



SEMICONDUCTOR

TECHNICAL DATA

TOSHIBA G-TR MODULE

MG15G1A13

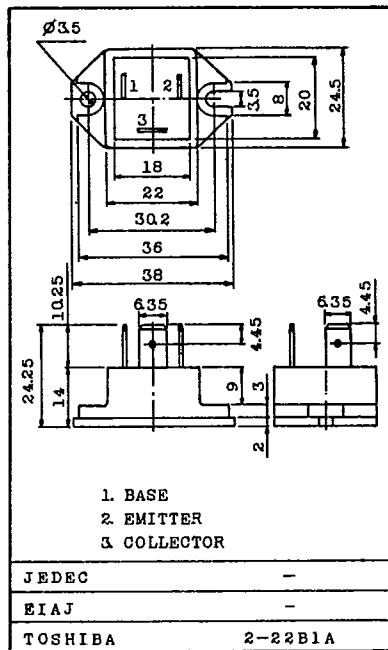
SILICON NPN TRIPLE DIFFUSED TYPE

HIGH POWER SWITCHING APPLICATIONS.
MOTOR CONTROL APPLICATIONS.

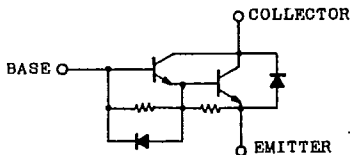
Unit in mm

FEATURES:

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



EQUIVALENT CIRCUIT



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

Weight : 28g

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CB0}	600	V
Collector-Emitter Voltage	V_{CE0}	600	V
Collector-Emitter Sustaining Voltage	$V_{CE0(SUS)}$	450	V
Emitter-Base Voltage	V_{EB0}	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 ($T_c=25^\circ C$)	P_C	120	W
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature Range	T_{stg}	-40 ~ 125	$^\circ C$
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%		-	-	2.0	
Thermal Resistance (Junction to Case)	$R_{th(j-c)}$	Transistor	-	-	1.0	°C/W		
		Diode	-	-	3.5			

