SEMICONDUCTOR

TECHNICAL DATA

TOSHIBA G-TR MODULE

MG15G1AL3

SILICON NPN TRIPLE DIFFUSED TYPE

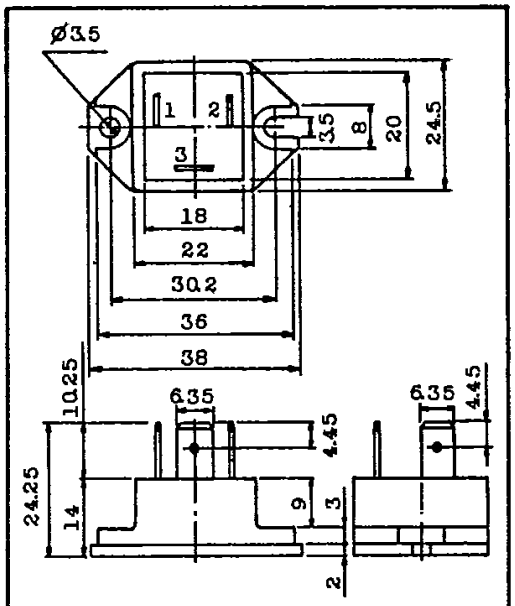
HIGH POWER SWITCHING APPLICATIONS.

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=15A)
- Low Saturation Voltage : $V_{CE(sat)}$=2V(Max.) (I_C=15A)
- High Speed : t_f=2μs(Max.) (I_C=15A)

Unit in mm

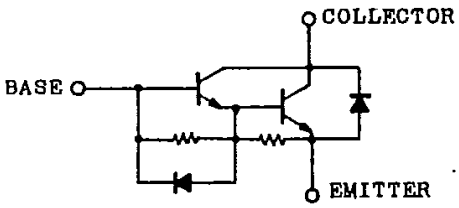


1. BASE
2. EMITTER
3. COLLECTOR

JEDEC	—
EIAJ	—
TOSHIBA	2-22B1A

Weight : 28g

EQUIVALENT CIRCUIT



MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	600	V
Collector-Emitter Voltage		V_{CEO}	600	V
Collector-Emitter Sustaining Voltage		$V_{CEO(SUS)}$	450	V
Emitter-Base Voltage		V_{EBO}	6	V
Collector Current	DC	I_C	15	A
	1ms	I_C	30	A
	DC	$-I_C$	15	A
Base Current		I_B	1	A
Collector Power Dissipation (Tc=25°C)		P_C	120	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			10	kg·cm

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Toshiba 東芝 SEMICONDUCTOR

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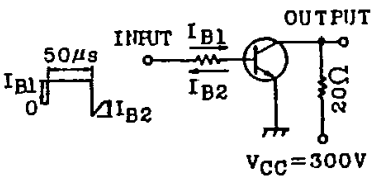
ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB}=600V, I_E=0	-	-	1.0	mA
Emitter Cut-off Current		I_{EBO}	V_{EB}=6V, I_C=0	-	-	100	mA
Collector-Emitter Sastaining Voltage		$V_{CEO(SUS)}$	I_C=0.5A, L=40mH	450	-	-	V
DC Current Gain		h_{FE}	V_{CE}=5V, I_C=15A	100	-	-	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	I_C=15A, I_B=0.4A	-	-	2.0	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$		-	-	2.5	V
Emitter-Collector Voltage		V_{ECO}	I_E=15A, I_B=0	-	-	1.5	V
Reverse Recovery Time		t_{rr}	-I_C=15A, V_{EB}=3V V_{CE}=300V	-	-	2.0	μs
Collector Output Capacitance		C_{ob}	V_{CB}=50V, I_E=0, f=1MHz	-	190	-	pF
Switching Time	Turn-on Time	t_{on}	 I_{B1}=-I_{B2}=0.4A DUTY CYCLE=0.5%	-	-	1.0	μs
	Storage Time	t_{stg}		-	-	12	
	Fall Time	t_f		-	-	2.0	
Thermal Resistance (Junction to Case)		$R_{th(j-c)}$	Transistor	-	-	1.0	°C/W
			Diode	-	-	3.5	

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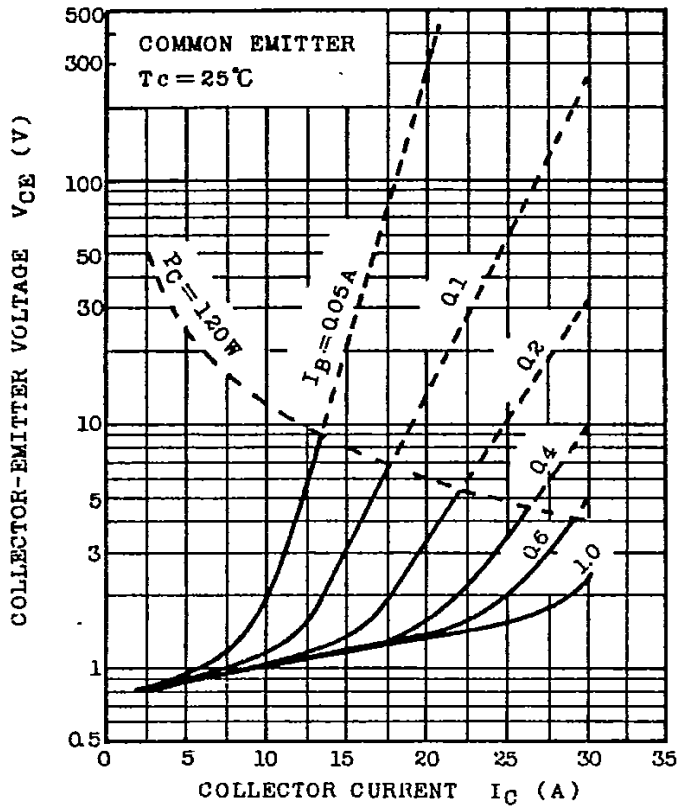
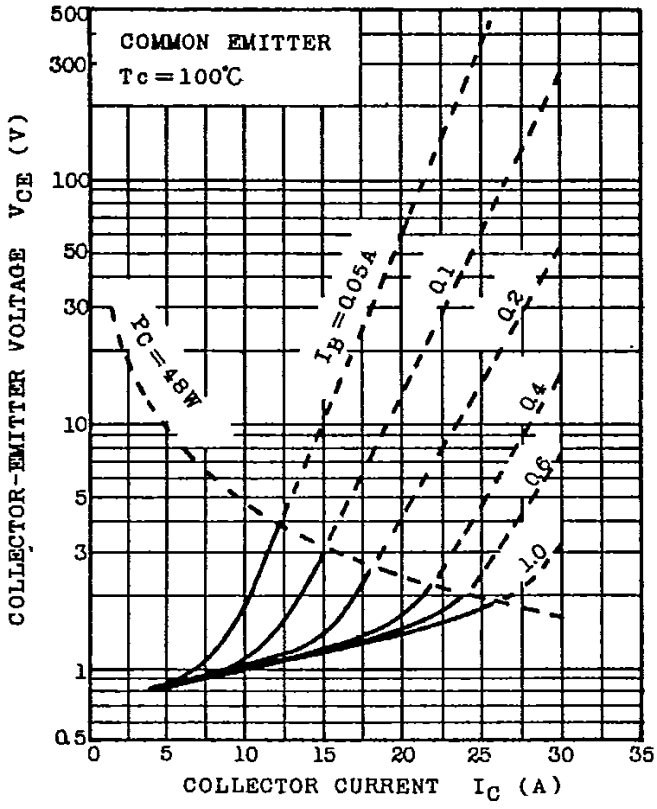
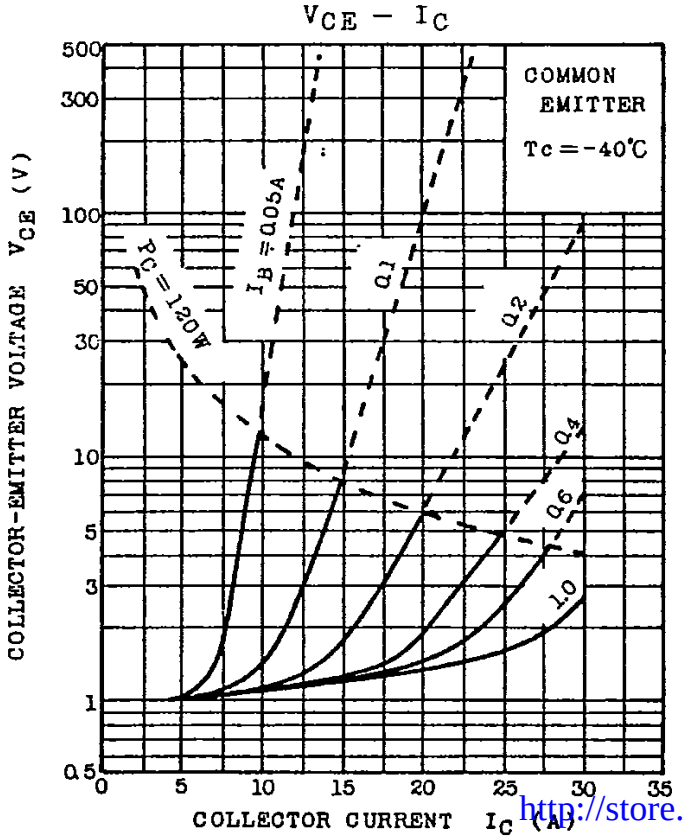
V_{CE} – I_C



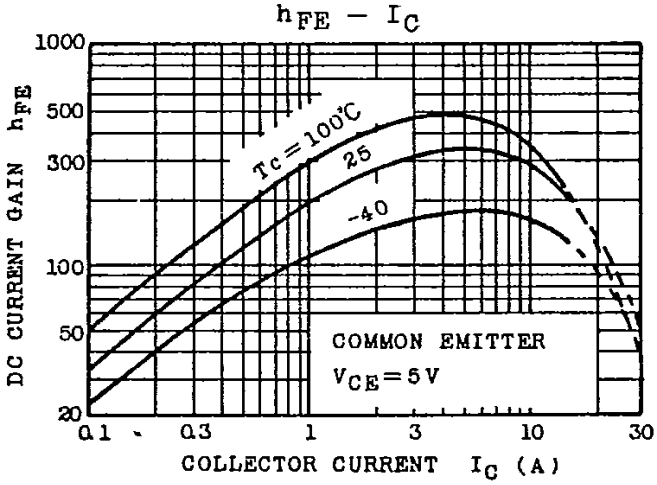
V_{CE} – I_C



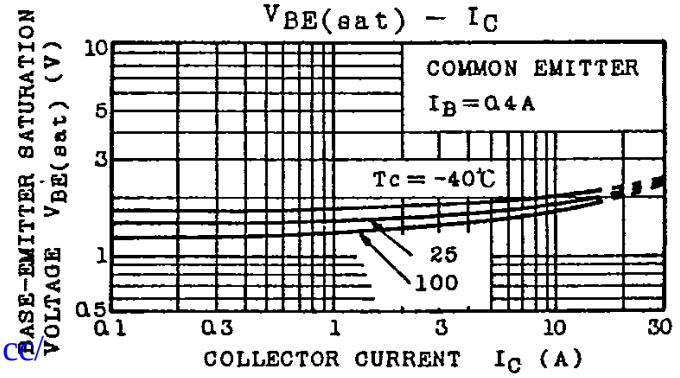
V_{CE} – I_C



h_{FE} – I_C



$V_{BE(sat)}$ – I_C



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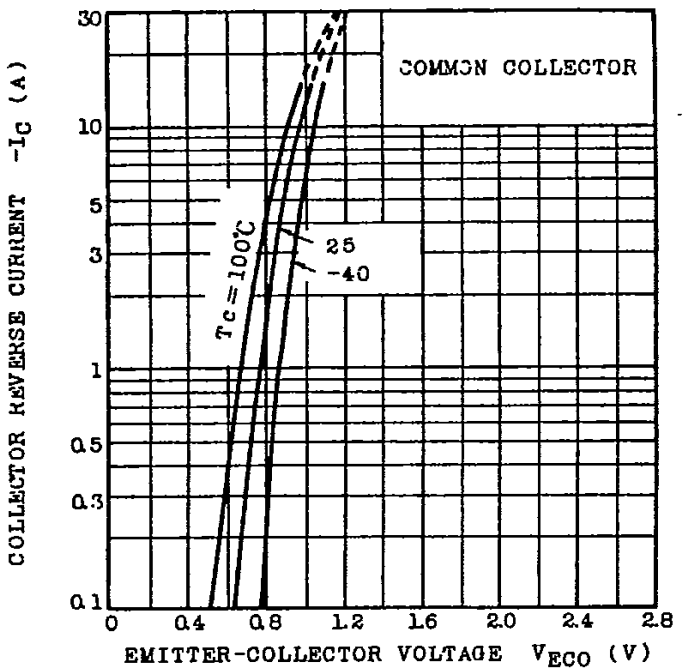
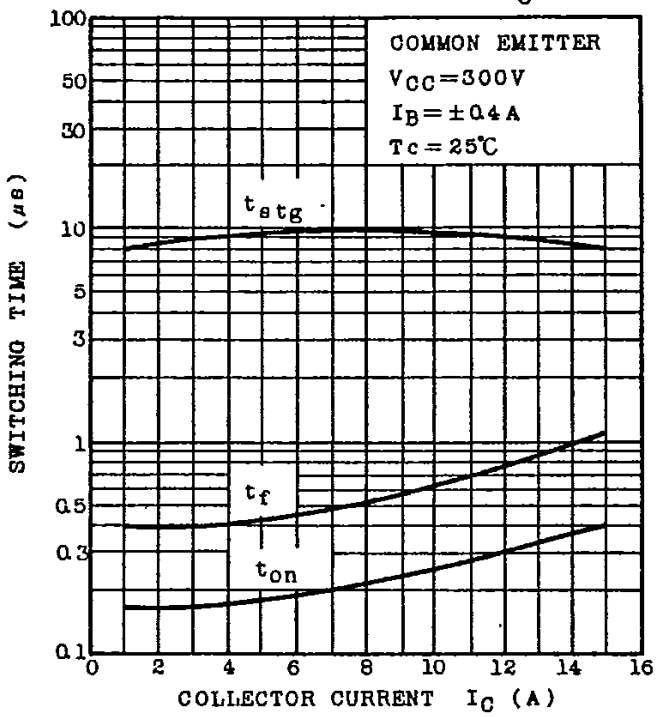
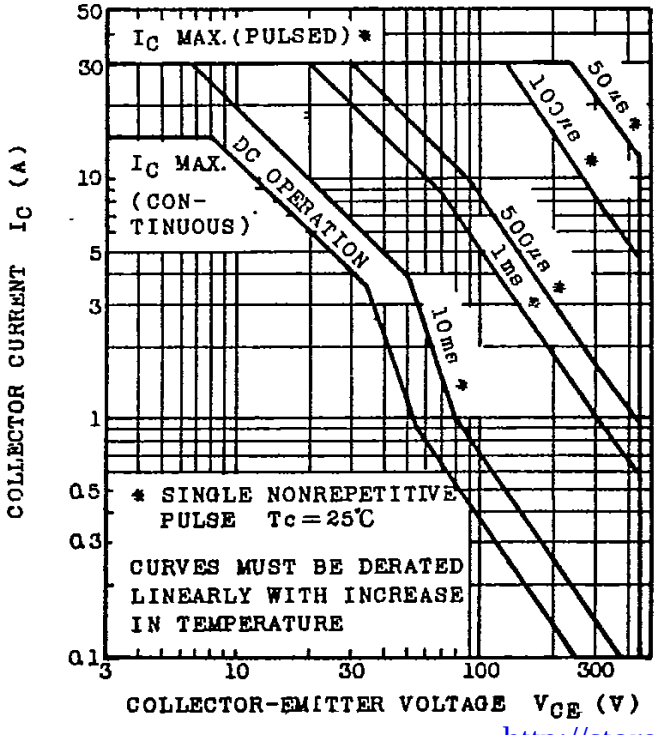
$-I_C - V_{ECO}$



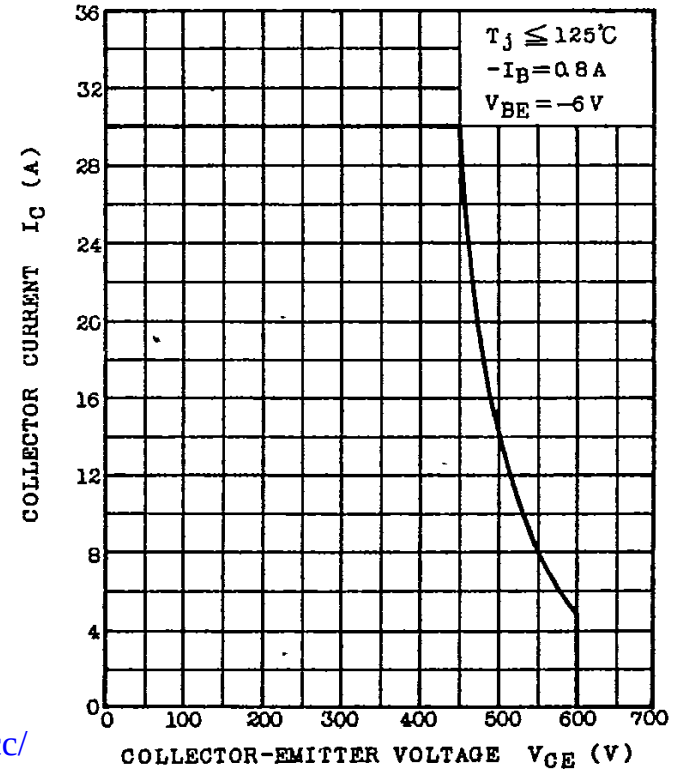
SWITCHING TIME — I_C



SAFE.OPERATING AREA



REVERSE BIAS SOA



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