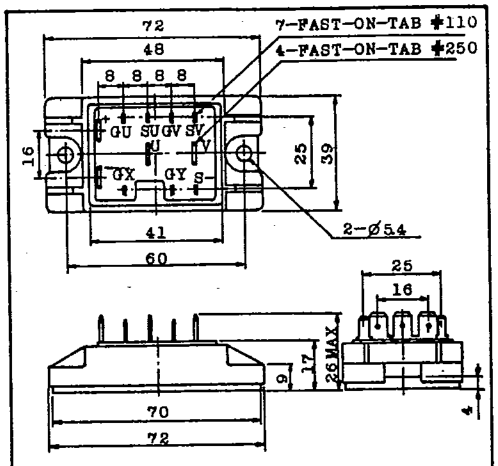
TOSHIBA GTR MODULE

MG15D4GM1

SILICON N CHANNEL MOS TYPE

HIGH POWER SWITCHING APPLICATIONS.
MOTOR CONTROL APPLICATIONS.

Unit in mm



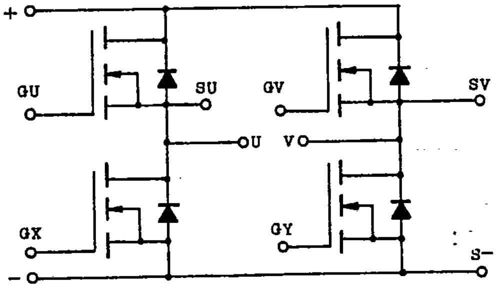
JEDEC	—
EIAJ	—
TOSHIBA	2-48A1B

Weight : 140gr

FEATURES:

- The Drain is Isolated from Case.
- 4 MOS FETs are Built-in to 1 Package.
- With Built-in Free Wheeling Diode.
- Low Drain-Source ON Resistance
  : $R_{DS(ON)}=0.24\Omega$ (Max.) ($I_D=15A$)
- Enhancement-mode.

EQUIVALENT CIRCUIT



SEMICONDUCTOR

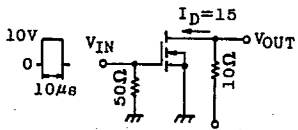
TECHNICAL DATA

MG15D4GM1

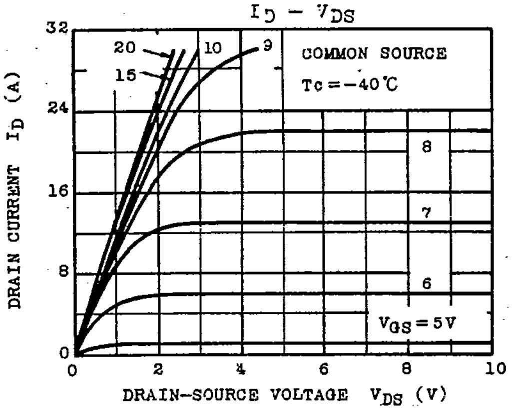
MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V_{DSS}	250	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	DC	I_D	±15	A
	1ms		±30	
Drain Power Dissipation (Tc=25°C)		P_D	100	W
Channel Temperature		Tch	150	°C
Storage Temperature Range		Tstg	-40 ~ 125	°C
Isolation Voltage		V_{Isol}	2500 (AC 1 Minute)	V
Screw Torque		-	30	kg·cm

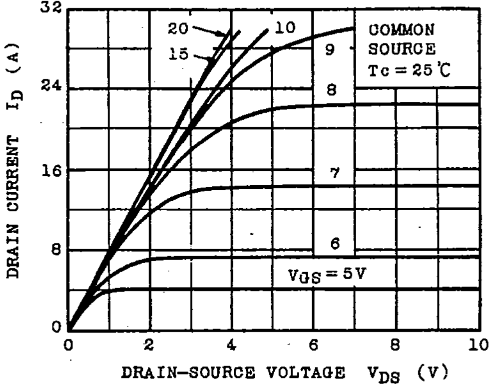
ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	V_{GS}=±20V, V_{DS}=0	-	-	±100	nA
Drain Cut-off Current		I_{DSS}	V_{DS}=250V, V_{GS}=0	-	-	1.0	mA
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	I_D=10mA, V_{GS}=0	250	-	-	V
Gate Threshold Voltage		Vth	V_{DS}=10V, I_D=1mA	1.5	-	3.5	V
Forward Transfer Admittance		$\|Y_{fs}\|$	V_{DS}=10V, I_D=15A	4.0	7.0	-	S
Drain-Source ON Resistance		$R_{DS(ON)}$	I_D=15A, V_{GS}=10V	-	-	0.24	Ω
Source Drain Forward Voltage		V_{SDF}	I_S=15A, V_{GS}=0	-	-	1.8	V
Input Capacitance		Ciss	V_{DS}=10V, V_{GS}=0, f=1MHz	-	2000	-	pF
Switching Time	Rise Time	t_r	 V_{IN} : t_r, t_f < 5ns D.U ≦ 1% (Z_{OUT}=50Ω)	-	300	600	ns
	Turn-on Time	ton		-	350	700	ns
	Fall Time	t_f		-	200	400	ns
	Turn-off Time	toff		-	600	1000	ns
Reverse Recovery Time		trr	I_D=-15A, R_G=220Ω V_{GS}=-15V, di/dt=60A/μs	-	250	600	ns

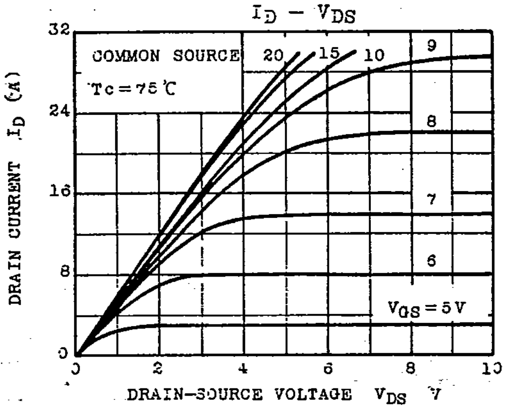
$I_D - V_{DS}$



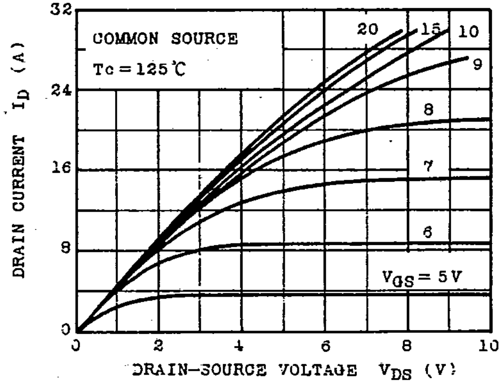
$I_D - V_{DS}$



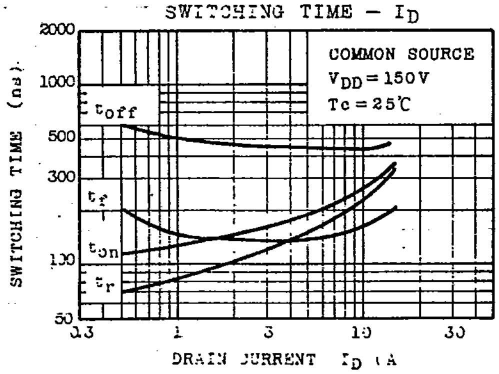
$I_D - V_{DS}$



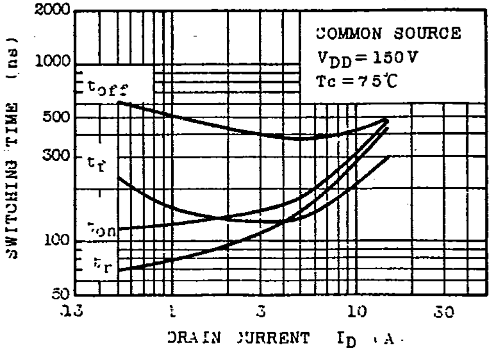
$I_D - V_{DS}$



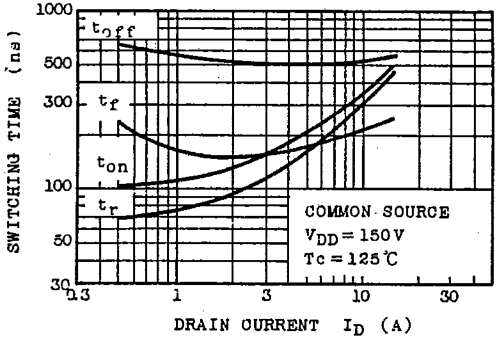
SWITCHING TIME − I_D



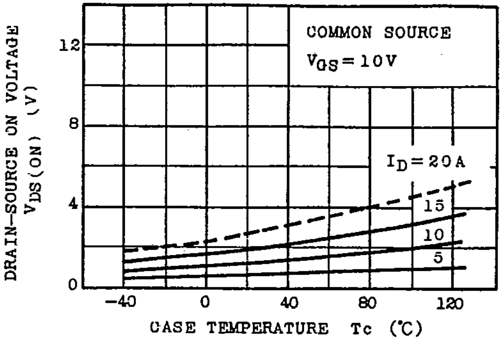
SWITCHING TIME − I_D



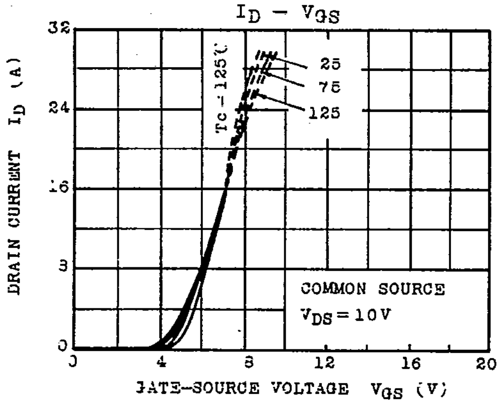
SWITCHING TIME — I_D



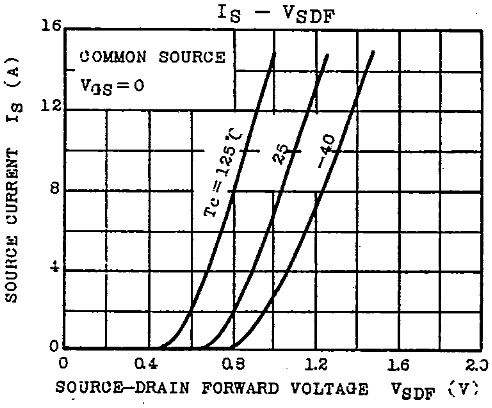
$V_{DS(ON)}$ — Tc



I_D — V_{GS}



I_S — V_{SDF}



SAFE OPERATING AREA