

TOSHIBA SEMICONDUCTOR

TECHNICAL DATA

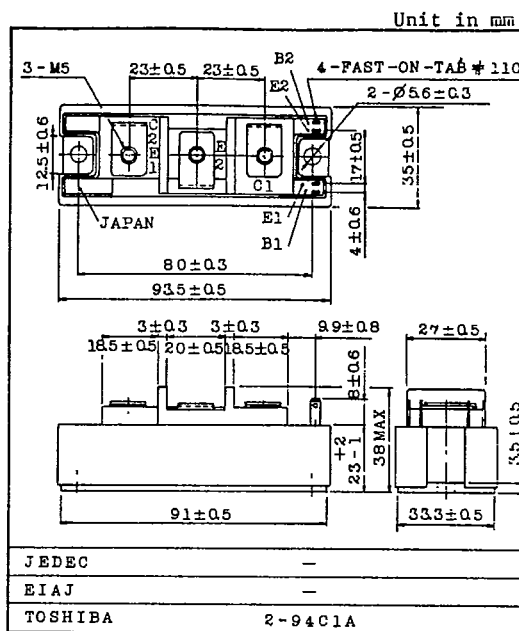
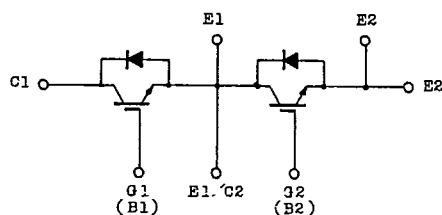
TOSHIBA GTR MODULE
MG50N2YS1
SILICON N CHANNEL IGBT

HIGH POWER SWITCHING APPLICATIONS.
MOTOR CONTROL APPLICATIONS.

FEATURES:

- High Input Impedance
- High Speed : $t_f=1.0\mu s(\text{Max.})$
 $t_{rr}=0.5\mu s(\text{Max.})$
- Low Saturation Voltage: $V_{CE(sat)}=5.0V(\text{Max.})$
- Enhancement-Mode
- Includes a Complete Half Bridge in One Package.
- The Electrodes are Isolated from Case.

EQUIVALENT CIRCUIT



Weight : 220g

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	V_{CES}	1000	V
Gate-Emitter Voltage	V_{GES}	± 20	V
Collector Current	DC	I_C	A
	1ms	I_{CP}	
Forward Current	DC	I_F	A
	1ms	I_{FM}	
Collector Power Dissipation ($T_c=25^\circ\text{C}$)	P_C	300	W
Junction Temperature	T_j	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

EGA-MG50N2YS1-1

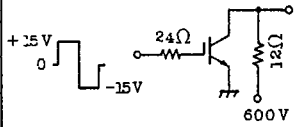
TOSHIBA CORPORATION

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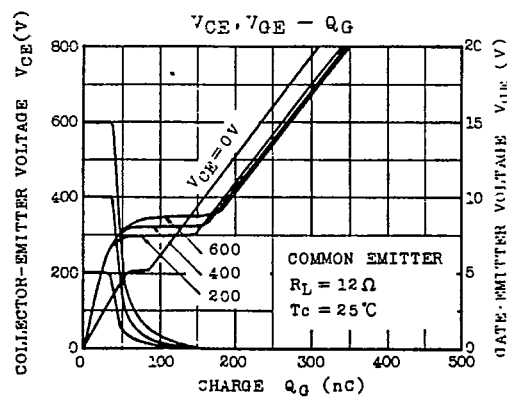
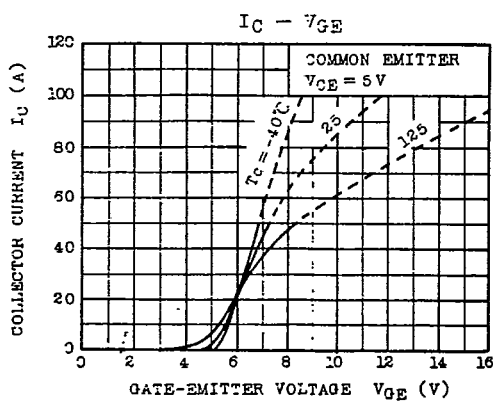
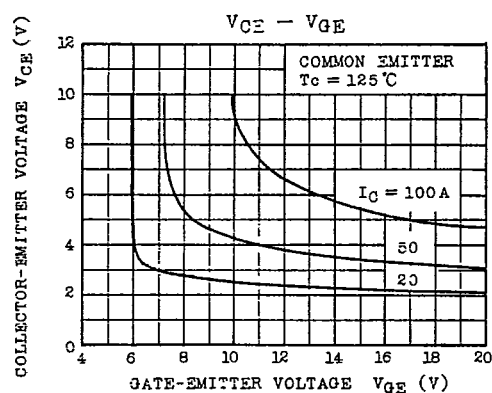
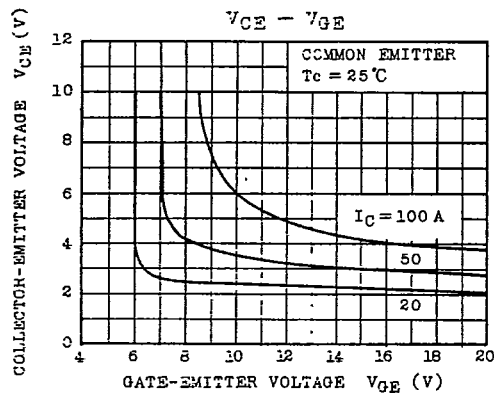
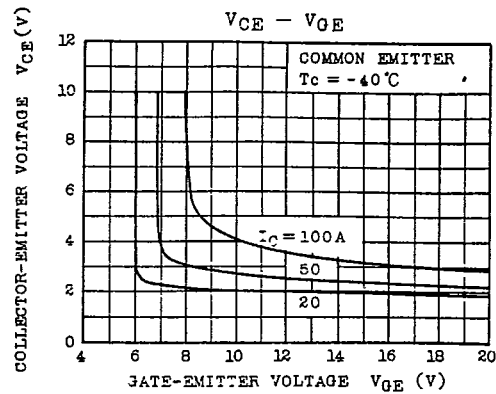
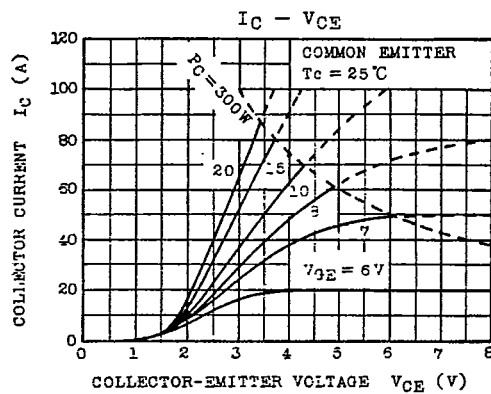
ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GES}	$V_{GE}=\pm 20V, V_{CE}=0$	-	-	± 500	nA
Collector Cut-off Current		I_{CES}	$V_{CE}=1000V, V_{GE}=0$	-	-	1.0	mA
Collector-Emitter Breakdown Voltage		$V_{(BR)CES}$	$I_C=2mA, V_{GE}=0$	1000	-	-	V
Gate-Emitter Cut-off Voltage		$V_{GE(OFF)}$	$I_C=50mA, V_{CE}=5V$	3.0	-	6.0	V
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C=50A, V_{GE}=15V$	-	3.0	5.0	V
Input Capacitance		C_{ies}	$V_{CE}=10V, V_{GE}=0, f=1MHz$	-	7200	-	pF
Switching Time	Rise Time	t_r		-	0.35	1.0	μs
	Turn-on Time	t_{on}		-	0.45	1.0	
	Fall Time	t_f		-	0.6	1.0	
	Turn-off Time	t_{off}		-	1.1	1.5	
Forward Voltage		V_F	$I_F=50A, V_{GE}=0$	-	2.0	2.5	V
Reverse Recovery Time		t_{rr}	$I_F=50A, V_{GE}=-10V$ $di/dt=100A/\mu s$	-	0.25	0.5	μs
Thermal Resistance		$R_{th(j-c)}$	Transistor	-	-	0.41	°C/W
			Diode	-	-	1.0	

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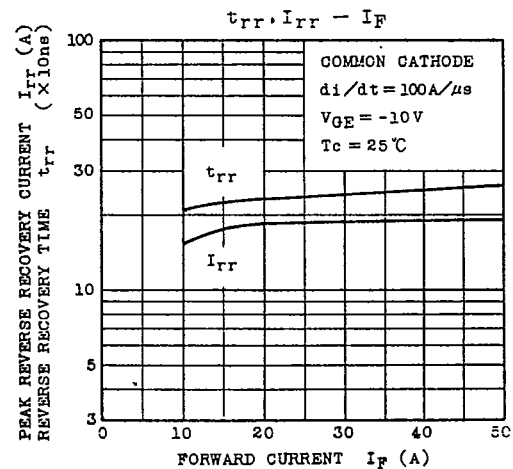
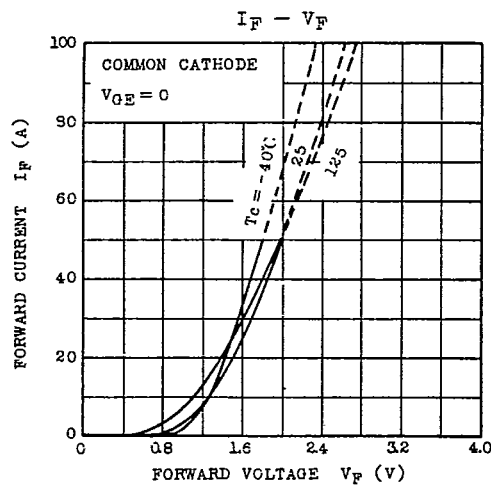
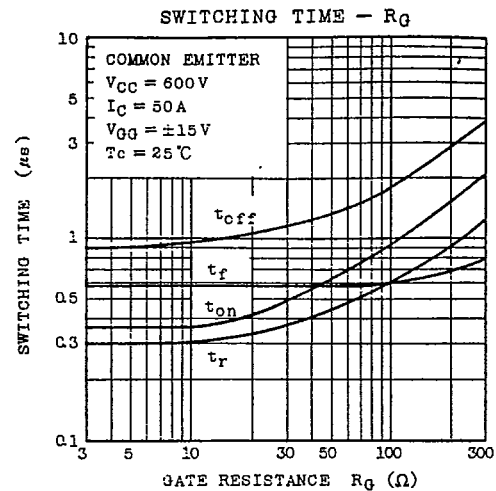
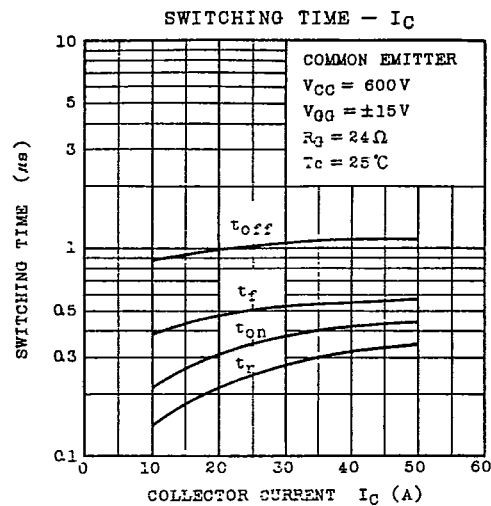
EGA-MG50N2YS1-3

TOSHIBA CORPORATION

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MG50N2YS1

