

# TOSHIBA SEMICONDUCTOR

## TECHNICAL DATA

TOSHIBA GTR MODULE  
M G 5 0 M 2 Y K 1

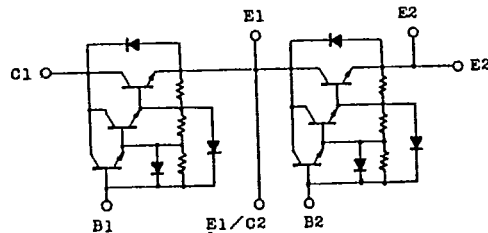
SILICON NPN TRIPLE DIFFUSED TYPE

HIGH POWER SWITCHING APPLICATIONS.  
MOTOR CONTROL APPLICATIONS.

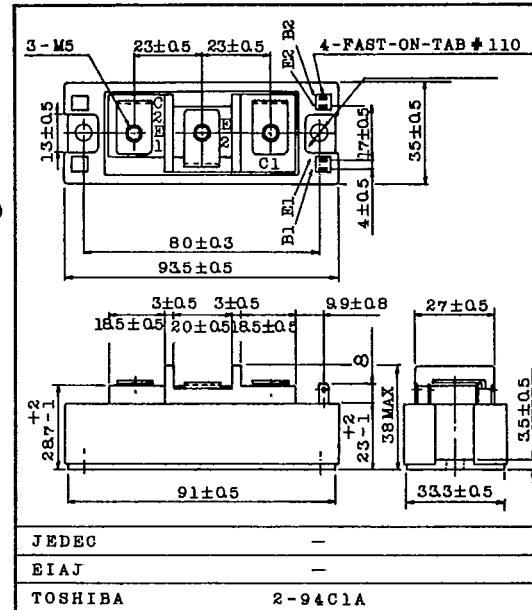
### FEATURES:

- The Collector is Isolation from Case.
- 2 Power Transistors and 2 Free Wheeling Diodes are Built-in to 1 Package.
- High DC Current Gain:  $h_{FE}=100(\text{Min.})(I_C=50A)$
- Low Saturation Voltage  
:  $V_{CE(\text{sat})}=2.5V(\text{Max.})(I_C=50A)$

### EQUIVALENT CIRCUIT



Unit in mm



Weight : 222g

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		$V_{CBO}$	1000	V
Collector-Emitter Sustaining Voltage		$V_{CEX(\text{SUS})}$	1000	V
		$V_{CEO(\text{SUS})}$	880	
Emitter-Base Voltage		$V_{EBO}$	7	V
Collector Current	DC	$I_C$	50	A
	1ms	$I_{CP}$	100	
Forward Current	DC	$I_F$	50	A
	1ms	$I_{FM}$	100	
Base Current		$I_B$	5	A
Collector Power Dissipation ( $T_c=25^\circ\text{C}$ )		$P_C$	350	W
Junction Temperature		$T_j$	150	$^\circ\text{C}$
Storage Temperature Range		$T_{stg}$	-40~125	$^\circ\text{C}$
Isolation Voltage		$V_{\text{isol}}$	2500 (AC 1 Minute)	V
Screw Torque (Terminal/Mounting)		-	20/30	kg·cm

MG50M2YK1

TOSHIBA CORPORATION

9097250 TOSHIBA (DISCRETE/OPTO)

90D 16067 DT-33-35

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## ELECTRICAL CHARACTERISTICS (Ta=25°C)

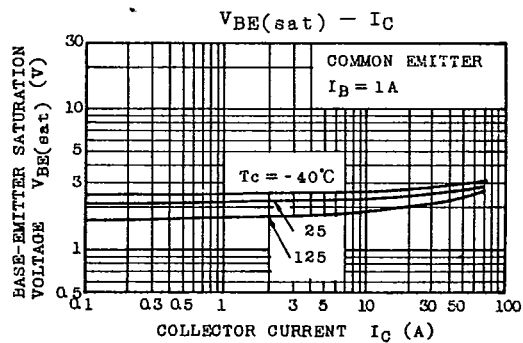
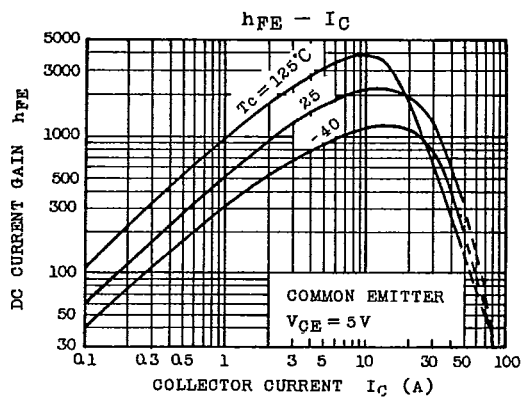
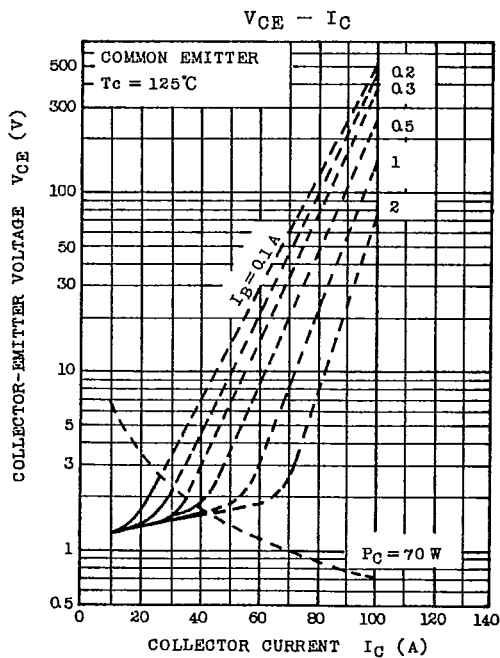
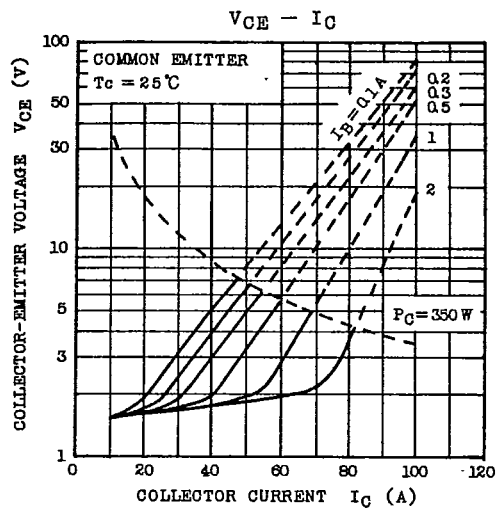
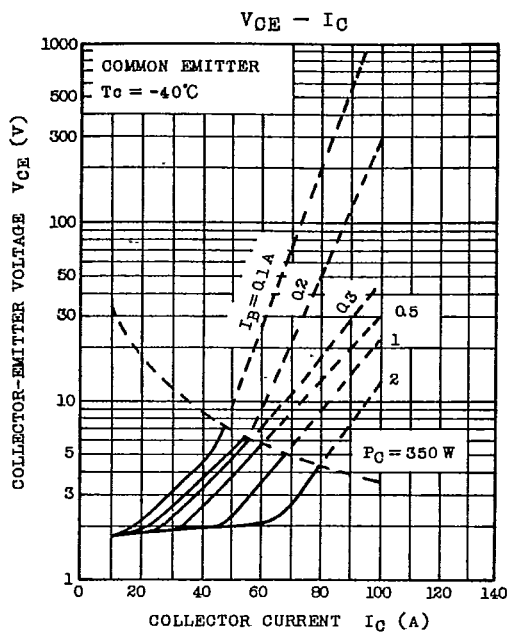
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		ICBO	V <sub>CB</sub> =1000V, I <sub>E</sub> =0	-	-	1.0	mA
Emitter Cut-off Current		IEBO	V <sub>EB</sub> =7V, I <sub>C</sub> =0	-	-	200	mA
Collector-Emitter Sustaining Voltage		V <sub>CEX(SUS)</sub>	I <sub>C</sub> =1A, V <sub>BE</sub> =-2V	1000	-	-	V
		V <sub>CEO(SUS)</sub>	I <sub>C</sub> =1A, L=40mH	880	-	-	
DC Current Gain		h <sub>FE</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =50A	100	-	-	
Collector-Emitter Saturation Voltage		V <sub>CE(sat)</sub>	I <sub>C</sub> =50A, I <sub>B</sub> =1A	-	-	2.5	V
Base-Emitter Saturation Voltage		V <sub>BE(sat)</sub>		-	-	3.5	V
Switching Time	Turn-on Time	t <sub>on</sub>	<p>INPUT ——— OUTPUT</p> <p>50µs</p> <p>I<sub>B1</sub> I<sub>B2</sub></p> <p>V<sub>CC</sub>=600V</p> <p>DUTY CYCLE=0.5%</p>	-	-	2.0	µs
	Storage Time	t <sub>stg</sub>		-	-	15	
	Fall Time	t <sub>f</sub>		I <sub>B1</sub> =-I <sub>B2</sub> =1A	-	-	
Forward Voltage		V <sub>F</sub>	I <sub>F</sub> =50A, I <sub>B</sub> =0	-	-	1.7	V
Reverse Recovery Time		t <sub>rr</sub>	I <sub>F</sub> =50A, V <sub>BE</sub> =-3V di/dt=100A/µs	-	-	1.0	µs
Thermal Resistance		R <sub>th(j-c)</sub>	Transistor	-	-	0.35	°C/W
			Diode	-	-	1.3	

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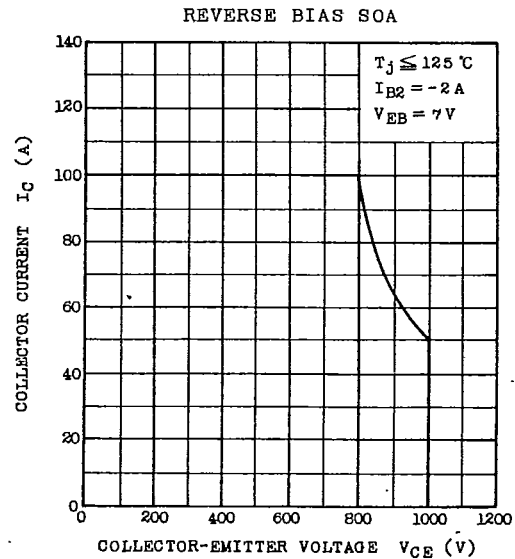
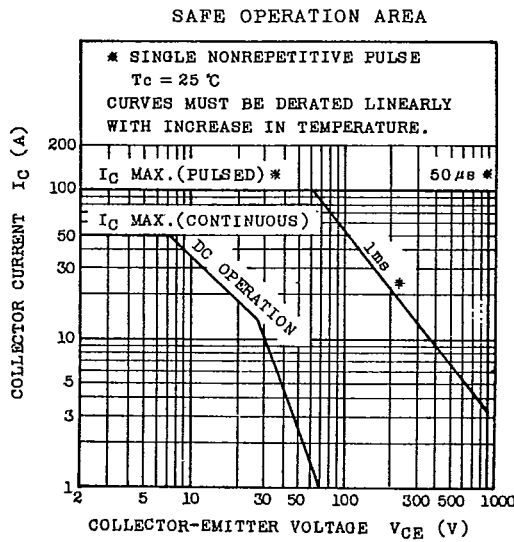
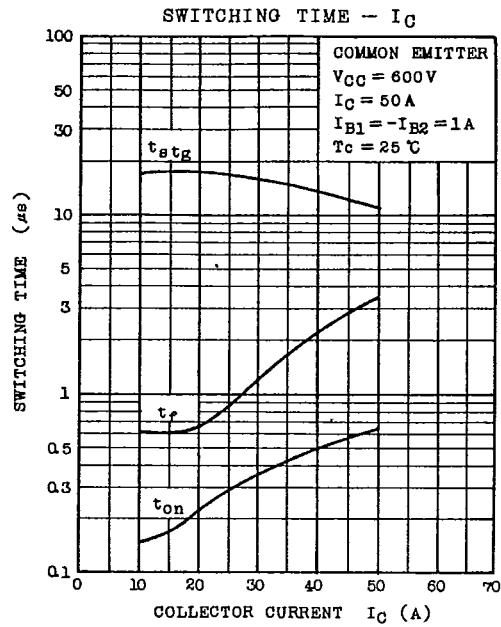
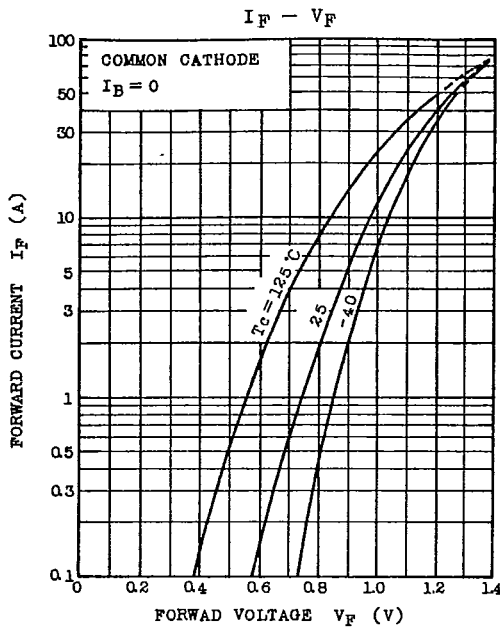
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