TOSHIBA GTR MODULE SILICON N-CHANNEL IGBT

MG1200V1US51

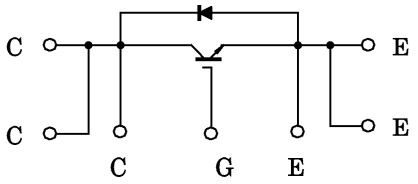
HIGH POWER SWITCHING APPLICATIONS

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	

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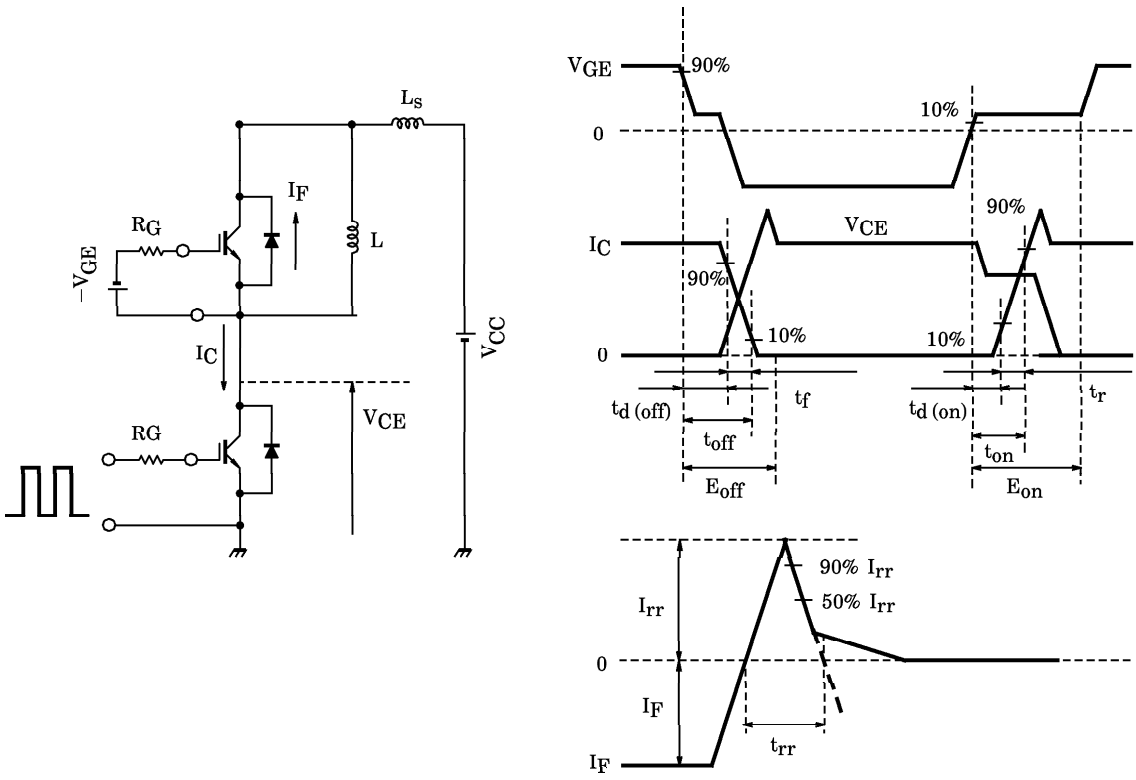
ELECTRICAL CHARACTERISTICS (Tc = 125°C : except thermal resistance)

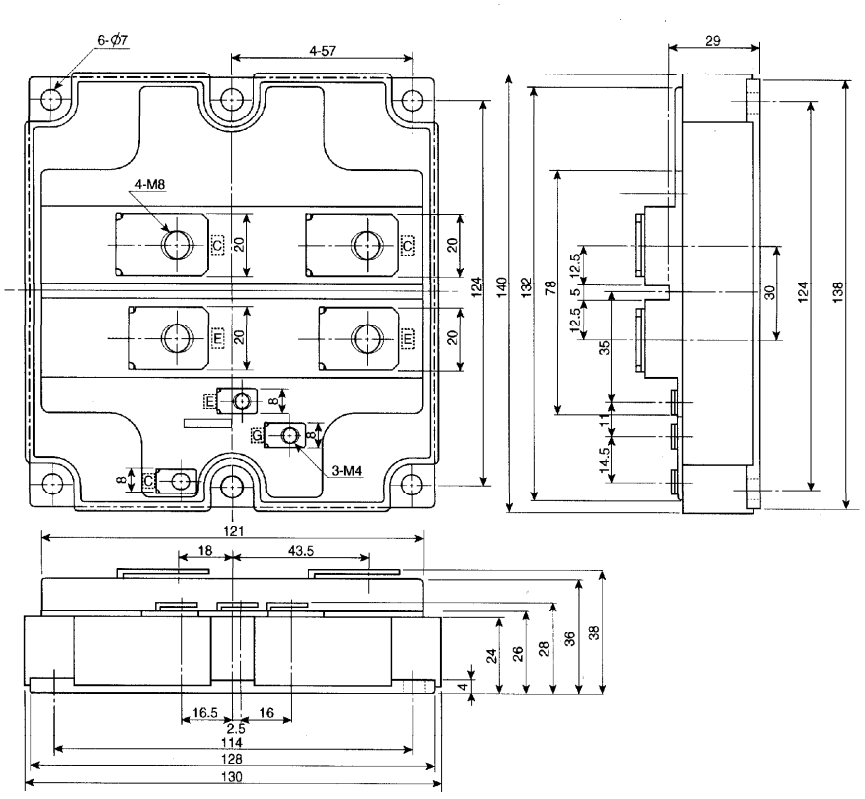
CHARACTERISTICS		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Laekage Current		I_{GES}	$V_{GE} = \pm 20V$, $V_{CE} = 0V$	—	—	±50	nA
Collector Cut-Off Current		I_{CES}	$V_{CE} = 1700V$, $V_{GE} = 0V$	—	—	100	mA
Gate-Emitter Cut-Off Voltage		$V_{GE\ (off)}$	$V_{CE} = 5V$, $I_C = 1.2A$	3.0		7.0	V
Collecter-Emitter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



OUTLINE DRAWING

Unit : mm



Weight : 900g (Typ.)