TOSHIBA SEMICONDUCTOR
TECHNICAL DATA

TOSHIBA GTR MODULE

MG200M1UK1

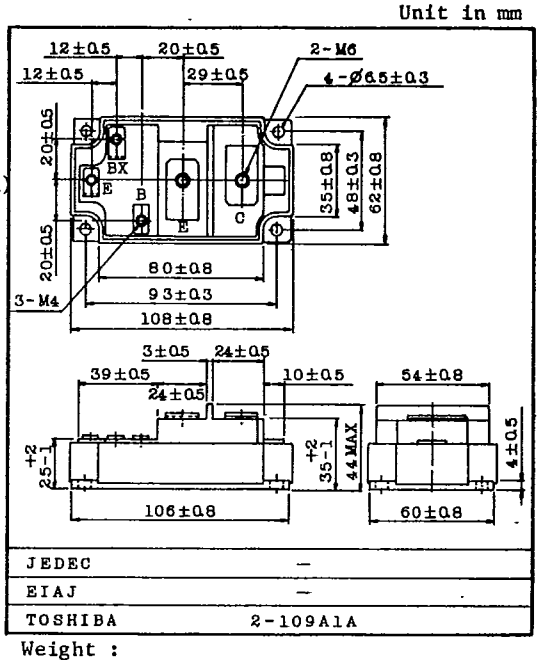
SILICON NPN TRIPLE DIFFUSED TYPE

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}=100(Min.)(I_C=200A)
- Low Saturation Voltage
  : $V_{CE(sat)}$=2.5V(Max.)(I_C=200A)
- Excellent Collector Balance by Direct Parallel Connection of Each All Terminals.

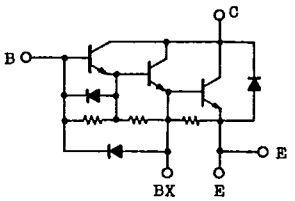
Unit in mm



JEDEC	—
EIAJ	—
TOSHIBA	2-109A1A

Weight :

EQUIVALENT CIRCUIT



MAXIMUM RATINGS (Ta=25°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	200	A
	1ms	I_{CP}	400	
Forward Current	DC	I_F	200	A
	1ms	I_{FM}	400	
Base Current		I_B	20	A
Collector Power Dissipation (Tc=25°C)		P_C	1400	W
Junction Temperature		T_j	150	°C
Storage Temperature		T_{stg}	-40~125	°C
Isolation Voltage		V_{Isol}	2500 (AC 1 Minute)	V
Screw Torque (Terminal M4/M6/Mounting)		-	20/30/30	kg·cm

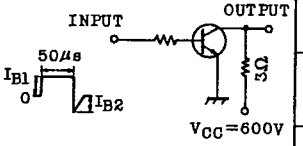
MG200M1UK1

TOSHIBA CORPORATION

TOSHIBA SEMICONDUCTOR
TECHNICAL DATA

MG200M1UK1

ELECTRICAL CHARACTERISTICS (Ta=25°C)

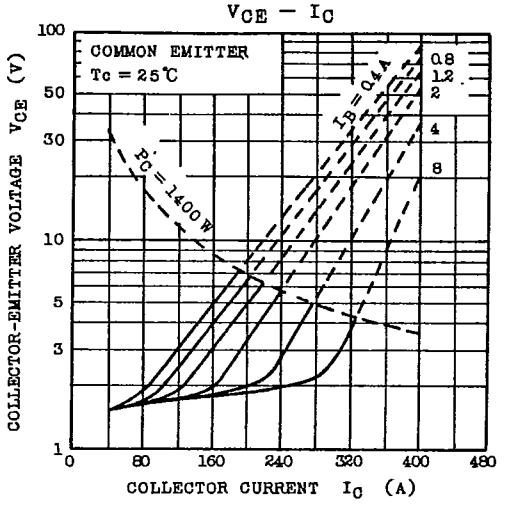
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB}=1000V, I_E=0	-	-	8	mA
Emitter Cut-off Current		I_{EBO}	V_{EB}=7V, I_C=0	-	-	800	mA
Collector-Emitter Sustaining Voltage		$V_{CEO(SUS)}$	I_C=1A, L=40mH	880	-	-	V
DC Current Gain		h_{FE}	V_{CE}=5V, I_C=200A	100	-	-	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	I_C=200A, I_B=4A	-	-	2.5	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$		-	-	3.5	V
Switching Time	Turn-on Time	t_{on}		-	-	2.0	μs
	Storage Time	t_{stg}		-	-	15	
	Fall Time	t_f	I_{B1}=-I_{B2}=4A DUTY CYCLE=0.5%	-	-	5	
Forward Voltage		V_F	I_F=200A, I_B=0	-	-	1.8	V
Reverse Recovery Time		t_{rr}	I_F=200A, V_{BE}=-3V di/dt=100A/μs	-	-	1.0	μs
Thermal Resistance		$R_{th(j-c)}$	Transistor	-	-	0.089	°C/W
			Diode	-	-	0.325	

MG200M1UK1
TOSHIBA CORPORATION

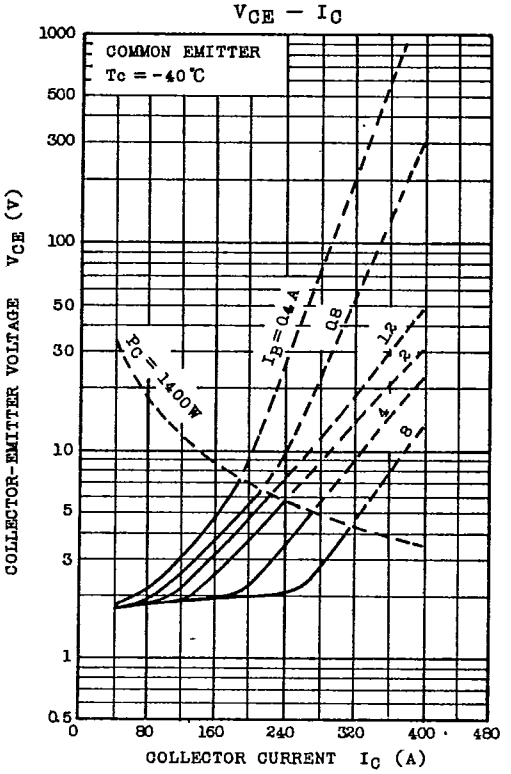
TOSHIBA SEMICONDUCTOR
TECHNICAL DATA

MG200M1UK1

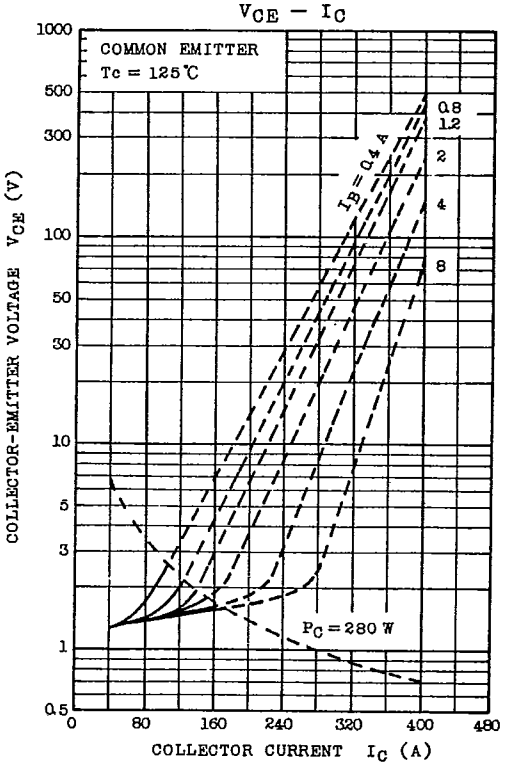
V_{CE} – I_C



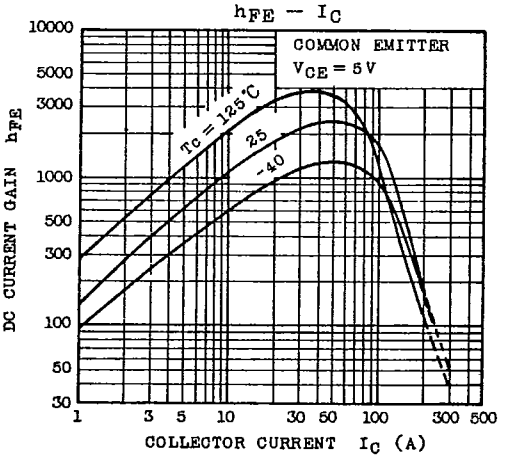
V_{CE} – I_C



V_{CE} – I_C



h_{FE} – I_C

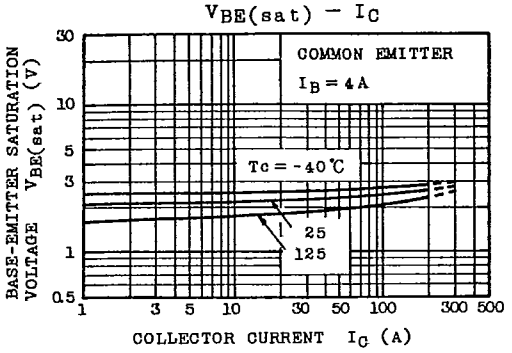


MG200M1UK1
TOSHIBA CORPORATION

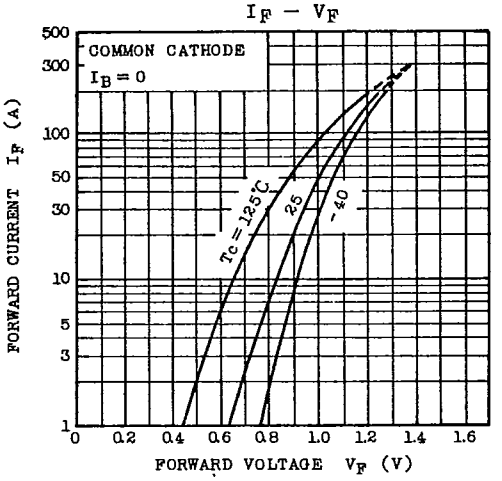
TOSHIBA SEMICONDUCTOR
TECHNICAL DATA

MG200M1UK1

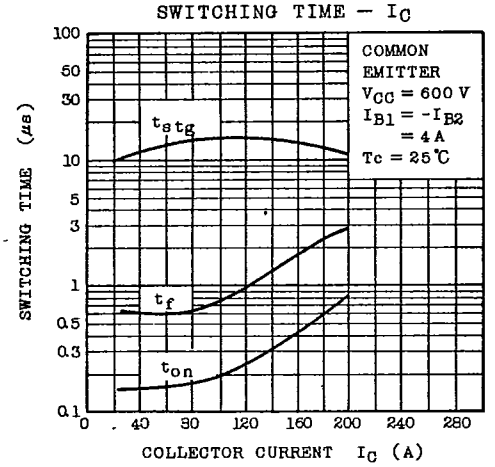
$V_{BE(sat)} - I_C$



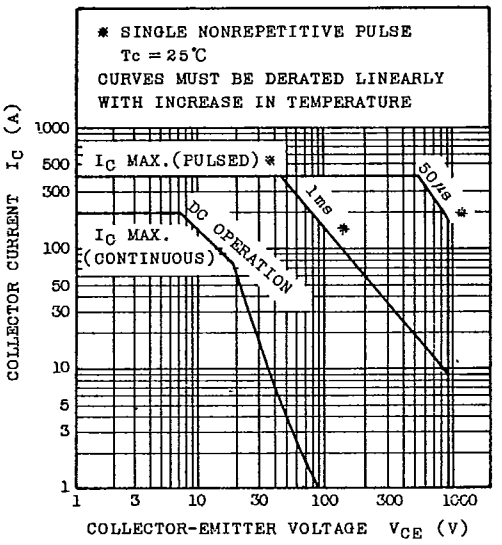
$I_F - V_F$



SWITCHING TIME — I_C



SAFE OPERATING AREA



REVERSE BIAS SOA