

TOSHIBA INSULATED GATE BIPOLAR TRANSISTOR SILICON N-CHANNEL IGBT

# GT15J102

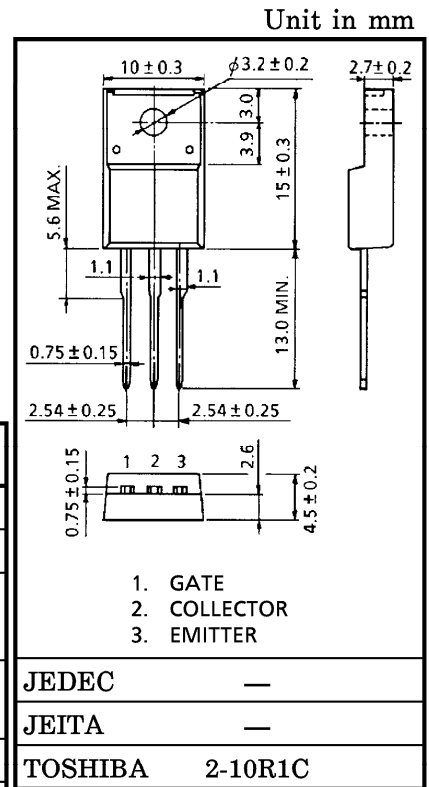
HIGH POWER SWITCHING APPLICATIONS

MOTOR CONTROL APPLICATINS

- High Input Impedance
- High Speed :  $t_f = 0.35 \mu s$  (Max.)
- Low Saturation Voltage :  $V_{CE(sat)} = 4.0V$  (Max.)
- Enhancement-Mode

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	$V_{CES}$	600	V
Gate-Emitter Voltage	$V_{GES}$	$\pm 20$	V
Collector Current	DC	15	A
	1ms	30	
Collector Power Dissipation ( $T_c = 25^\circ C$ )	$P_C$	35	W
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	$-55 \sim 150$	$^\circ C$

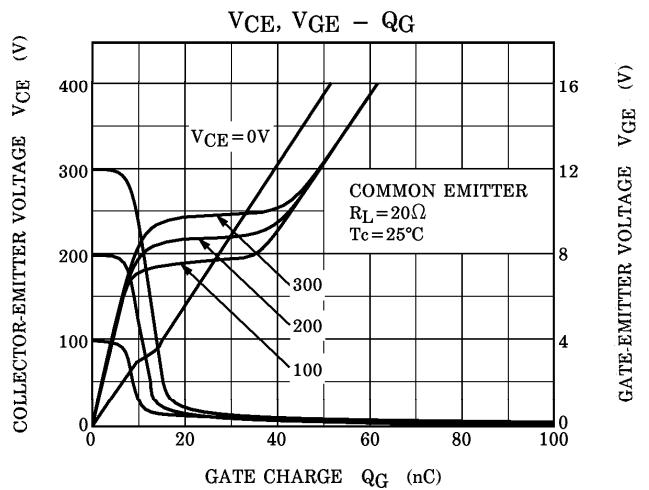
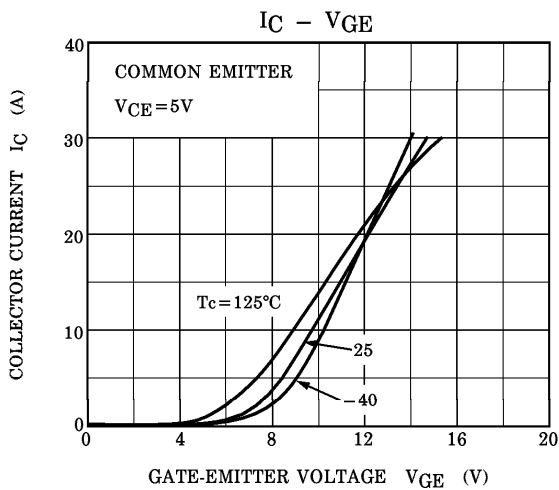
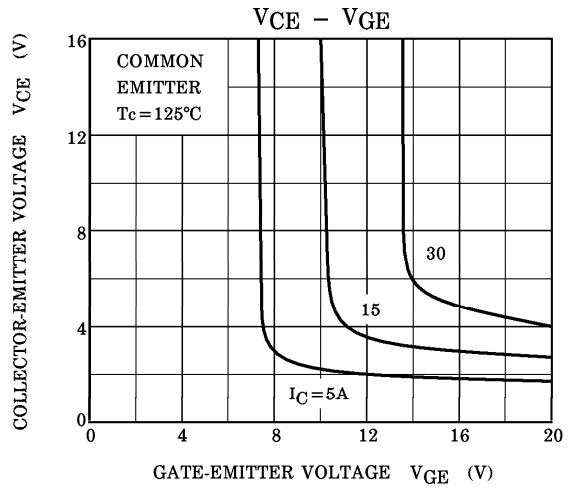
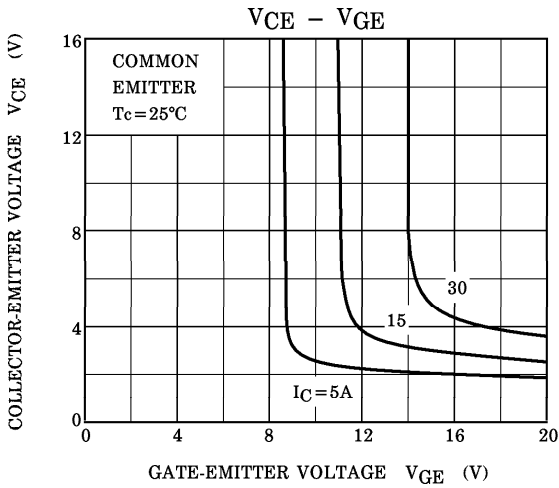
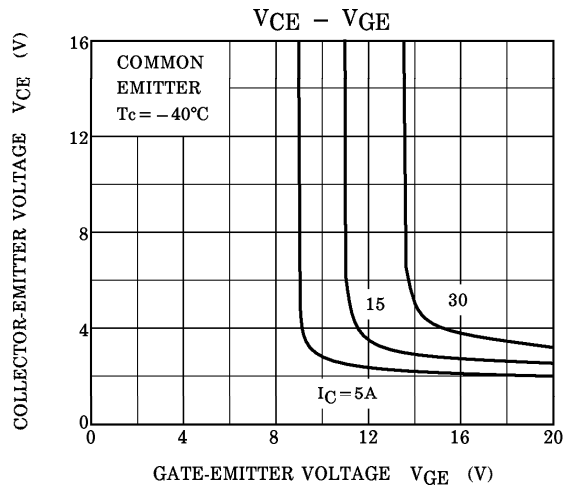
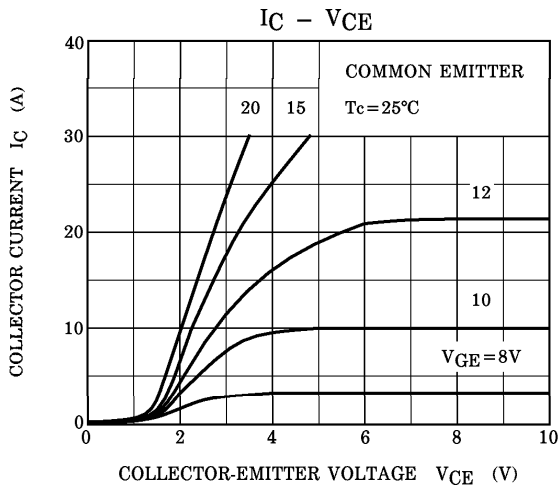


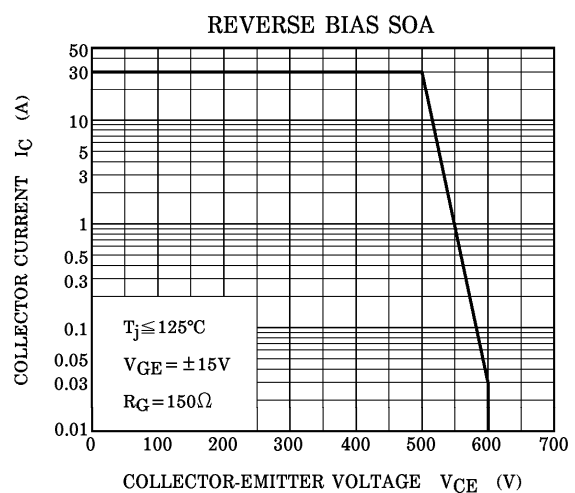
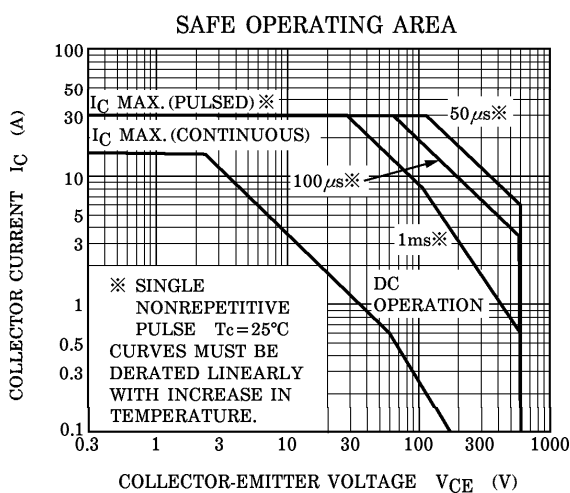
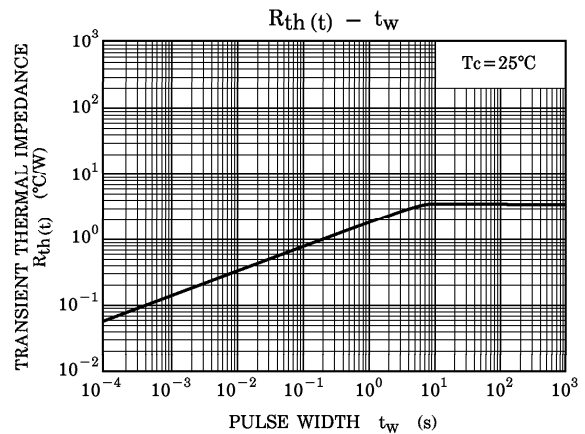
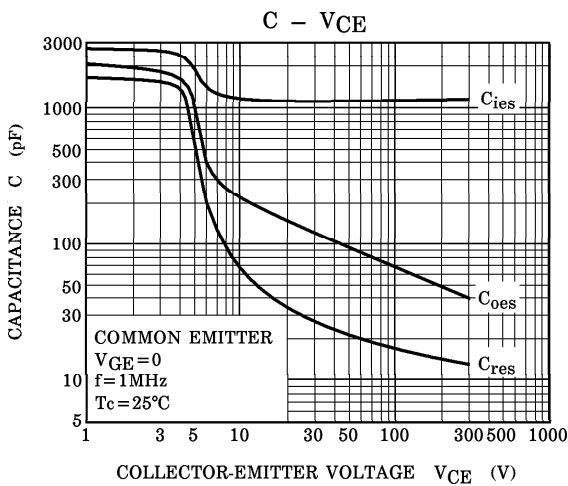
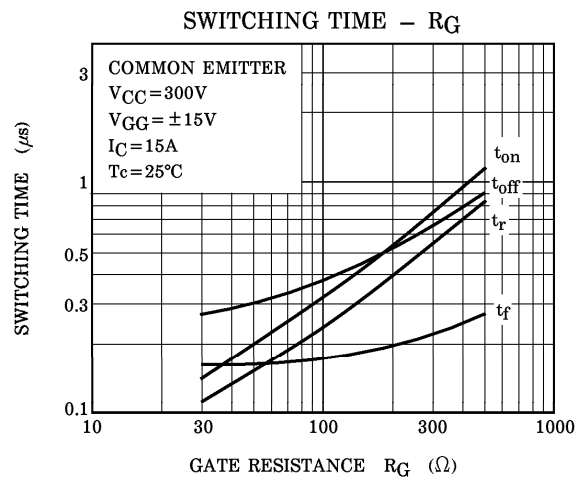
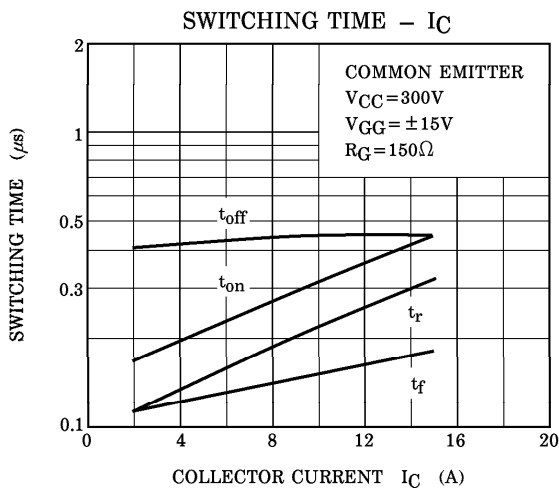
Weight : 1.7g

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

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	$I_{CES}$	$V_{CE} = 600V, V_{GE} = 0$	—	—	1.0	mA
Gate-Emitter Cut-off Voltage	$V_{GE(OFF)}$	$I_C = 15mA, V_{CE} = 5V$	3.0	—	6.0	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 15A, V_{GE} = 15V$	—	3.0	4.0	V
Input Capacitance	$C_{ies}$	$V_{CE} = 10V, V_{GE} = 0, f = 1MHz$	—	1100	—	pF
Switching Time	Rise Time	$t_r$	—	0.30	0.60	$\mu s$
	Turn-on Time	$t_{on}$	—	0.40	0.80	
	Fall Time	$t_f$	—	0.15	0.35	
	Turn-off Time	$t_{off}$	—	0.50	1.00	

The switching time measurement circuit diagram shows a pulse generator with a 15V pulse (0V to 15V) applied to the gate through a 150Ω resistor. The collector is connected to a 300V supply ( $V_{CC} = 300V$ ) through a 20Ω resistor. The output voltage  $V_{OUT}$  is measured across the 20Ω resistor. The emitter is grounded.





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