MG200H1AL2

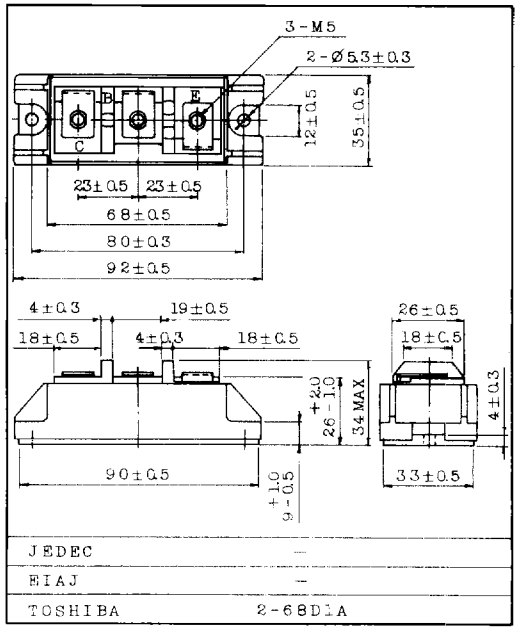
GTR MODULE
SILICON NPN TRIPLE DIFFUSED TYPE

HIGH POWER SWITCHING APPLICATIONS.
MOTOR CONTROL APPLICATIONS.

FEATURES:

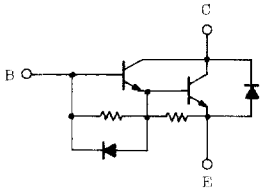
. The Collector is Isolated from Case.
. With Built-in Free Wheeling Diode.
. High DC Current Gain : h_{FE}=80(Min.)(I_C=200A)
. Low Saturation Voltage
: $V_{CE(sat)}$=2V(Max.)(I_C=200A)
. High Speed : t_f=4μs(Max.)(I_C=200A)

Unit in mm



Weight: 210g

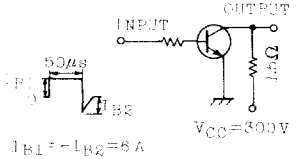
EQUIVALENT CIRCUIT

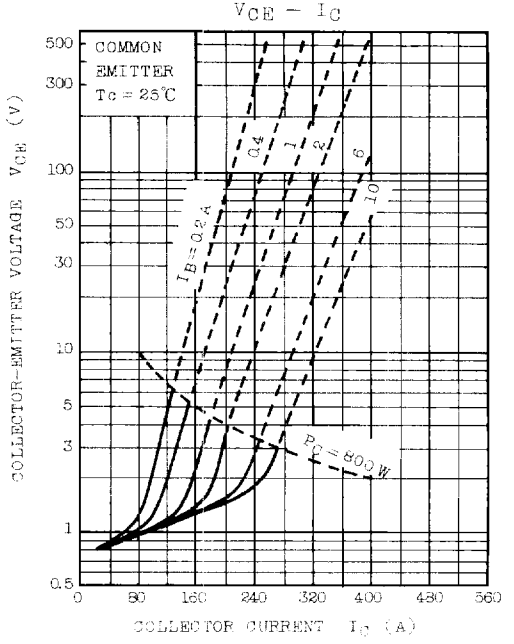


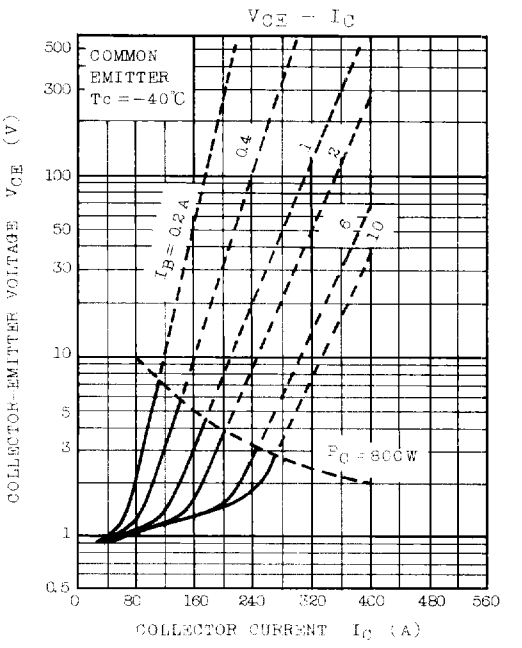
MAXIMUM RATINGS (Ta=25°C)

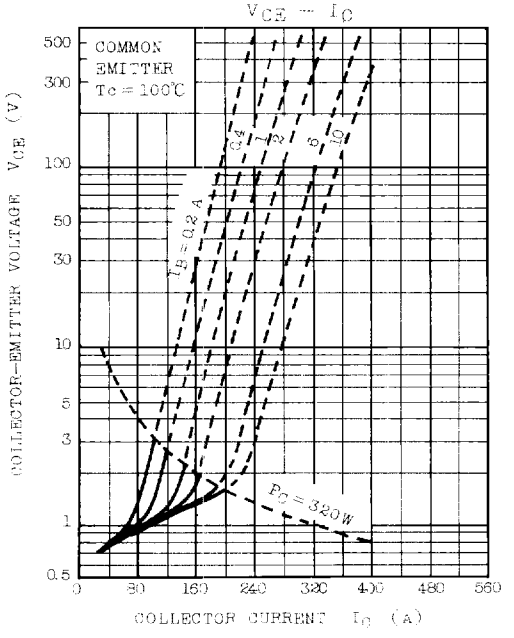
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	600	V
Collector-Emitter Sustaining Voltage		$V_{CEX(SUS)}$	600	V
Coll-ctor-Emitter Sustaining Voltage		$V_{CEO(SUS)}$	550	V
Emitter-Base Voltage		V_{EBO}	6	V
Collector Current	DC	I_C	200	A
	1ms	I_{CP}	400	A
Forward Current	DC	I_F	200	A
	1ms	I_{FM}	400	A
Base Current		I_B	25	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

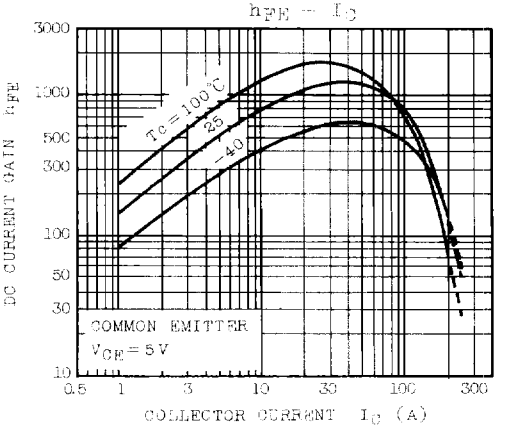
ELECTRICAL CHARACTERISTICS (Ta=25°C)

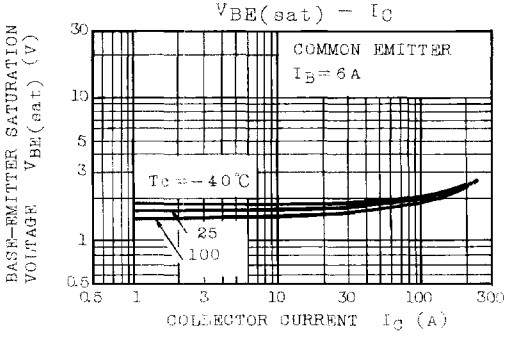
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB}=600V, I_E=0	-	-	2.0	mA
Emitter Cut-off Current		I_{EBO}	V_{EB}=6V, I_C=0	-	-	400	mA
Collector-Emitter Sustaining Voltage		$V_{CEO(SUS)}$	I_C=0.5A, L=40mH	550	-	-	V
DC Current Gain		h_{FE}	V_{CE}=5V, I_C=200A	80	-	-	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	I_C=200A, I_B=6A	-	-	2.0	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$		-	-	2.7	V
Switching Time	Turn-on Time	t_{on}	 I_{B1}=-I_{B2}=6A DUTY CYCLE=0.5%	-	-	2.0	μs
	Storage Time	t_{stg}		-	-	12	
	Fall Time	t_f		-	-	4.0	
Forward Voltage		V_F	I_F=200A, I_B=0	-	-	1.5	V
Reverse Recovery Time		t_{rr}	I_F=200A, V_{BE}=-3V di/dt=100A/μs	-	-	2.0	μs
Thermal Resistance		$R_{th(j-c)}$	Transistor	-	-	0.156	°C/W
			Diode	-	-	0.65	

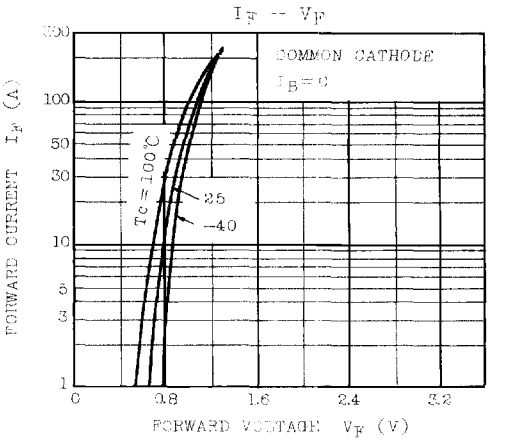

V_{CE} – I_C
COMMON EMITTER
Tc = 25°C
I_B = 0.2 A
0.4
1
2
6
10
P_C = 800 W
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)
COLLECTOR CURRENT I_C (A)

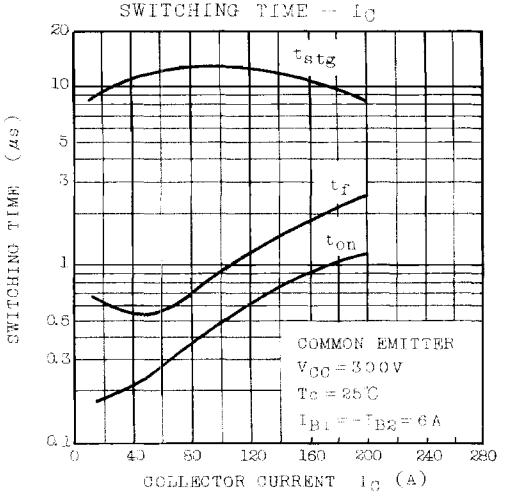

V_{CE} – I_C
COMMON EMITTER
Tc = −40°C
I_B = 0.2 A
0.4
1
2
6
10
P_C = 800 W
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)
COLLECTOR CURRENT I_C (A)

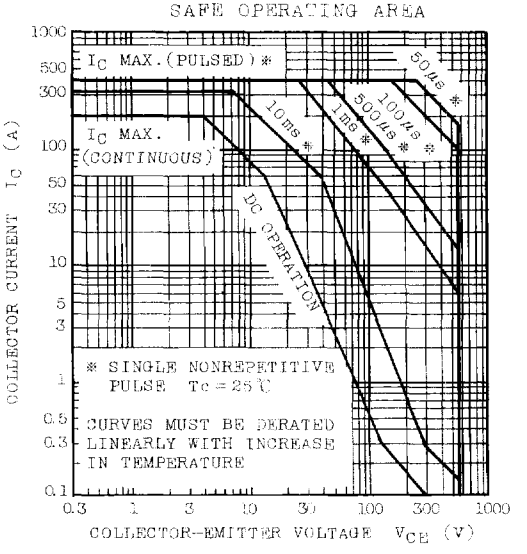

V_{CE} – I_C
COMMON EMITTER
Tc = 100°C
I_B = 0.2 A
0.4
1
2
6
10
P_C = 320 W
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)
COLLECTOR CURRENT I_C (A)

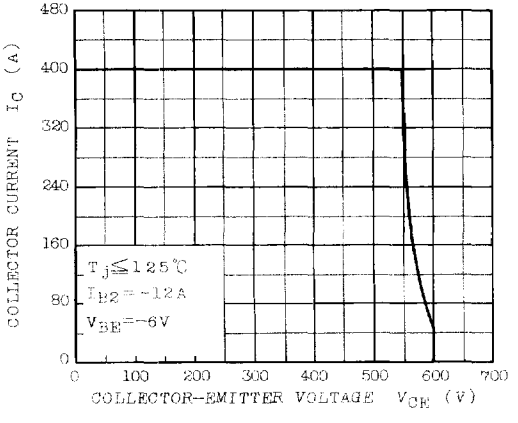

h_{FE} – I_C
T_c = 100°C
25
−40
COMMON EMITTER
V_{CE} = 5 V
DC CURRENT GAIN h_{FE}
COLLECTOR CURRENT I_C (A)


$V_{BE(sat)}$ – I_C
COMMON EMITTER
I_B = 6A
Tc = −40°C
25
100
BASE–EMITTER SATURATION VOLTAGE $V_{BE(sat)}$ (V)
COLLECTOR CURRENT I_C (A)


I_F – V_F
COMMON CATHODE
I_B = 0
Tc = 100°C
25
−40
FORWARD CURRENT I_F (A)
FORWARD VOLTAGE V_F (V)


SWITCHING TIME – I_C
t_{stg}
t_f
t_{on}
COMMON EMITTER
V_{CC} = 300V
Tc = 25°C
I_{B1} = −I_{B2} = 6A
SWITCHING TIME (μs)
COLLECTOR CURRENT I_C (A)


SAFE OPERATING AREA
I_C MAX. (PULSED) *
I_C MAX. (CONTINUOUS)
50μs *
100μs *
500μs *
1ms *
10ms *
DC OPERATION
* SINGLE NONREPETITIVE PULSE Tc = 25°C
CURVES MUST BE DERATED LINEARLY WITH INCREASE IN TEMPERATURE
COLLECTOR CURRENT I_C (A)
COLLECTOR–EMITTER VOLTAGE V_{CE} (V)


REVERSE BIAS SOA
$T_j \leqq 125°C$
I_{B2} = −12A
V_{BE} = −6V
COLLECTOR CURRENT I_C (A)
COLLECTOR–EMITTER VOLTAGE V_{CE} (V)