



SEMICONDUCTOR

TECHNICAL DATA

TOSHIBA G-TR MODULE

MG15G1AL3

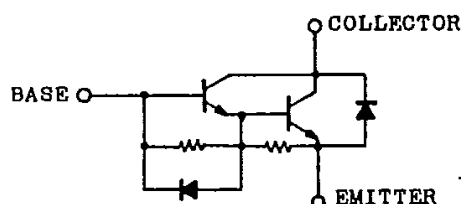
SILICON NPN TRIPLE DIFFUSED TYPE

HIGH POWER SWITCHING APPLICATIONS.  
MOTOR CONTROL APPLICATIONS.

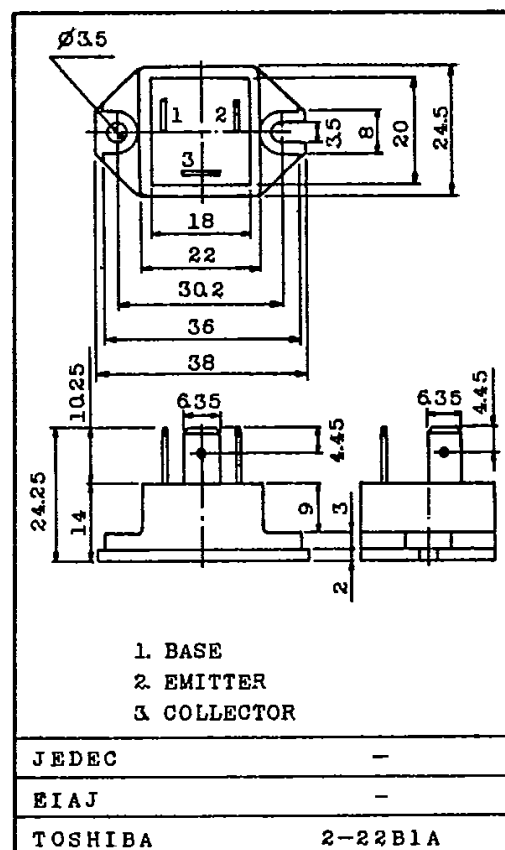
## FEATURES:

- 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

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

Weight : 28g

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
	1ms	$I_C$	30
	DC	$-I_C$	15
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	$V_{\text{isol}}$	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		ICBO	V <sub>CB</sub> =600V, I <sub>E</sub> =0	-	-	1.0	mA
Emitter Cut-off Current		IEBO	VEB=6V, IC=0	-	-	100	mA
Collector-Emitter Sustaining Voltage		V <sub>CEO(SUS)</sub>	IC=0.5A, L=40mH	450	-	-	V
DC Current Gain		h <sub>FE</sub>	V <sub>CE</sub> =5V, IC=15A	100	-	-	
Collector-Emitter Saturation Voltage		V <sub>CE(sat)</sub>	IC=15A, IB=0.4A	-	-	2.0	V
Base-Emitter Saturation Voltage		V <sub>BE(sat)</sub>		-	-	2.5	V
Emitter-Collector Voltage		VECO	IE=15A, IB=0	-	-	1.5	V
Reverse Recovery Time		t <sub>rr</sub>	-IC=15A, VEB=3V VCE=300V	-	-	2.0	μs
Collector Output Capacitance		C <sub>ob</sub>	V <sub>CB</sub> =50V, IE=0, f=1MHz	-	190	-	pF
Switching Time	Turn-on Time	t <sub>on</sub>		-	-	1.0	μs
	Storage Time	t <sub>stg</sub>		-	-	12	
	Fall Time	t <sub>f</sub>		I <sub>B1</sub> =-I <sub>B2</sub> =0.4A DUTY CYCLE=0.5%	-	-	
Thermal Resistance (Junction to Case)		R <sub>th(j-c)</sub>	Transistor	-	-	1.0	°C/W
			Diode	-	-	3.5	

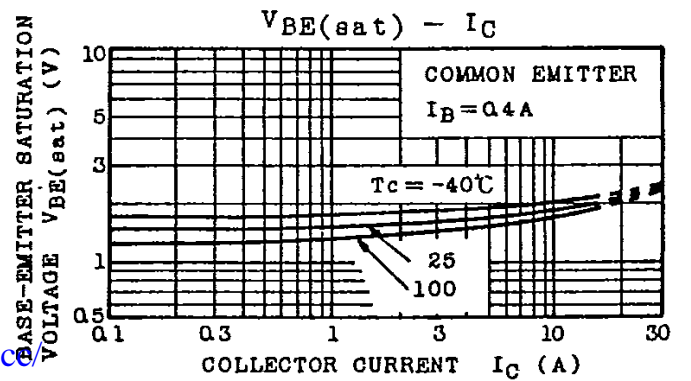
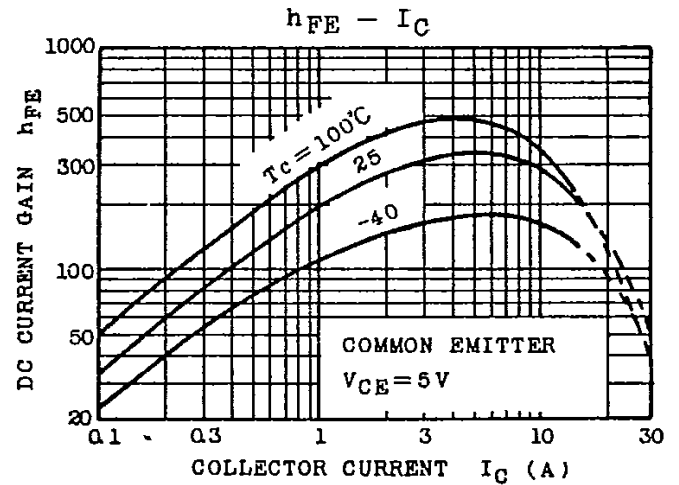
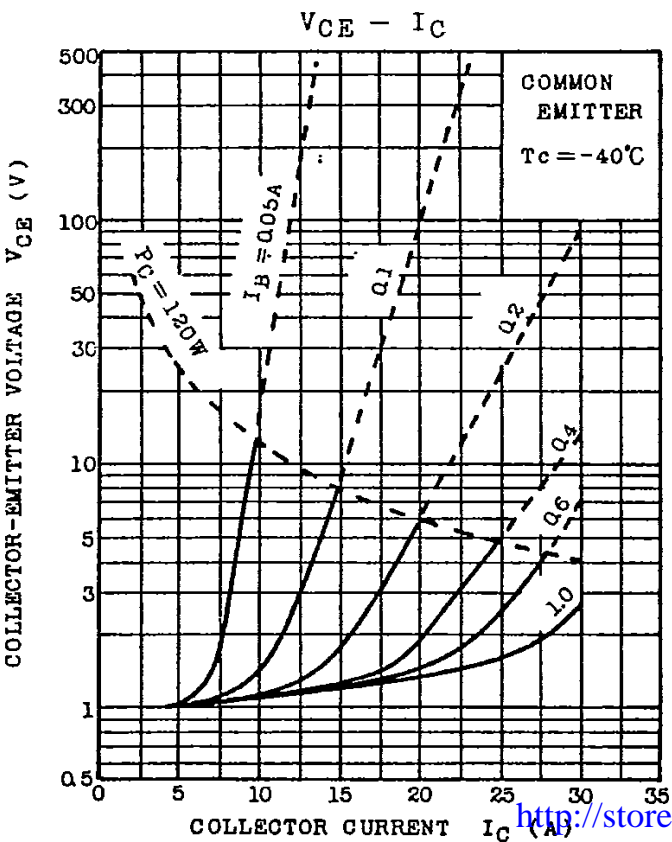
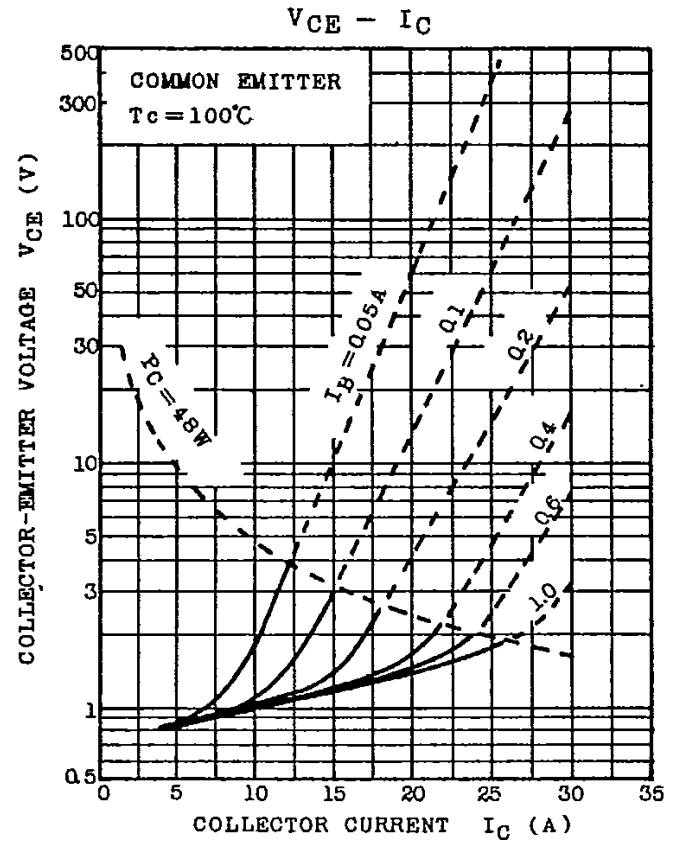
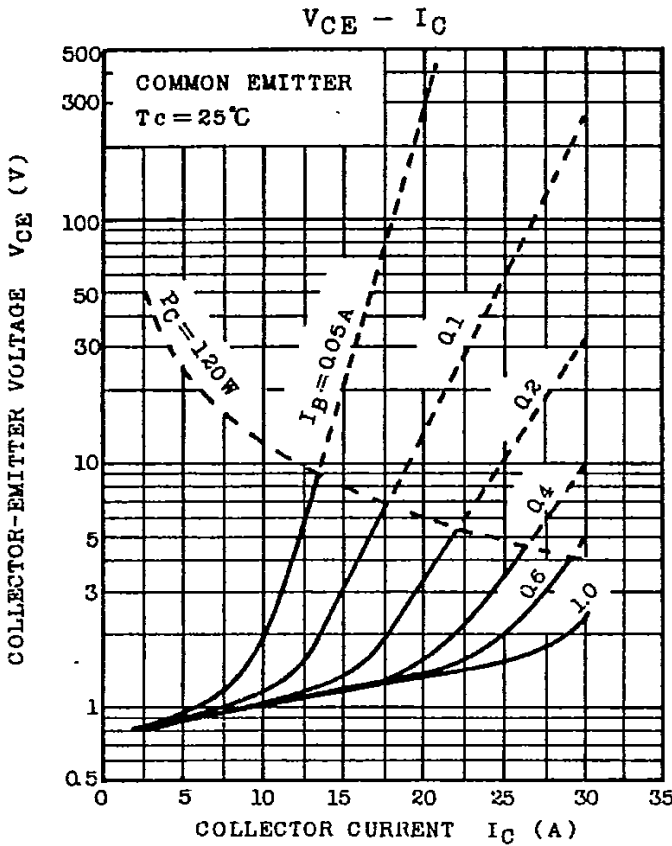
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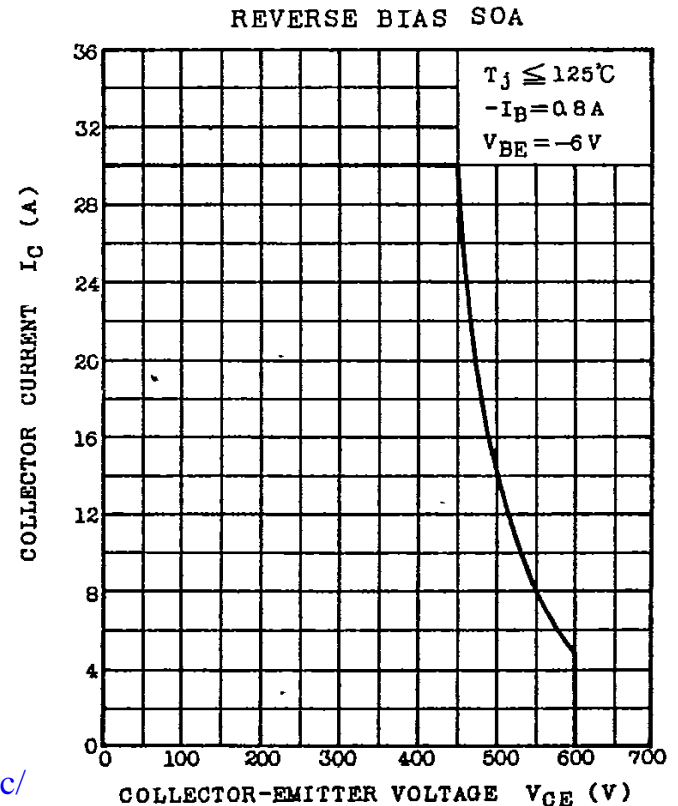
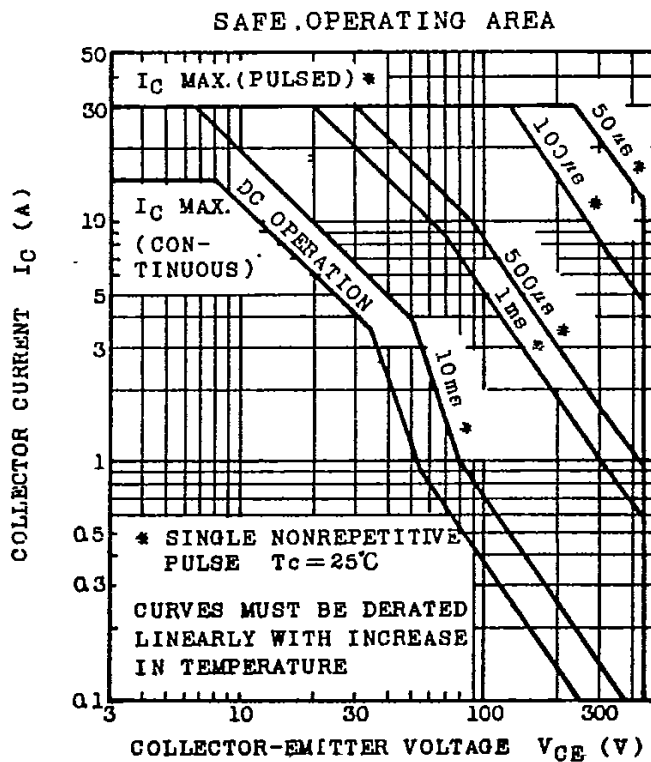
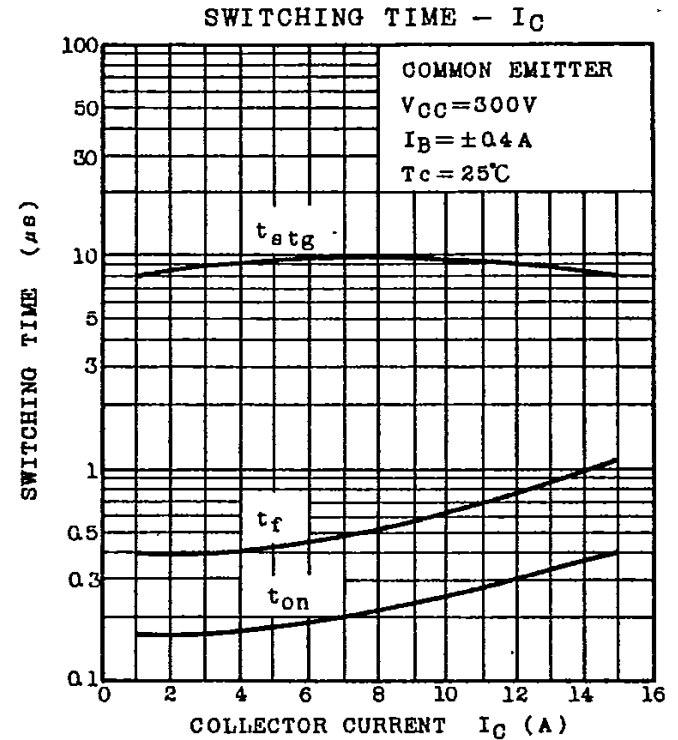
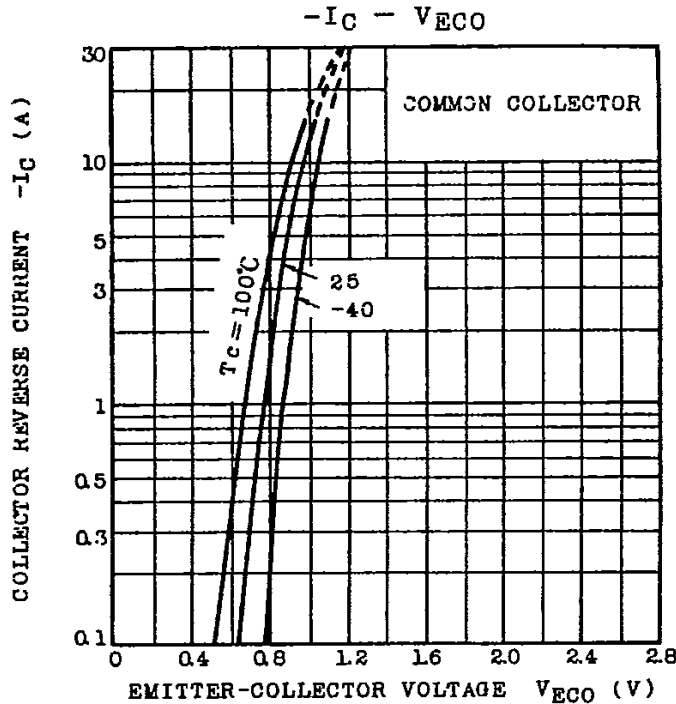
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