



SEMICONDUCTOR

TECHNICAL DATA

TOSHIBA G-TR MODULE

MG15G1AL3

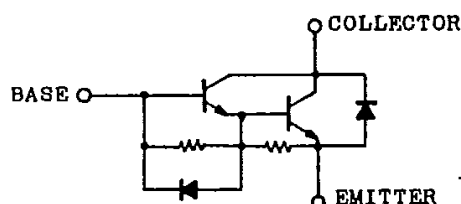
SILICON NPN TRIPLE DIFFUSED TYPE

HIGH POWER SWITCHING APPLICATIONS.
MOTOR CONTROL APPLICATIONS.

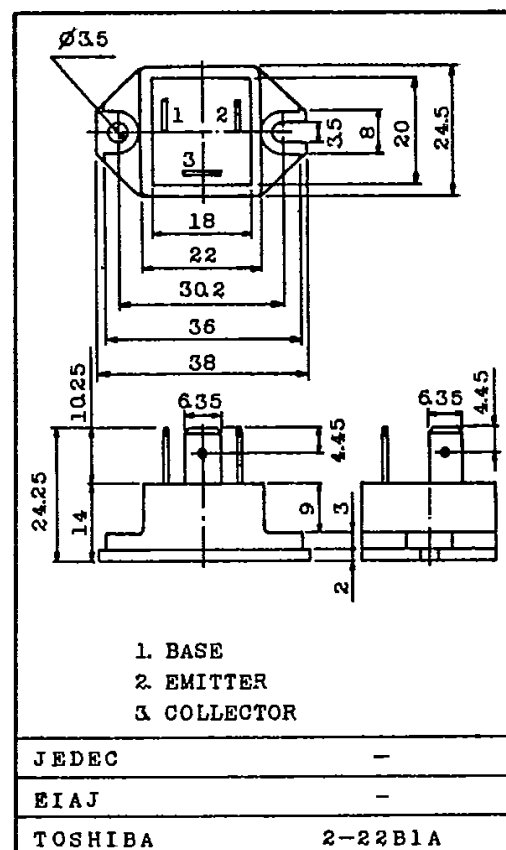
FEATURES:

- The Collector is Isolated from Case.
- With Built-in Free Wheeling Diode.
- High DC Current Gain : $h_{FE}=100(\text{Min.})$ ($I_C=15\text{A}$)
- Low Saturation Voltage : $V_{CE}(\text{sat})=2\text{V}(\text{Max.})$ ($I_C=15\text{A}$)
- High Speed : $t_f=2\mu\text{s}(\text{Max.})$ ($I_C=15\text{A}$)

EQUIVALENT CIRCUIT



Unit in mm



Weight : 28g

MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	600	V
Collector-Emitter Voltage		V_{CEO}	600	V
Collector-Emitter Sustaining Voltage		$V_{CEO}(\text{SUS})$	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 ($T_c=25^\circ\text{C}$)		P_C	120	W
Junction Temperature		T_j	150	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	-40 ~ 125	$^\circ\text{C}$
Isolation Voltage		V_{isol}	2500 (AC 1 Minute)	V
Screw Torque			10	kg·cm

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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 Sustaining 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}		-	-	1.0	μs
	Storage Time	t_{stg}		-	-	12	
	Fall Time	t_f		$I_{B1}=-I_{B2}=0.4A$ DUTY CYCLE=0.5%	-	-	
Thermal Resistance (Junction to Case)		$R_{th(j-c)}$	Transistor	-	-	1.0	$^{\circ}C/W$
			Diode	-	-	3.5	

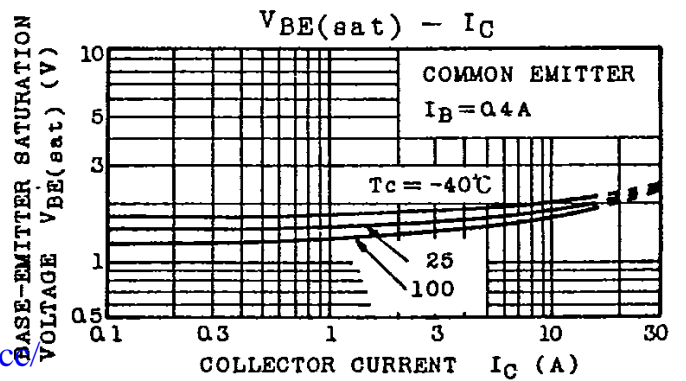
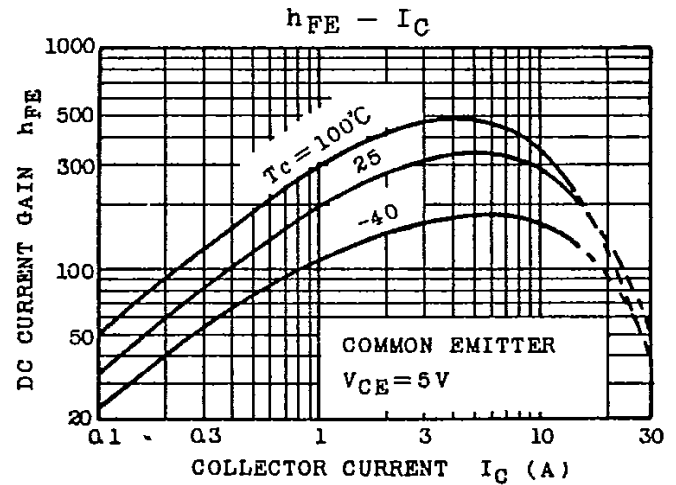
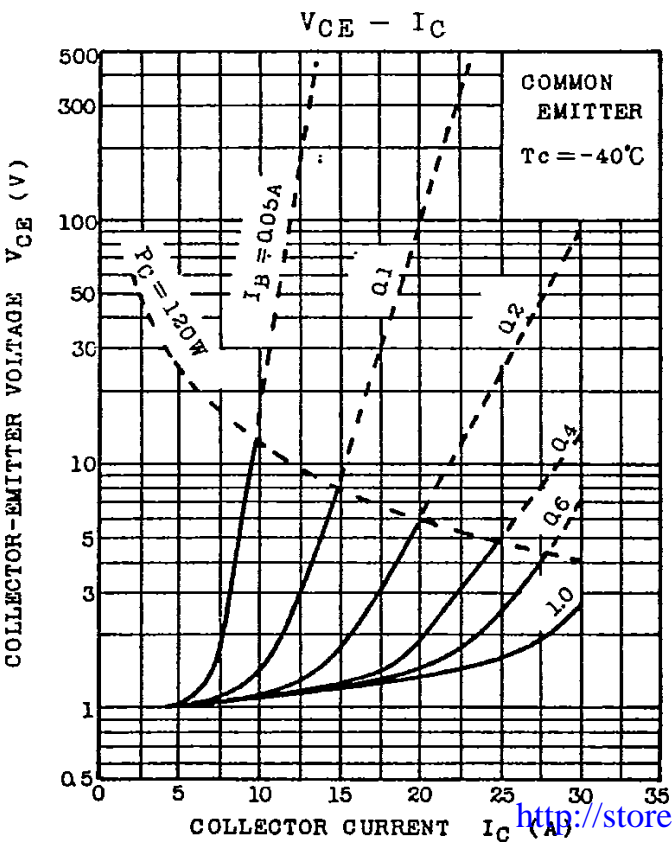
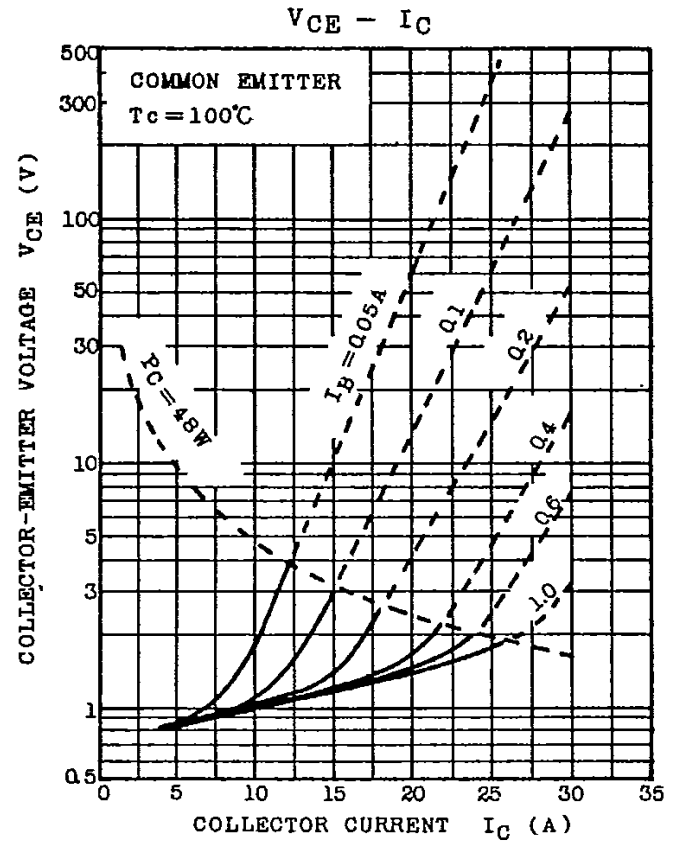
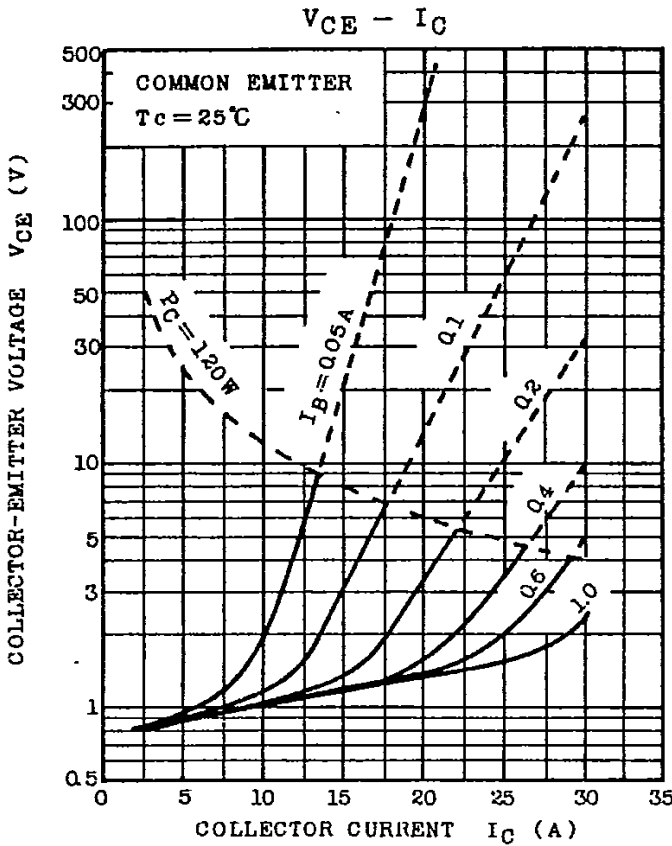
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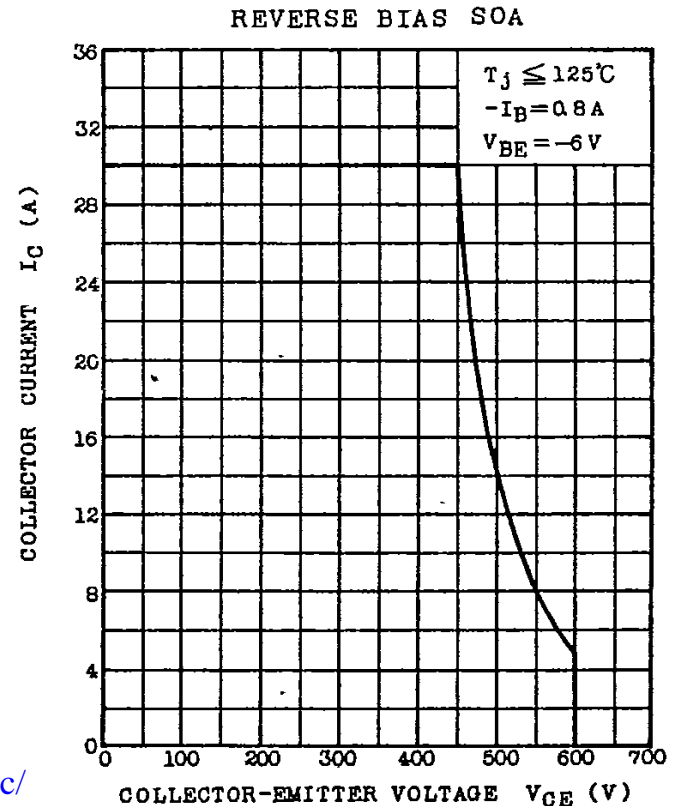
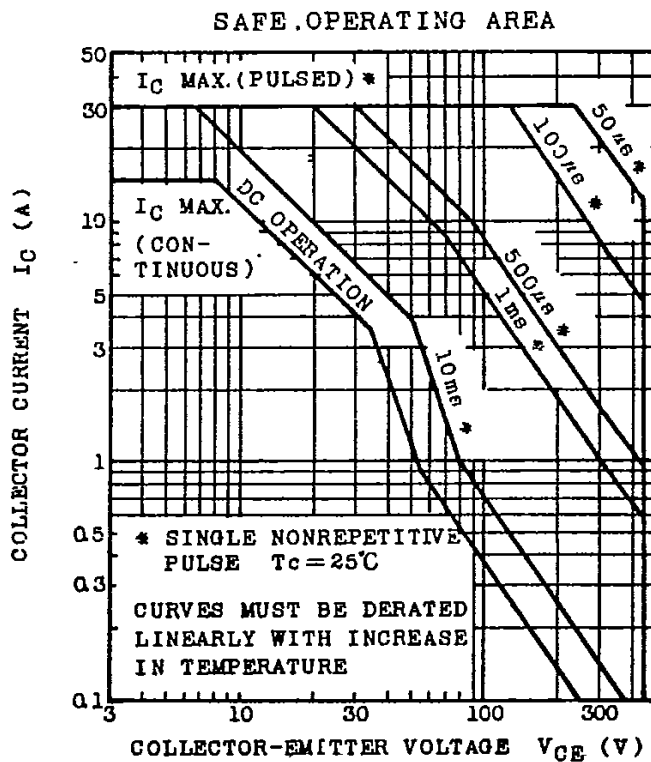
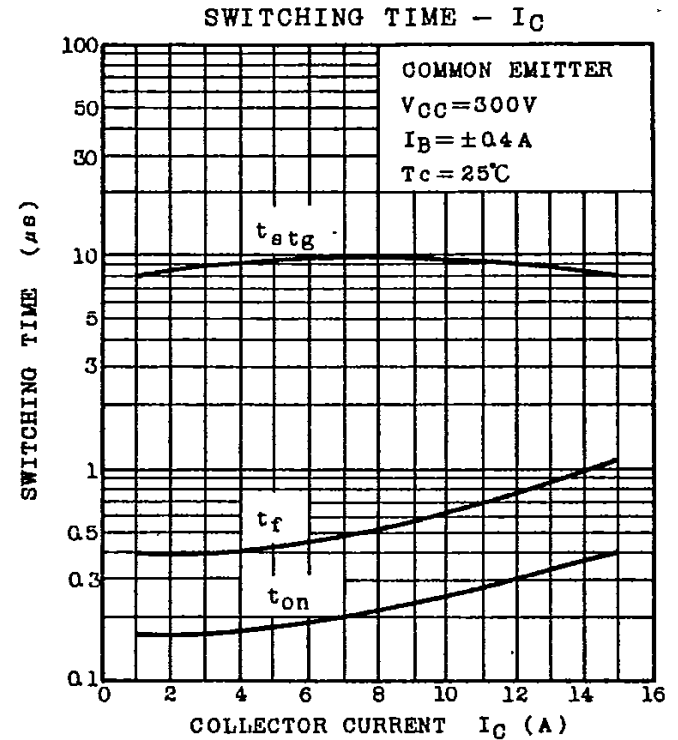
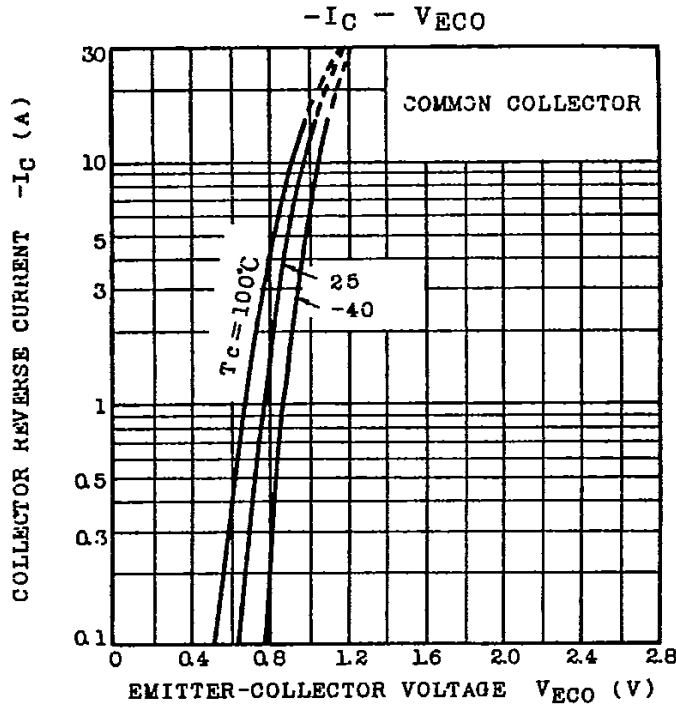
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