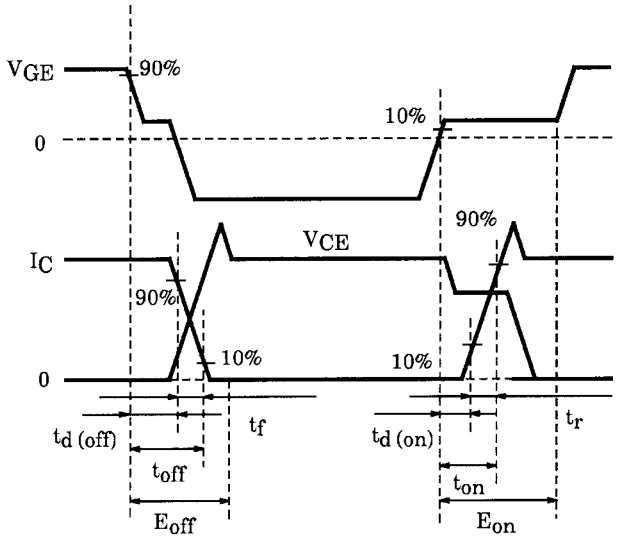
CHARACTERISTICS		SYMBOL	RATING	UNIT
Collector−Emitter Voltage		V_{CES}	1700	V
Gate−Emitter Voltage		V_{GES}	20	V
Collector Current	DC	I_C	1200	A
	1ms	I_{CP}	2400	
Forward Current	DC	I_F	1200	A
	1ms	I_{FM}	2400	
Collector Power Dissipation (Tc = 25°C)		P_C	5560	W
Junction Temperature		T_j	−20~125	°C
Storage Temperature Range		T_{stg}	−40~125	°C
Isolation Voltage		V_{Isol}	5400 (AC 1min)	V
Screw Torque	Terminal: M4/M8	—	2 / 7	N·m
	Mounting		4	

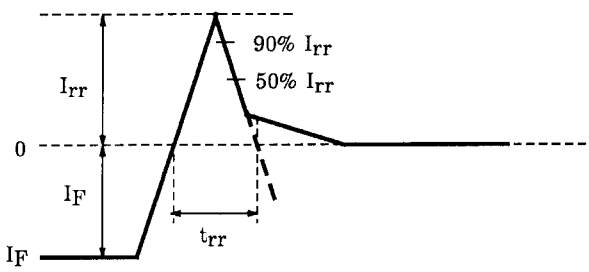
ELECTRICAL CHARACTERISTICS (Tc = 125°C : except thermal resistance)

CHARACTERISTICS		SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Gate Laekage Current		I_{GES}	V_{GE} = ±20 V, V_{CE} = 0 V	—	—	±50	nA
Collector Cut−Off Current		I_{CES}	V_{CE} = 1700 V, V_{GE} = 0 V	—	—	100	mA
Gate−Emitter Cut−Off Voltage		$V_{GE\ (off)}$	V_{CE} = 5 V, I_C = 1.2 A	3.0	—	7.0	V
Collecter−Emitter Saturation Voltage		$V_{CE\ (sat)}$	V_{GE} = 15 V, I_C = 1200 A	—	—	5.0	V
Input Capacitance		C_{ies}	V_{CE} = 10 V, V_{GE} = 0 V, f = 300 kHz	—	130	—	nF
Switching Time (Note 1)	Rise Time	t_r	V_{CC} = 900 V, I_C = 1200 A V_{GE} = ±15 V, R_G = 1.8 Ω (Inductive load: Ls = 150 nH)	—	—	0.7	μs
	Turn−On Time	t_{on}		—	—	1.0	μs
	Fall Time	t_f		—	—	0.8	μs
	Turn−Off Time	t_{off}		—	—	1.5	μs
Forward Voltage		V_F	I_F = 1200 A, V_{GE} = 0 V	—	—	3.2	V
Reverse Recovery Time (Note 1)		t_{rr}	I_F = 1200 A, V_{GE} = 15 V di/dt = 4000 A/μs, V_{CC} = 900 V	—	—	0.8	μs
Switching Dissipation (Note 1)	Turn−On Loss	Eon	V_{CC} = 900 V, I_C = 1200 A V_{GE} = ±15 V, R_G = 1.8 Ω	—	250	—	mJ
	Turn−Off Loss	Eoff		—	500	—	mJ
	Diode Loss	Edsw	I_F = 1200 A, V_{GE} = −15 V di/dt = 4000 A/μs, V_{CC} = 900 V	—	300	—	mJ
Thermal Resistance		$R_{th\ (j-c)}$	Transistor (IGBT) Stage	—	—	0.018	°C/W
			Diode Stage	—	—	0.035	°C/W

Note 1: Test circuit and timing chart of switching time, reverse recovery time and switching dissipation.

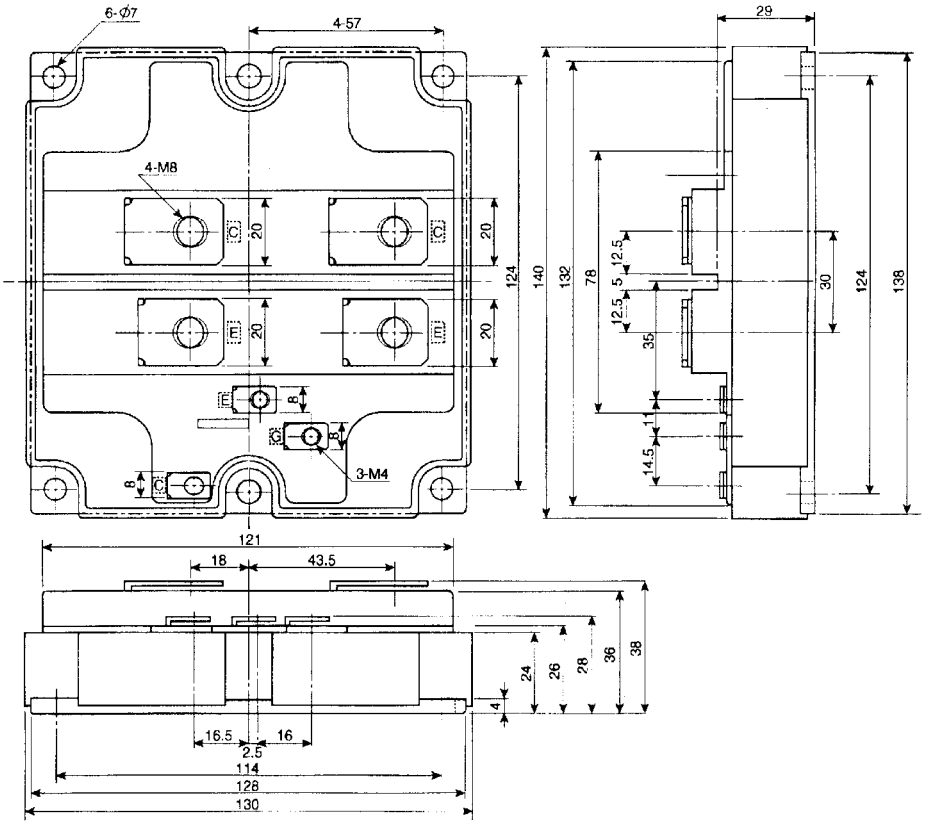






PACKAGE DIMENSIONS: TOSHIBA 2-142A1A

Unit: mm



Weight: 900 g (typ.)

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