

TOSHIBA SEMICONDUCTOR

TECHNICAL DATA

TOSHIBA GTR MODULE

MG50M2YK1

SILICON NPN TRIPLE DIFFUSED TYPE

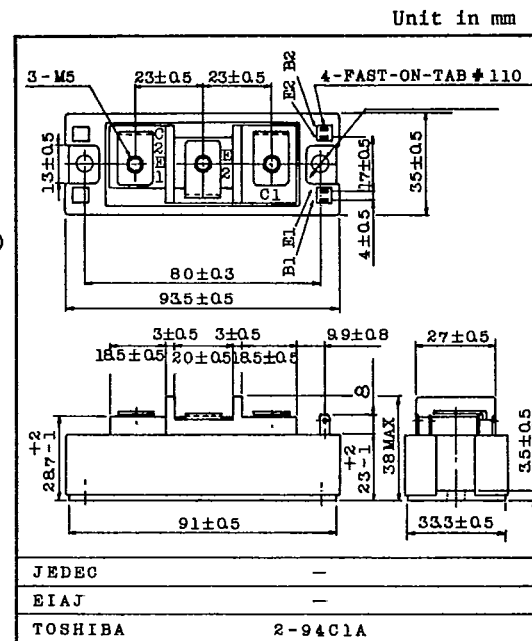
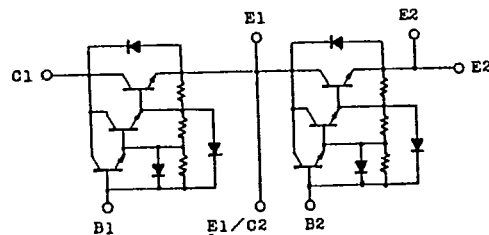
HIGH POWER SWITCHING APPLICATIONS.
MOTOR CONTROL APPLICATIONS.

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

$$: V_{CE(sat)}=2.5V(\text{Max.})(I_C=50A)$$

EQUIVALENT CIRCUIT

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	1000	V
Collector-Emitter Sustaining Voltage		$V_{CEX(SUS)}$	1000	V
		$V_{CEO(SUS)}$	880	
Emitter-Base Voltage		V_{EBO}	7	V
Collector Current	DC	I_C	50	A
	lms	I_{CP}	100	
Forward Current	DC	I_F	50	A
	lms	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_{Isol}	2500 (AC 1 Minute)	V
Screw Torque (Terminal/Mounting)		—	20/30	kg·cm

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TOSHIBA CORPORATION

9097250 TOSHIBA (DISCRETE/OPTO)

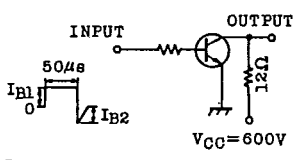
90D 16067 DT-33-35

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ELECTRICAL CHARACTERISTICS (Ta=25°C)

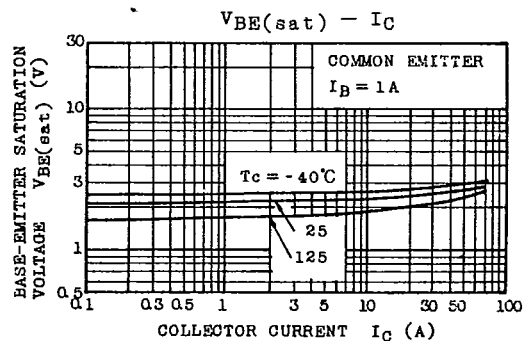
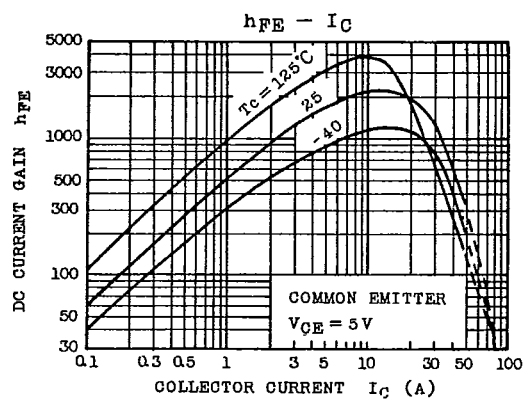
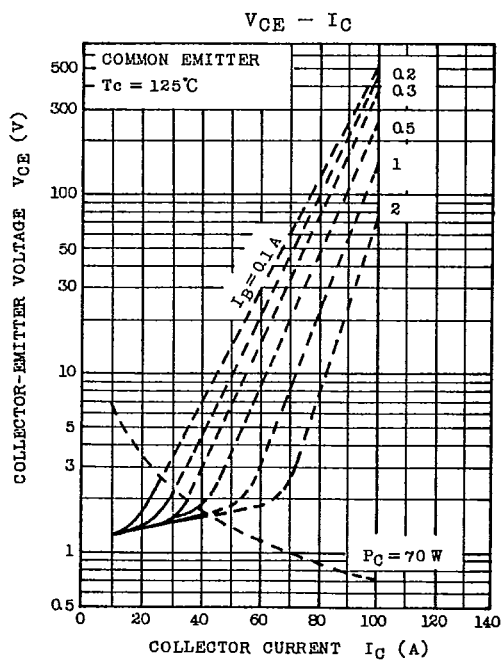
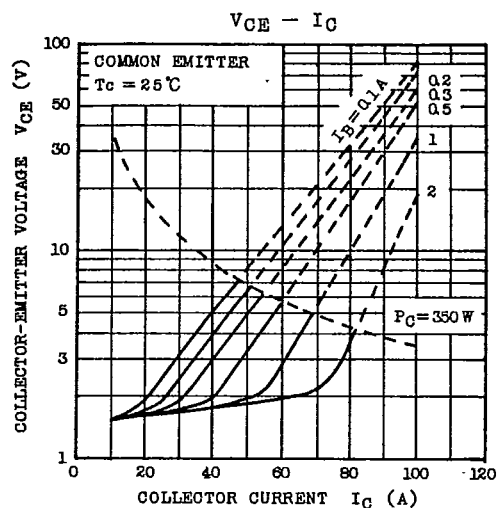
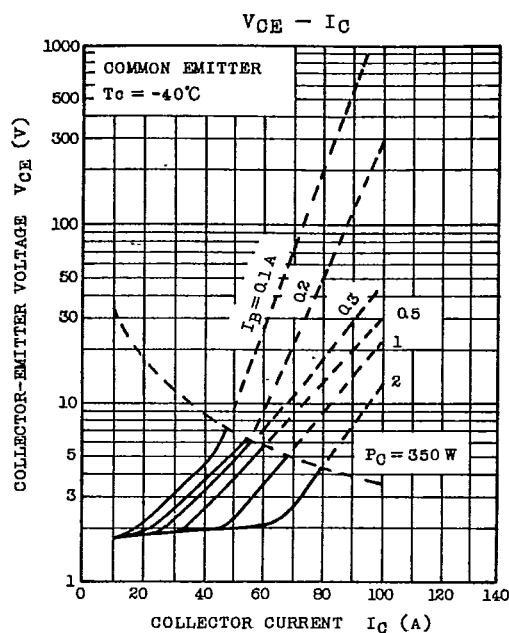
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB}=1000V, I_E=0$	-	-	1.0	mA
Emitter Cut-off Current		I_{EBO}	$V_{EB}=7V, I_C=0$	-	-	200	mA
Collector-Emitter Sustaining Voltage		$V_{CEX(SUS)}$	$I_C=1A, V_{BE}=-2V$	1000	-	-	V
		$V_{CEO(SUS)}$	$I_C=1A, L=40mH$	880	-	-	
DC Current Gain		h_{FE}	$V_{CE}=5V, I_C=50A$	100	-	-	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C=50A, I_B=1A$	-	-	2.5	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$		-	-	3.5	V
Switching Time	Turn-on Time	t_{on}	 $I_{B1}=-I_{B2}=1A$ DUTY CYCLE=0.5%	-	-	2.0	μs
	Storage Time	t_{stg}		-	-	15	
	Fall Time	t_f		-	-	5.0	
Forward Voltage		V_F	$I_F=50A, I_B=0$	-	-	1.7	V
Reverse Recovery Time		t_{rr}	$I_F=50A, V_{BE}=-3V$ $di/dt=100A/\mu s$	-	-	1.0	μs
Thermal Resistance		$R_{th(j-c)}$	Transistor	-	-	0.35	$^{\circ}C/W$
			Diode	-	-	1.3	

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