

TOSHIBA SEMICONDUCTOR

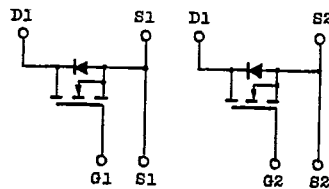
TECHNICAL DATA

HIGH POWER SWITCHING APPLICATIONS.
MOTOR CONTROL APPLICATIONS.

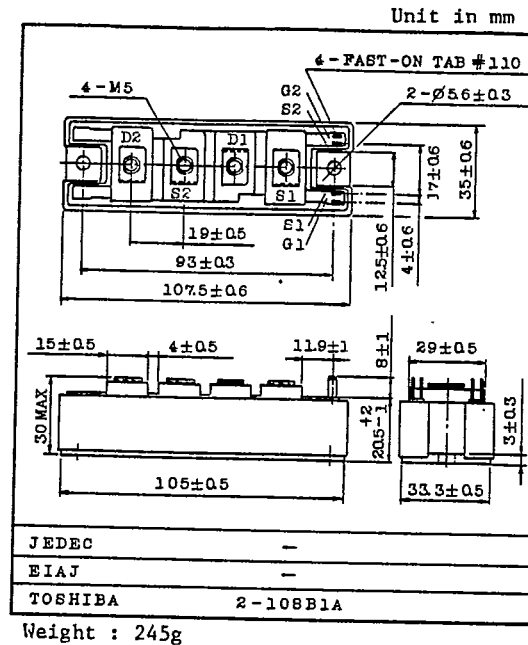
FEATURES:

- 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
: $R_{DS(ON)} = 0.14\Omega(\text{Max.})(I_D = 50A)$
- Enhancement-Mode.

EQUIVALENT CIRCUIT



TOSHIBA GTR MODULE
MG50G2DM1
SILICON N CHANNEL MOS TYPE



MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

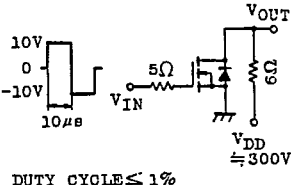
CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DS}	450	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current	DC	I_D	± 50	A
	1ms		± 100	
Drain Power Dissipation ($T_c = 25^\circ\text{C}$)		P_D	400	W
Channel Temperature		T_{ch}	150	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	-40~125	$^\circ\text{C}$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

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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		-	650	1300	
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

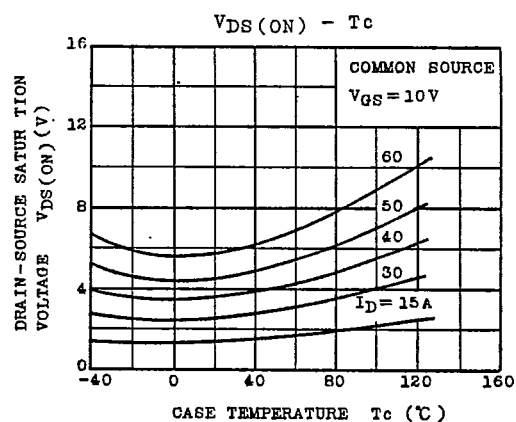
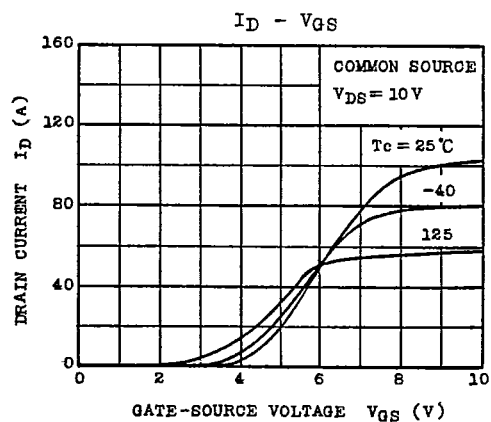
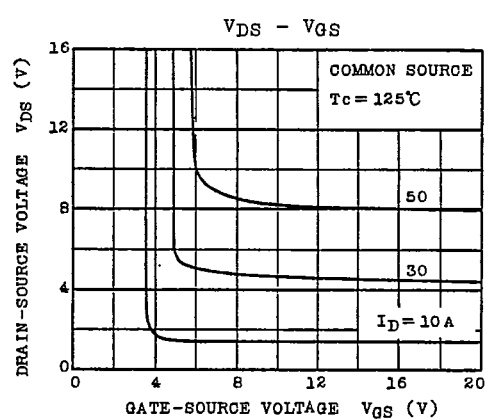
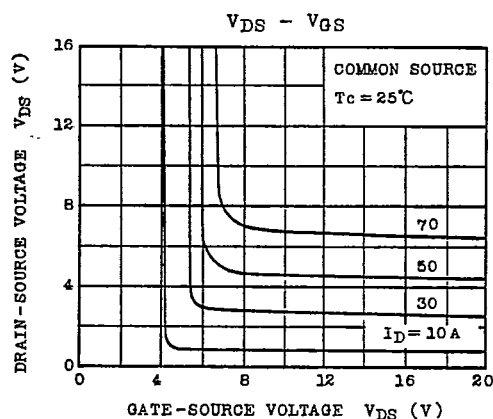
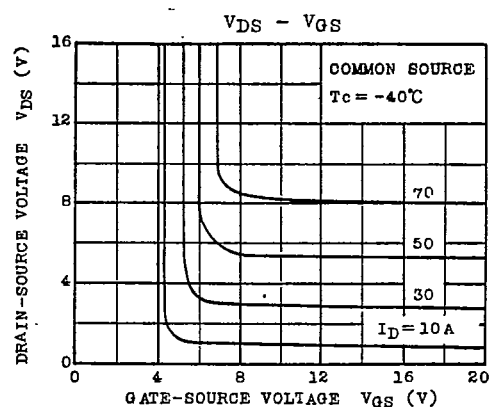
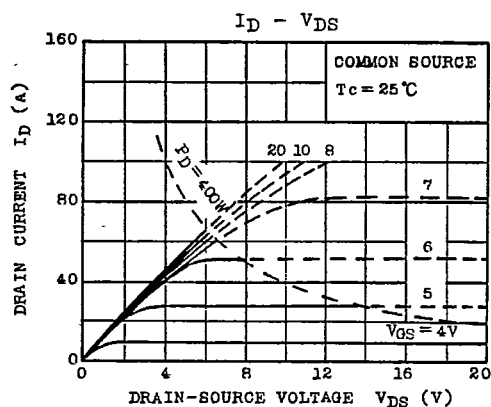
MG50G2DM1-2

TOSHIBA CORPORATION

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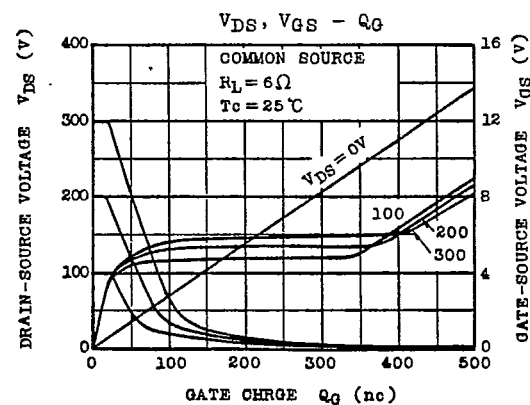
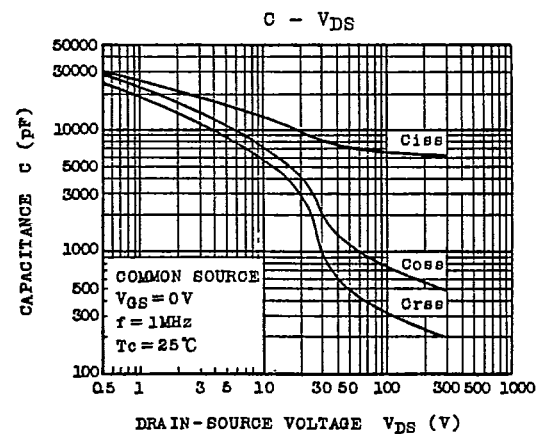
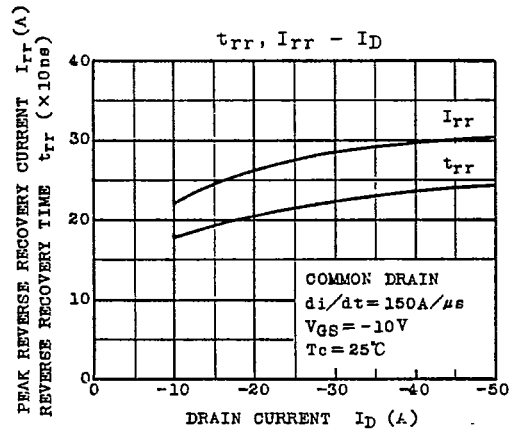
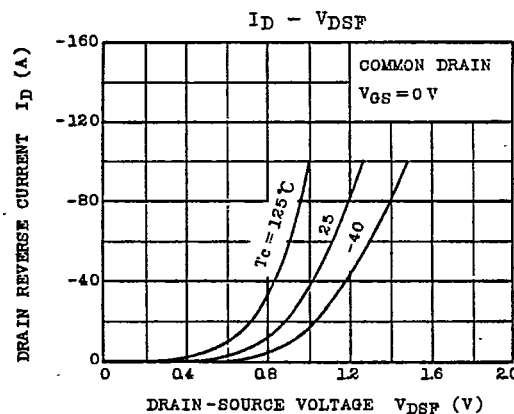
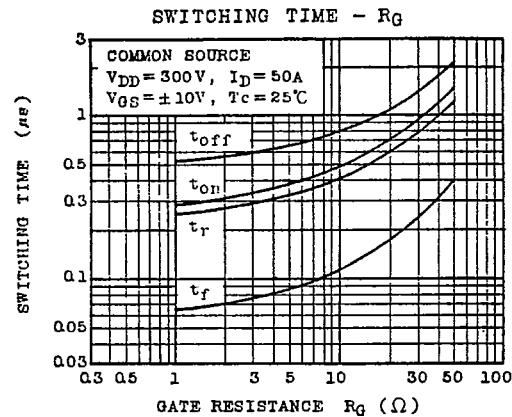
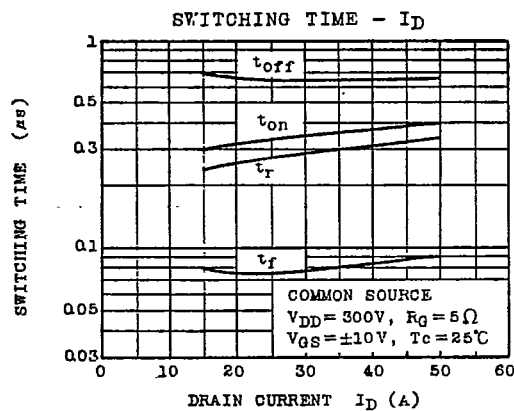
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