SILICON NPN TRIPLE DIFFUSED TYPE
(DARLINGTON POWER MODULE)

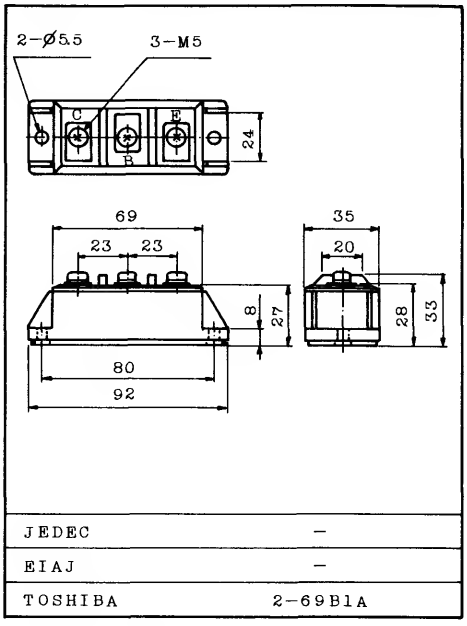
MG200H1AL1

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)

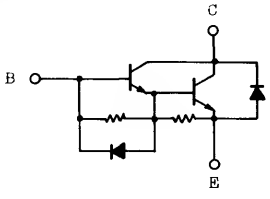
Unit in mm



JEDEC	—
EIAJ	—
TOSHIBA	2-69B1A

Weight : 227g

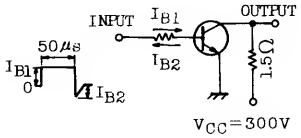
EQUIVALENT CIRCUIT



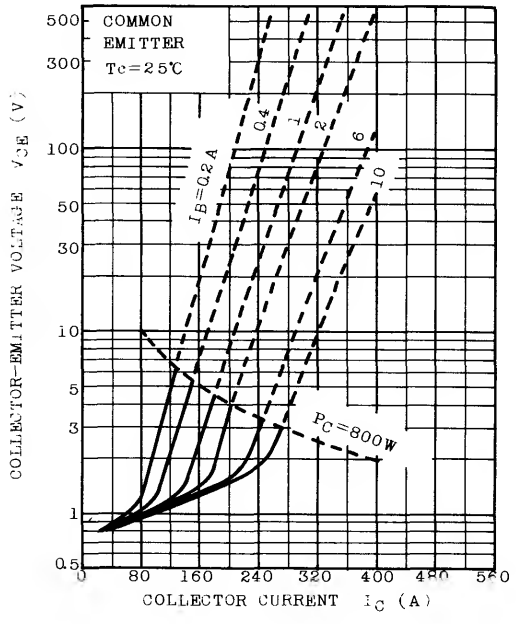
MAXIMUM RATINGS (T_a=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	600	V
Collector-Emitter Voltage		$V_{CEO(SUS)}$	550	V
Emitter-Base Voltage		V_{EBO}	6	V
Collector Current	DC	I_C	200	A
	Pulse	I_{CP}	400	A
	DC	$-I_C$	200	A
Base Current		I_B	8	A
Collector Power Dissipation (T_c=25°C)		P_C	800	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-40 ~ 125	°C
Isolation Voltage		V_{Isol}	2000(AC 1 Minute)	V
Screw Torque		-	30	kg·cm

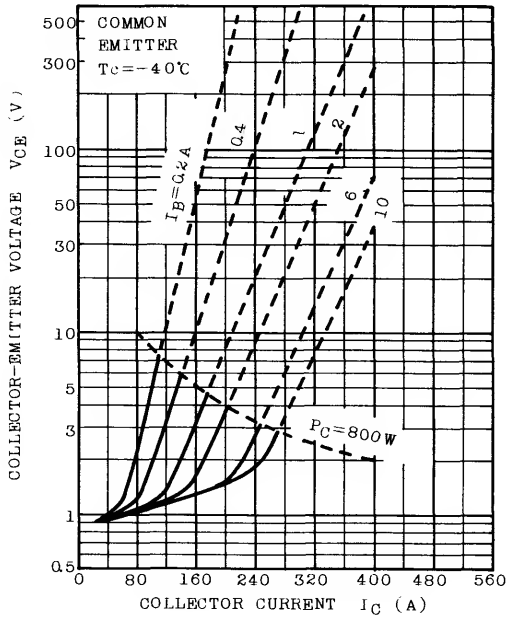
ELECTRICAL CHARACTERISTICS ($Ta=25^{o}C$)

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
Emitter-Collector Voltage		V_{ECO}	I_E=200A, I_B=0	-	-	1.5	V
Reverse Recovery Time		t_{rr}	$-I_C$=200A, V_{EB}=3V V_{CE}=300V	-	-	2.0	μs
Collector Output Capacitance		C_{ob}	V_{CB}=50V, I_E=0 f=1MHz	-	1650	-	pF
Switching Time	Turn-on Time	t_{on}		-	-	2.0	μs
	Storage Time	t_{stg}		-	-	12	
	Fall Time	t_f	$I_{B1}=-I_{B2}$=6A DUTY CYCLE=0.5%	-	-	4.0	
Thermal Resistance (Junction to Case)		$R_{th(j-c)}$	Transistor	-	-	0.156	^{o}C/W
			Diode	-	-	0.65	

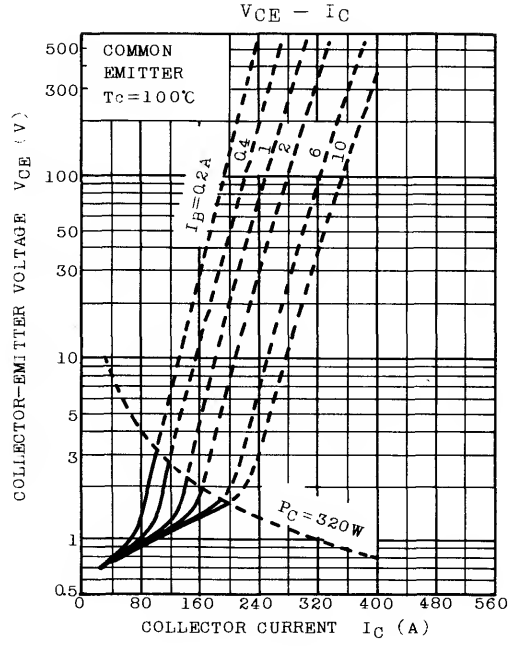
V_{CE} – I_C



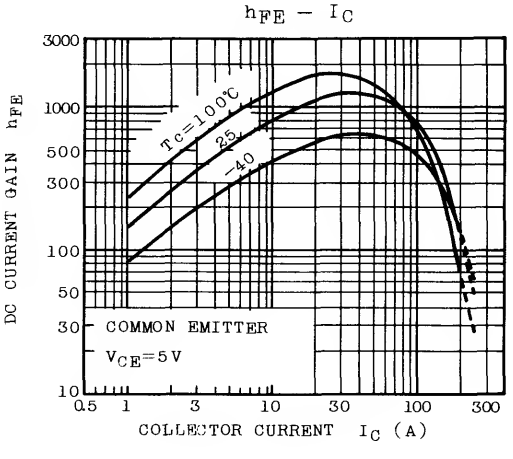
V_{CE} – I_C



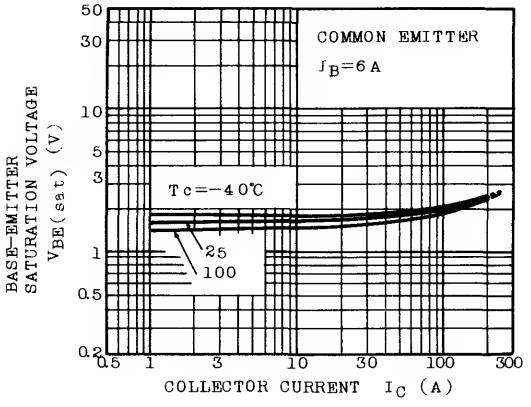
V_{CE} – I_C



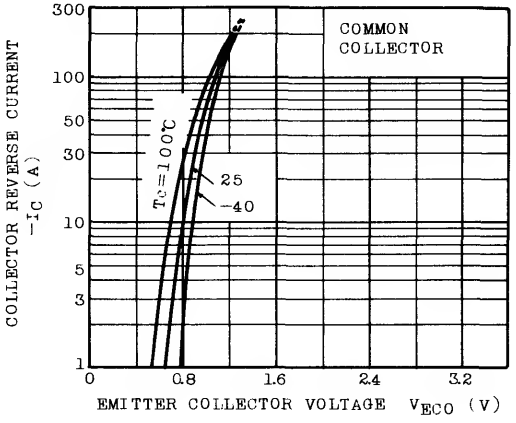
h_{FE} – I_C



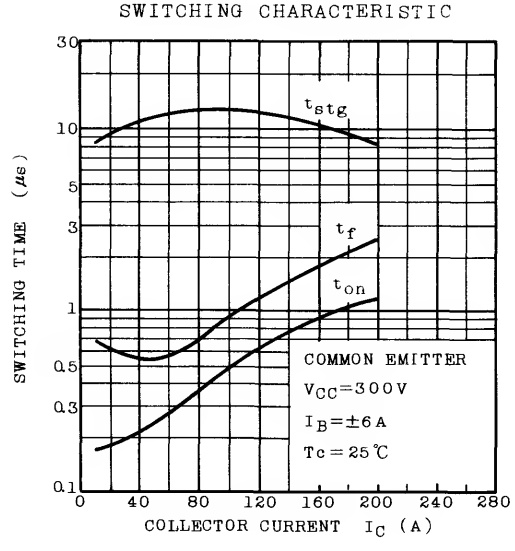
$V_{BE(sat)} - I_C$



$-I_C - V_{ECO}$



SWITCHING CHARACTERISTIC



SAFE OPERATING AREA