



SEMICONDUCTOR

東芝

TECHNICAL DATA

TOSHIBA G-TR MODULE

MG15G1A1.3

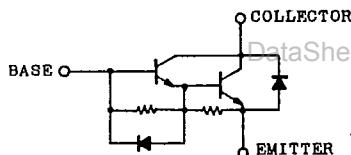
SILICON NPN TRIPLE DIFFUSED TYPE

HIGH POWER SWITCHING APPLICATIONS.
MOTOR CONTROL APPLICATIONS.

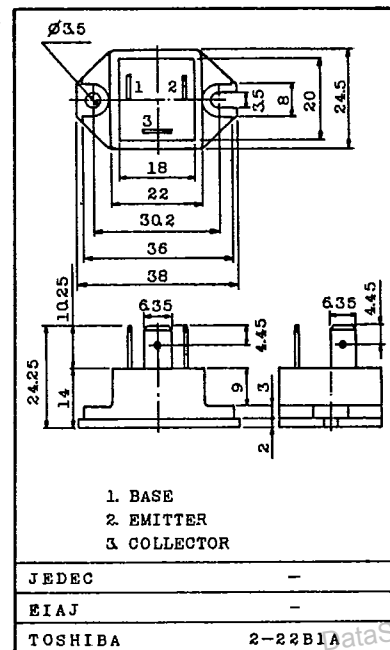
FEATURES:

- The Collector is Isolated from Case.
- With Built-in Free Wheeling Diode.
- High DC Current Gain : $h_{FE}=100(\text{Min.})$ ($I_C=15A$)
- 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



Unit in mm



JEDEC	-
EIAJ	-
TOSHIBA	2-22B1A

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

Weight : 28g

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	600	V
Collector-Emitter Voltage		V_{CEO}	600	V
Collector-Emitter Sustaining Voltage		$V_{CEO(SUS)}$	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 ($T_c=25^\circ C$)		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

ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB}=600\text{V}$, $I_E=0$	-	-	1.0	mA
Emitter Cut-off Current		I_{EBO}	$V_{EB}=6\text{V}$, $I_C=0$	-	-	100	mA
Collector-Emitter Sustaining Voltage		$V_{CEO(SUS)}$	$I_C=0.5\text{A}$, $L=40\text{mH}$	450	-	-	V
DC Current Gain		h_{FE}	$V_{CE}=5\text{V}$, $I_C=15\text{A}$	100	-	-	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C=15\text{A}$, $I_B=0.4\text{A}$	-	-	2.0	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$		-	-	2.5	V
Emitter-Collector Voltage		V_{ECO}	$I_E=15\text{A}$, $I_B=0$	-	-	1.5	V
Reverse Recovery Time		t_{rr}	$-I_C=15\text{A}$, $V_{EB}=3\text{V}$ $V_{CE}=300\text{V}$	-	-	2.0	μs
Collector Output Capacitance		C_{ob}	$V_{CB}=50\text{V}$, $I_E=0$, $f=1\text{MHz}$	-	190	-	pF
Switching Time	Turn-on Time	t_{on}		-	-	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	$^\circ\text{C/W}$
			Diode	-	-	3.5	

