

# TOSHIBA SEMICONDUCTOR

## TECHNICAL DATA

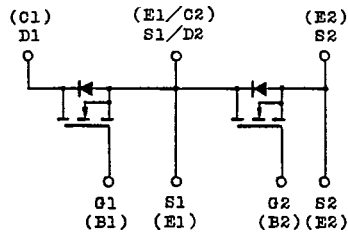
TOSHIBA GTR MODULE  
 MG50G2YM1  
 SILICON N CHANNEL MOS TYPE

HIGH POWER SWITCHING APPLICATIONS.  
 MOTOR CONTROL APPLICATIONS.

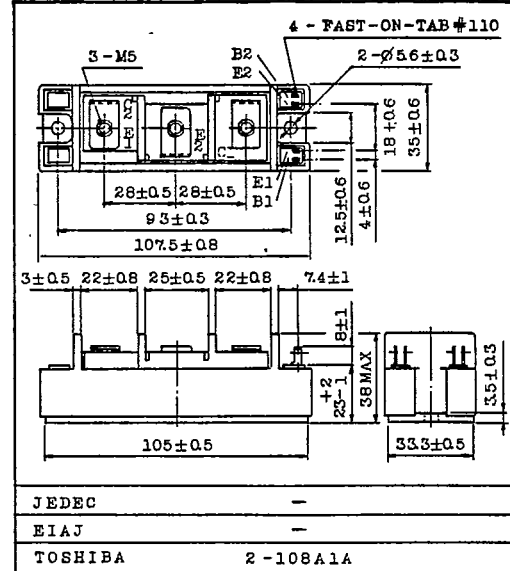
### FEATURES:

- The Drain is Isolated from Case.
- 2 MOS FETs are Built-in to 1 Package.
- With Built-in Free Wheeling Diode.
- Low Drain-Source ON Resistance  
 :  $R_{DS(ON)} = 0.14\Omega(\text{Max.})(I_p = 50A)$
- Enhancement-Mode.

### EQUIVALENT CIRCUIT



Unit in mm



Weight : 255g

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### MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Drain-Source Voltage	$V_{DSS}$	450	V
Gate-Source Voltage	$V_{GSS}$	±20	V
Drain Current	DC	±50	A
	1ms	±100	
Drain Power Dissipation (Tc=25°C)	$P_D$	400	W
Channel Temperature	$T_{ch}$	150	°C
Storage Temperature Range	$T_{stg}$	-40~125	°C
Isolation Voltage	$V_{isol}$	2500 (AC, 1 Minute)	V
Screw Torque (Terminal/Mounting)	-	30/30	kg·cm

MG50G2YM1-1

TOSHIBA CORPORATION

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MG50G2YM1

## ELECTRICAL CHARACTERISTICS (Ta=25°C)

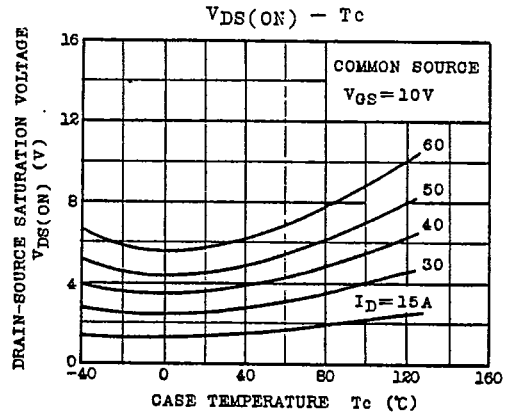
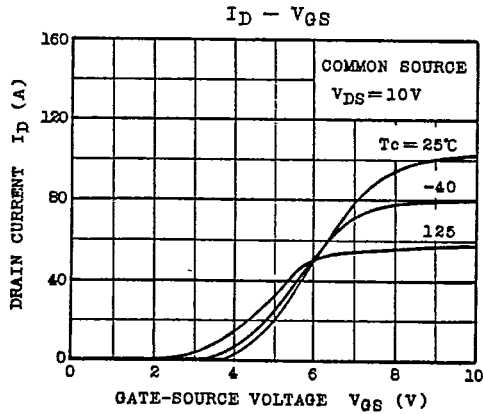
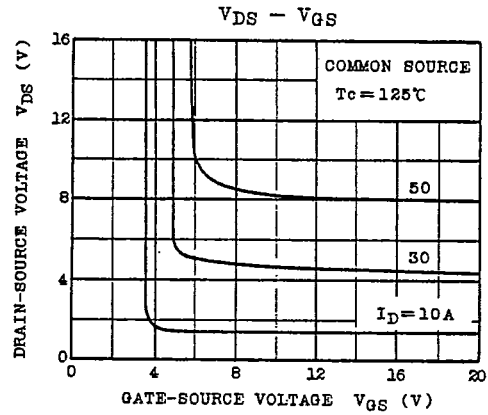
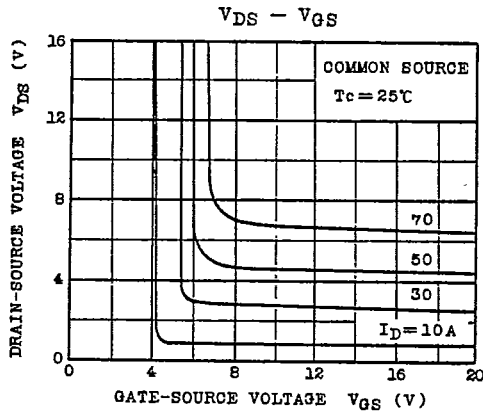
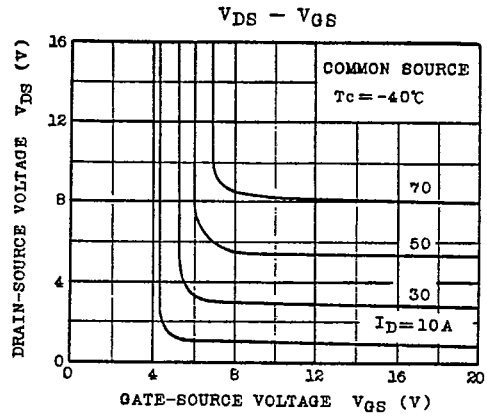
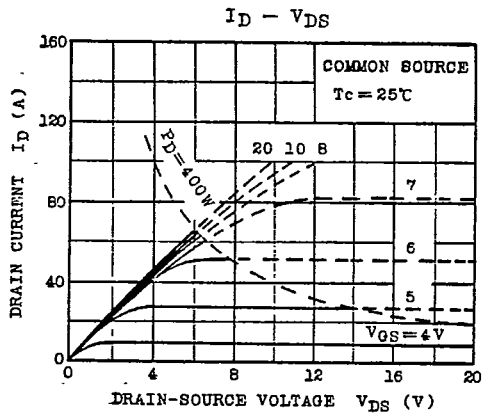
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Gate Leakage Current	IGSS	VGS=±20V, VDS=0	-	-	±150	nA	
Drain Cut Off Current	IDSS	VDS=450V, VGS=0	-	-	3.0	mA	
Drain-Source Breakdown Voltage	V(BR)DSS	ID=10mA, VGS=0	450	-	-	V	
Gate-Source Cut-off Voltage	VGS(OFF)	VDS=10V, ID=50mA	1.8	2.8	4.0	V	
Forward Transfer Admittance	Yfs	VDS=10V, ID=50A	12.0	21.0	-	S	
Drain-Source ON Resistance	RDS(ON)	ID=50A, VGS=10V	-	0.09	0.14	Ω	
Input Capacitance	Ciss	VDS=10V, VGS=0, f=1MHz	-	13000	-	pF	
Switching Time	Rise Time	tr		-	350	700	ns
	Turn-on Time	ton		-	400	800	
	Fall Time	tf		-	100	200	
	Turn-off Time	toff		DUTY CYCLE ≤ 1%	-	650	
Source Drain Forward Voltage	VDSF	ID=-50A, VGS=0	-	1.15	1.95	V	
Reverse Recovery Time	trr	ID=-50A, RG=5Ω VGS=-10V, di/dt=150A/µs	-	250	500	ns	
Thermal Resistance	Rth(ch-c)		-	-	0.31	°C/W	

MG50G2YM1-2

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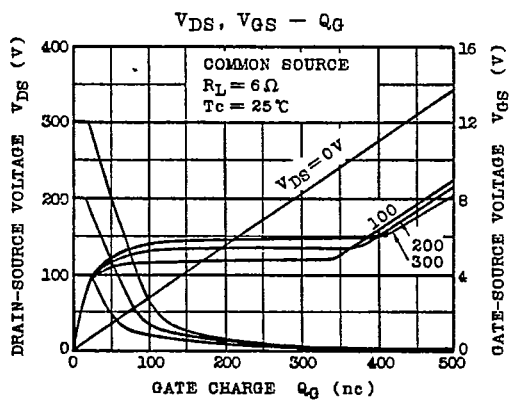
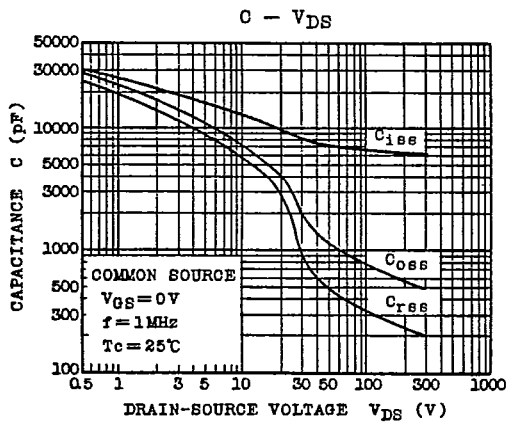
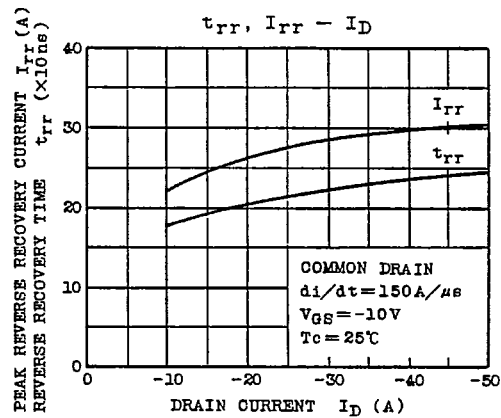
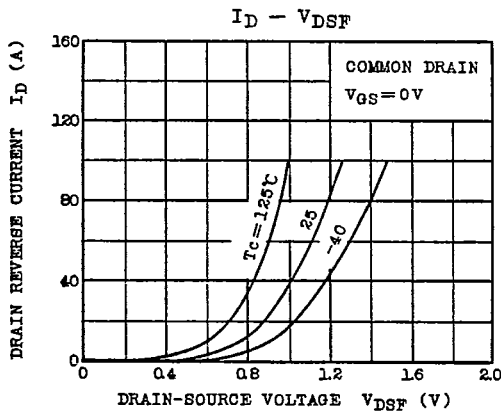
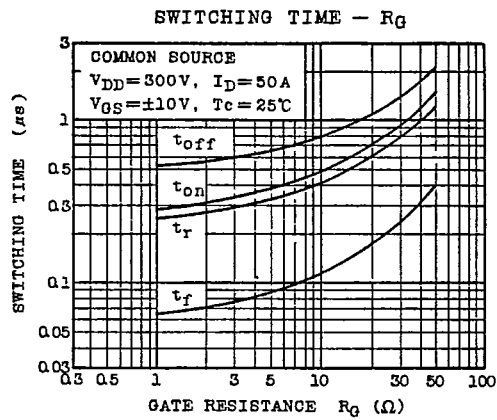
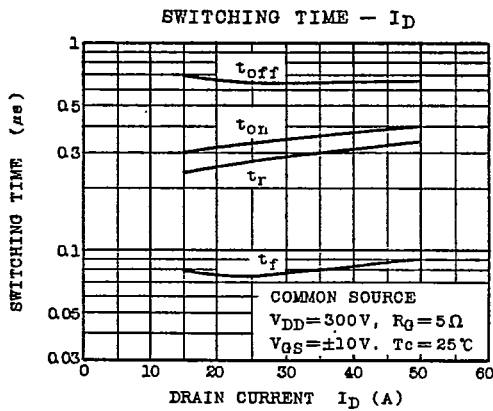
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