

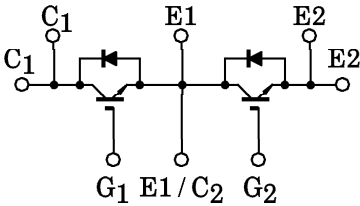
TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

MG180V2YS40

HIGH POWER SWITCHING APPLICATIONS

MOTOR CONTROL APPLICATIONS

EQUIVALENT CIRCUIT



- The Electrodes are Isolated from Case
- High Input Impedance
- Includes a Complete Half Bridge in One Package.
- Enhancement-Mode
- High Speed : $t_f=1.5\mu s$ (Max.) ($I_C=180A$)
 $t_{rr}=0.6\mu s$ (Max.) ($I_F=180A$)
- Outline : TOSHIBA 2-109D2A
(See page 3 for the device outline)
- Weight : 550g (Typ.)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		V_{CES}	1700	V
Gate-Emitter Voltage		V_{GES}	± 20	V
Collector Current	DC	I_C	180	A
	1ms	I_{CP}	360	
Forward Current	DC	I_F	180	A
	1ms	I_{FM}	360	
Collector Power Dissipation (Tc = 25°C)		P_C	1800	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-40~125	°C
Isolation Voltage		V_{Isol}	4000 (AC 1 min.)	V
Screw Torque (Terminal / Mounting)		—	3 / 3	N·m

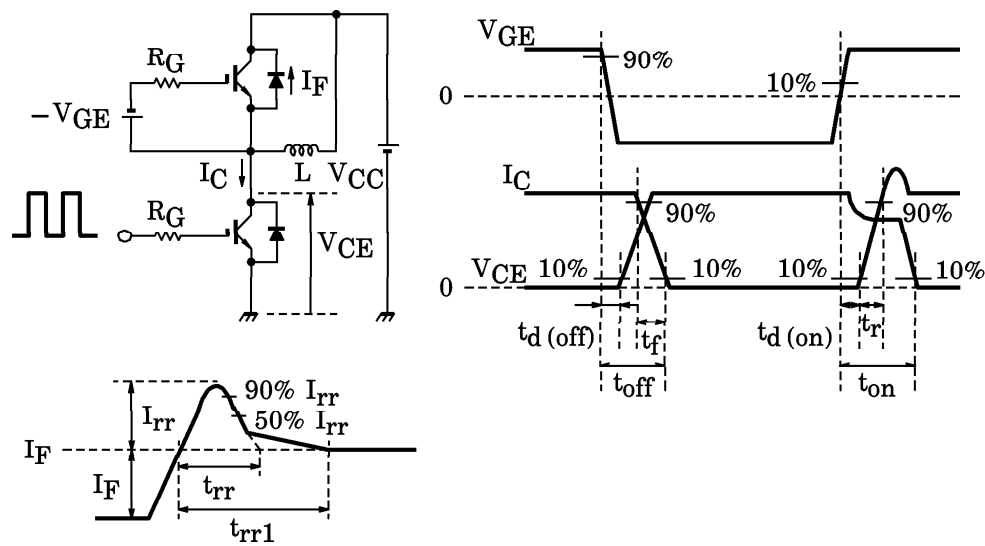
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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		IGES	VGE = ±20V, VCE = 0	—	—	±150	nA
Collector Cut-off Current		ICES	VCE = 1700V, VGE = 0	—	—	1.5	mA
Gate-Emitter Cut-off Voltage		VGE (off)	IC = 180mA, VCE = 5V	4.0	—	8.0	V
Collector-Emitter Saturation Voltage		VCE (sat)	IC = 180A, VGE = 15V	—	3.2	4.5	V
Input Capacitance		Cies	VCE = 10V, VGE = 0, f = 1MHz	—	24600	—	pF
Switching Time	Turn-on Delay Time	td (on)	Inductive Load VCC = 900V IC = 180A VGE = ±15V RG = 2.7Ω (Note 1)	—	0.1	—	μs
	Rise Time	tr		—	0.1	—	
	Turn-on Time	ton		—	0.5	—	
	Turn-off Delay Time	td (off)		—	0.4	—	
	Fall Time	tf		—	0.5	1.5	
	Turn-off Time	toff		—	1.0	—	
Forward Voltage		VF	IF = 180A, VGE = 0	—	3.7	5.0	V
Reverse Recovery Time		trr	IF = 180A, VGE = -15V di / dt = 1000A / μs (Note.1)	—	0.3	0.6	μs
Thermal Resistance		Rth (j-c)	Transistor Stage	—	—	0.069	°C / W
			Diode Stage	—	—	0.25	

Note 1 Switching Time and Reverse Recovery Time Test Circuit & Timing Chart



Unit in mm

