TOSHIBA SEMICONDUCTOR
TECHNICAL DATA

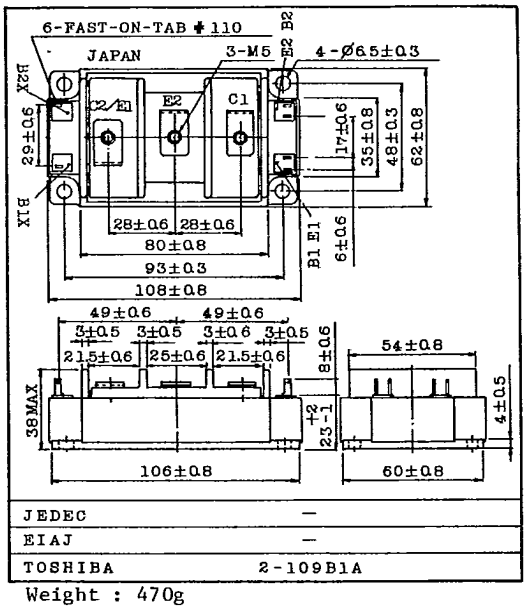
TOSHIBA GTR MODULE
MG150Q2YK1
SILICON NPN TRIPLE DIFFUSED TYPE

HIGH POWER SWITCHING APPLICATIONS.
MOTOR CONTROL APPLICATIONS.

FEATURES:

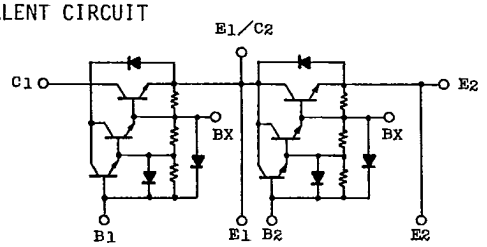
- The Collector is Isolated from Case.
- Power Transistors and 2 Free Wheeling Diodes are Built-in to 1 Package.
- High DC Current Gain
  : h_{FE}=100(Min.)(I_C=150A)
- Low Saturation Voltage
  : $V_{CE(sat)}$=2.5V(Max.)(I_C=150A)

Unit in mm



Weight : 470g

EQUIVALENT CIRCUIT



MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	1200	V
Collector-Emitter Sustaining Voltage		$V_{CEX(SUS)}$	1200	V
Collector-Emitter Sustaining Voltage		$V_{CEO(SUS)}$	900	V
Emitter-Base Voltage		V_{EBO}	7	V
Collector Current	DC	I_C	150	A
	1ms	I_{CP}	300	A
Forward Current	DC	I_F	150	A
	1ms	I_{FM}	300	A
Base Current		I_B	20	A
Collector Power Dissipation (Tc=25°C)		P_C	800	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-40~125	°C
Isolation Voltage		V_{Isol}	2500 (AC 1 Minute)	V
Screw Torque (Terminal/Mounting)		-	30/30	kg·cm

EGA-MG150Q2YK1-1
1986-9-1
TOSHIBA CORPORATION

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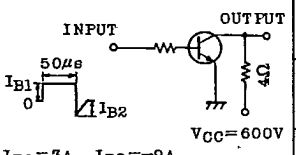
ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB}=1200V, I_E=0	-	-	4	mA
Emitter Cut-off Current		I_{EBO}	V_{EB}=7V, I_C=0	-	-	400	mA
Collector-Emitter Sustaining Voltage		$V_{CEO(SUS)}$	I_C=1A, L=40mH	900	-	-	V
DC Current Gain		h_{FE}	V_{CE}=5V, I_C=150A	100	-	-	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	I_C=150A, I_B=3A	-	-	2.5	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$		-	-	3.5	V
Switching Time	Turn-on Time	t_{on}	 I_{B1}=3A, I_{B2}=-9A DUTY CYCLE=0.5%	-	-	3	μs
	Storage Time	t_{stg}		-	-	12	
	Fall Time	t_f		-	-	5	
Forward Voltage		V_F	I_F=150A, I_B=0	-	-	1.8	V
Reverse Recovery Time		t_{rr}	I_F=150A, V_{BE}=-3V di/dt=100A/μs	-	-	1.0	μs
Thermal Resistance		$R_{th(j-c)}$	Transistor	-	-	0.156	°C/W
			Diode	-	-	0.65	

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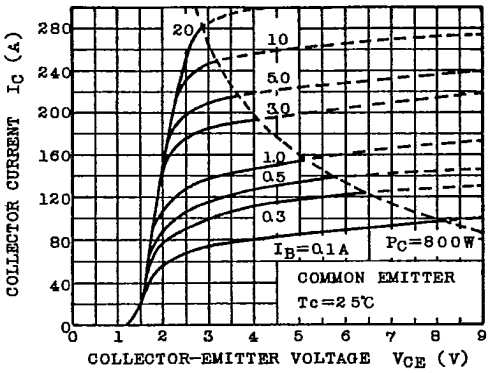
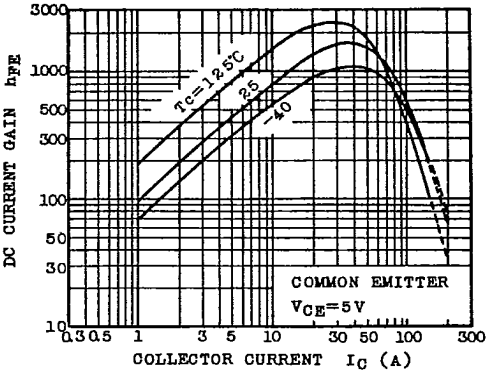
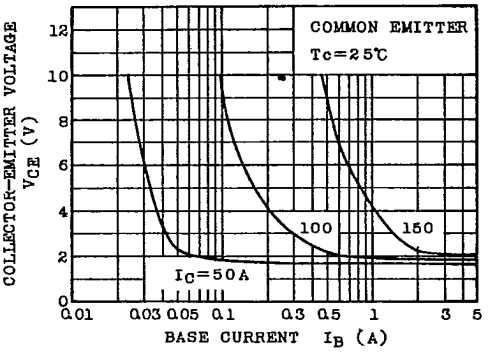
$I_C - V_{CE}$



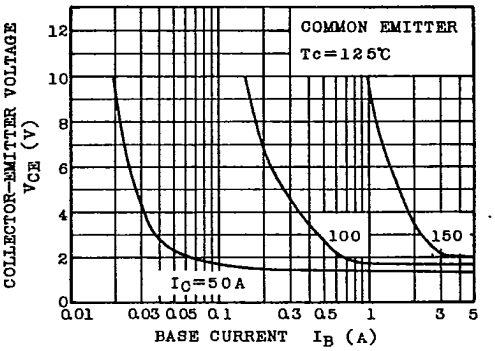
$h_{FE} - I_C$



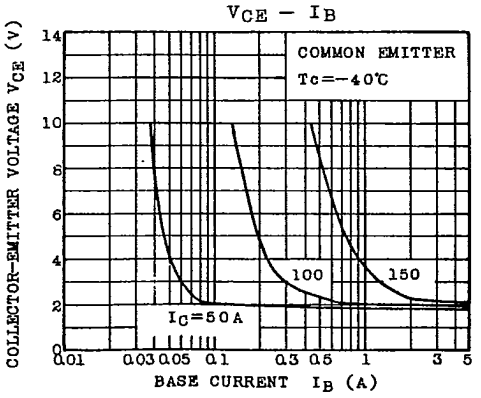
$V_{CE} - I_B$



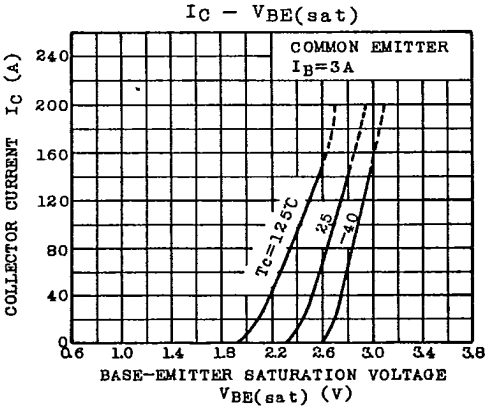
$V_{CE} - I_B$



$V_{CE} - I_B$



$I_C - V_{BE(sat)}$



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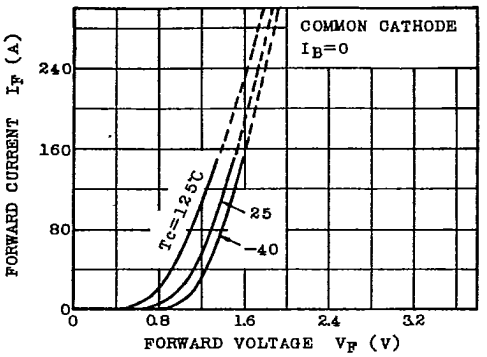
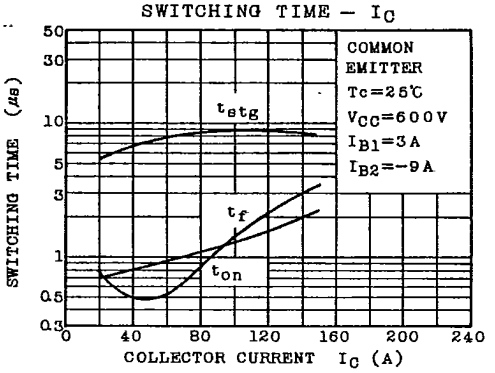
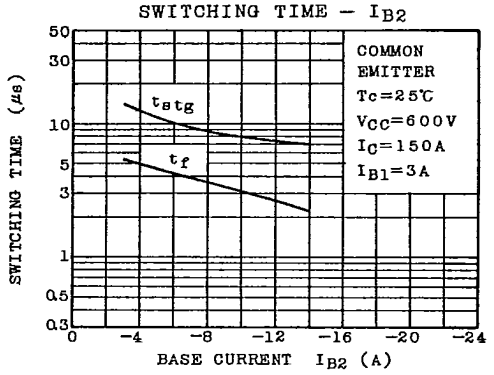
$I_F - V_F$



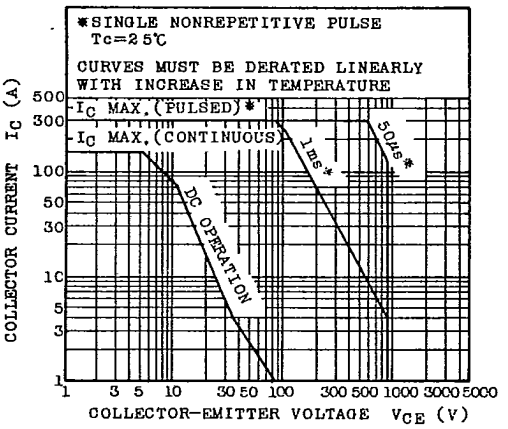
SWITCHING TIME — I_C



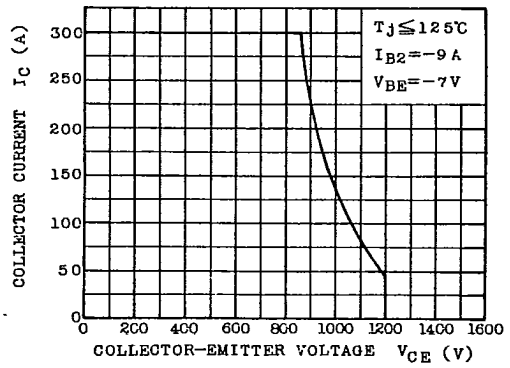
SWITCHING TIME — I_{B2}



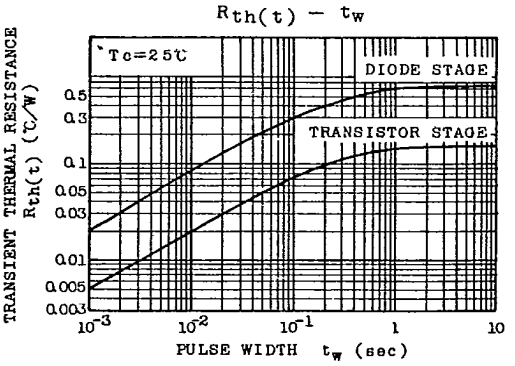
SAFE OPERATING AREA



REVERSE BIAS SOA



$R_{th(t)} - t_w$



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