SEMICONDUCTOR

TECHNICAL DATA

TOSHIBA GTR MODULE

MG400H1FK1

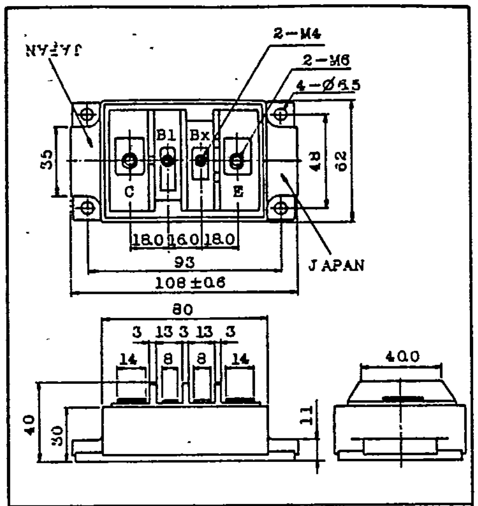
SILICON NPN TRIPLE DIFFUSED TYPE

HIGH POWER SWITCHING APPLICATIONS.
MOTOR CONTROL APPLICATIONS.

FEATURES:

- The Collector is Isolated from Case.
- With Built-in Free Wheeling Diode
- High DC Current Gain : h_{FE}=200(Min.) (I_C=400A)
- Low Saturation Voltage
  : $V_{CE(sat)}$=2.5V(Max.) (I_C=400A)

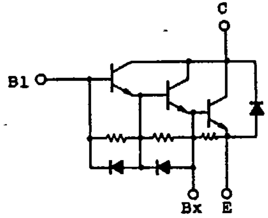
Unit in mm



JEDEC	—
EIAJ	—
TOSHIBA	2-80D1A

Weight : 500g

EQUIVALENT CIRCUIT



MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	600	V
Collector-Emitter Sustaining Voltage		$V_{CEX(SUS)}$	600	V
Collector-Emitter Sustaining Voltage		$V_{CEO(SUS)}$	550	V
Emitter-Base Voltage		V_{EBO}	6	V
Collector Current	DC	I_C	400	A
	1ms	I_{CP}	800	A
Forward Current	DC	I_F	400	A
	1ms	I_{FM}	800	A
Base Current		I_B	12	A
Collector Power Dissipation (Tc=25°C)		P_C	1600	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 (M4/M6)		20/30	kg·cm
	Mounting		30	

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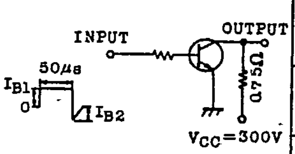
ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB}=600V, I_E=0	-	-	4	mA
Emitter Cut-off Current		I_{EBO}	V_{EB}=6V, I_C=0	-	-	800	mA
Collector-Emitter Sustaining Voltage		$V_{CEO(SUS)}$	I_C=0.5A, L=40mH	550	-	-	V
DC Current Gain		h_{FE}	V_{CE}=5V, I_C=400A	200	-	-	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	I_C=400A, I_B=4A	-	-	2.5	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$		-	-	3.5	V
Switching Time	Turn-on Time	t_{on}	 $I_{B1}=-I_{B2}$=4A DUTY CYCLE=0.5%	-	-	2.0	μs
	Storage Time	t_{stg}		-	-	12	
	Fall Time	t_f		-	-	5	
Forward Voltage		V_F	I_F=400A, I_B=0	-	-	1.8	V
Reverse Recovery Time		t_{rr}	I_F=400A, V_{BE}=-3V di/dt=200A/μs	-	-	1.0	μs
Thermal Resistance		$R_{th(j-c)}$	Transistor	-	-	0.078	°C/W
			Diode	-	-	0.325	

東芝 **SEMICONDUCTOR**

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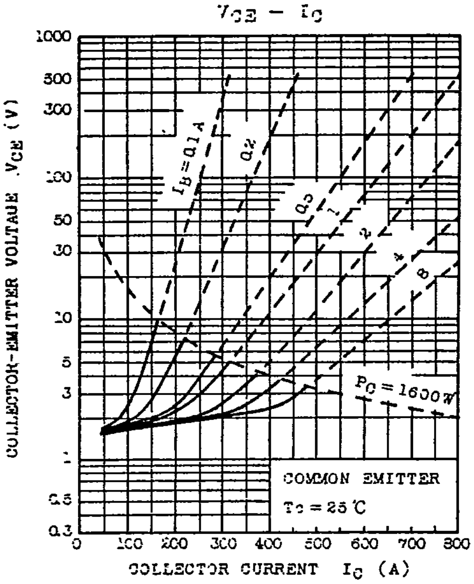
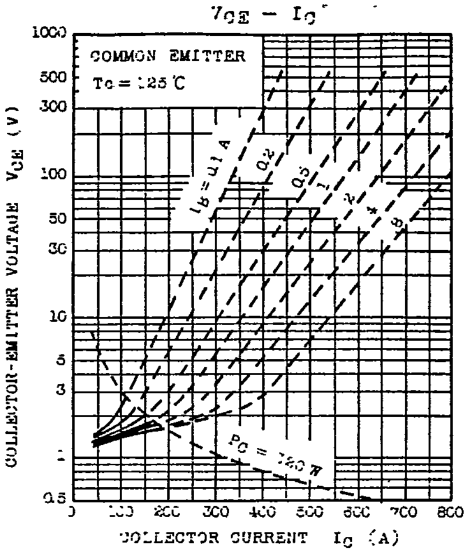
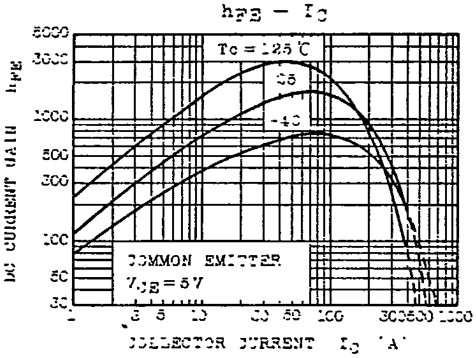
V_{CE} – I_C



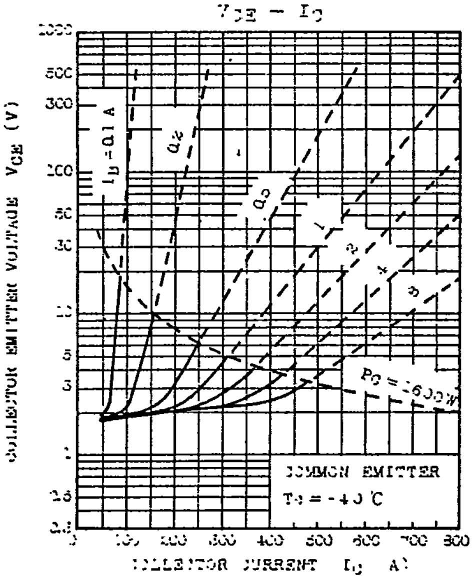
V_{CE} – I_C



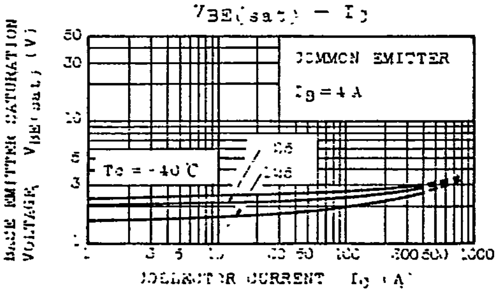
h_{FE} – I_C



V_{CE} – I_C



$V_{BE(sat)}$ – I_C



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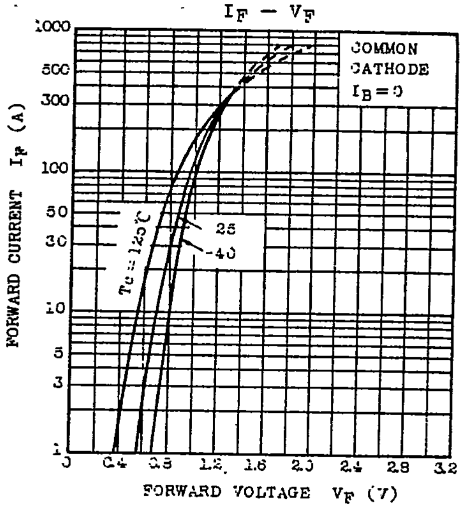
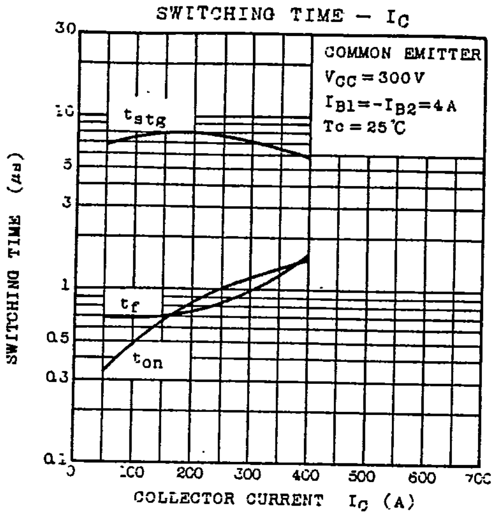
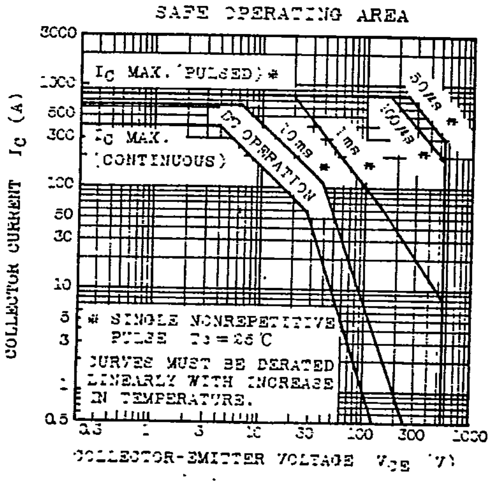
$I_F - V_F$



SWITCHING TIME — I_C



SAFE OPERATING AREA



REVERSE BIAS SOA