

TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

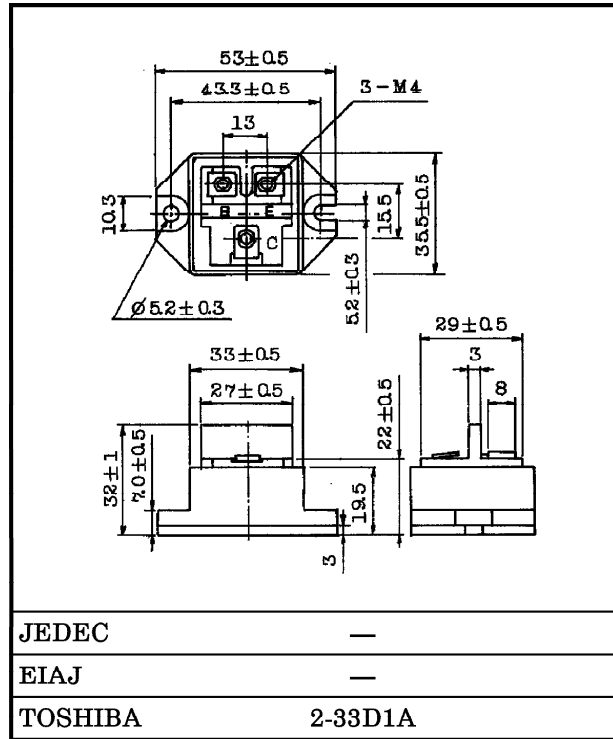
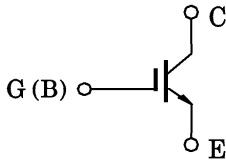
# MG50Q1BS11

HIGH POWER SWITCHING APPLICATIONS.  
MOTOR CONTROL APPLICATIONS.

Unit in mm

- High Input Impedance
- High Speed :  $t_f = 1.0 \mu s$  (Max.)
- Low Saturation Voltage:  $V_{CE(sat)} = 2.7V$  (Max.)
- Enhancement-Mode
- The Electrodes are Isolated from Case.

EQUIVALENT CIRCUIT



Weight : 90g

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	$V_{CES}$	1200	V
Gate-Emitter Voltage	$V_{GES}$	± 20	V
Collector Current	DC	$I_C$	50
	1ms	$I_{CP}$	100
Collector Power Dissipation (Tc = 25°C)	$P_C$	300	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 (Terminal / Mounting)	—	2 / 3	N · m

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		$I_{GES}$	$V_{GE} = \pm 20V, V_{CE} = 0$	—	—	$\pm 500$	nA
Collector Cut-off Current		$I_{CES}$	$V_{CE} = 1200V, V_{GE} = 0$	—	—	1.0	mA
Collector-Emitter Voltage		$V_{CES}$	$I_C \leq 1mA, V_{GE} = 0$ Note 1	1200	—	—	V
Gate-Emitter Cut-off Voltage		$V_{GE(OFF)}$	$I_C = 50mA, V_{CE} = 5V$	3.0	—	6.0	V
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 50A, V_{GE} = 15V$	—	2.3	2.7	V
Input Capacitance		$C_{ies}$	$V_{CE} = 10V, V_{GE} = 0, f = 1MHz$	—	7800	—	pF
Switching Time	Rise Time	$t_r$		—	0.3	0.6	$\mu s$
	Turn-on Time	$t_{on}$		—	0.4	0.8	
	Fall Time	$t_f$		—	0.6	1.0	
	Turn-off Time	$t_{off}$		—	1.2	1.8	
Thermal Resistance		$R_{th(j-c)}$	—	—	—	0.41	°C/W

Note 1 : Do not apply the over rating voltage.

