

TOSHIBA INSULATED GATE BIPOLAR TRANSISTOR SILICON N CHANNEL IGBT

# GT8J102(SM)

HIGH POWER SWITCHING APPLICATIONS

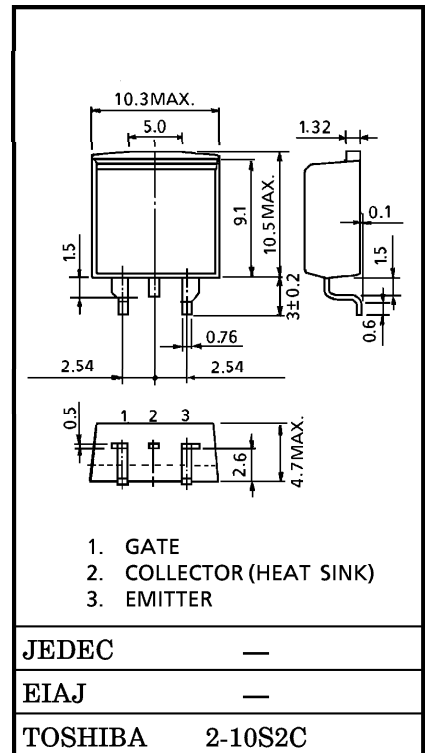
MOTOR CONTROL APPLICATIONS

Unit in mm

- 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 ( $T_a = 25^\circ C$ )

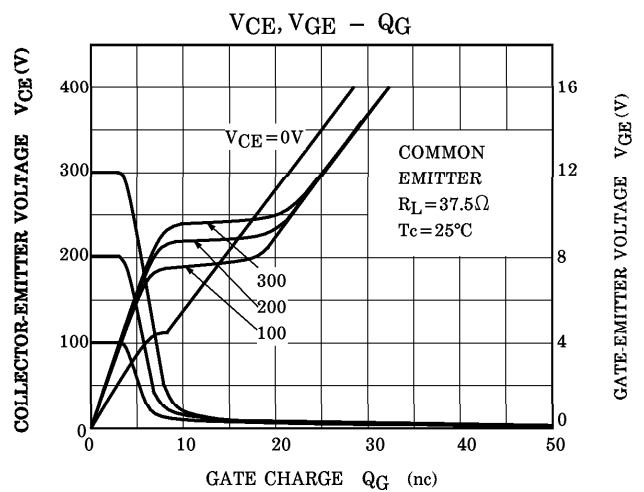
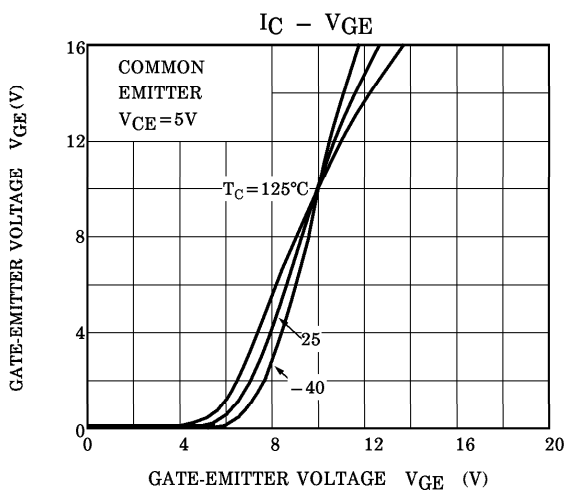
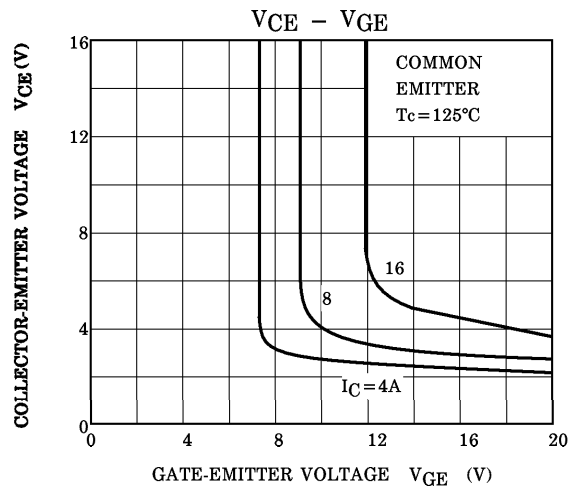
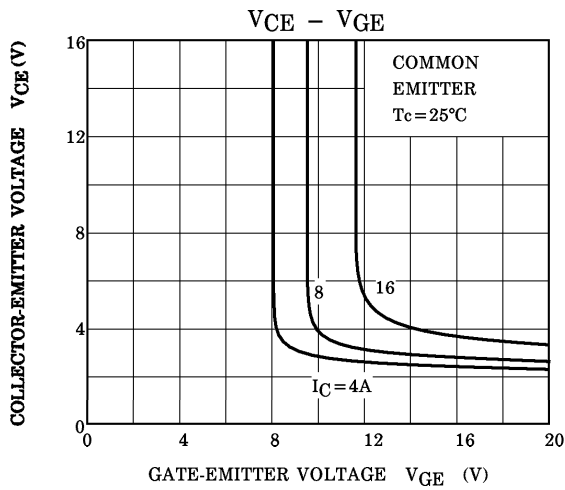
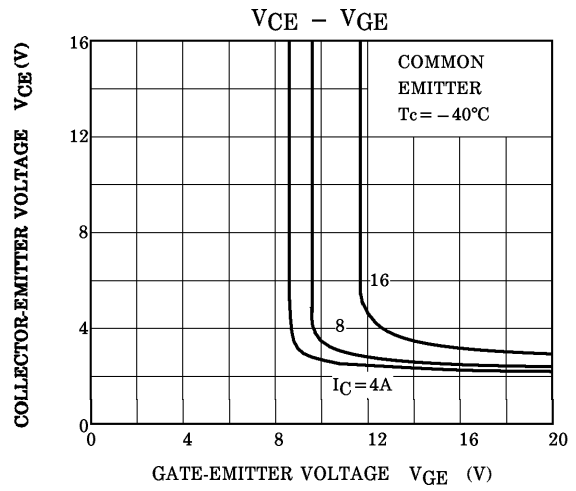
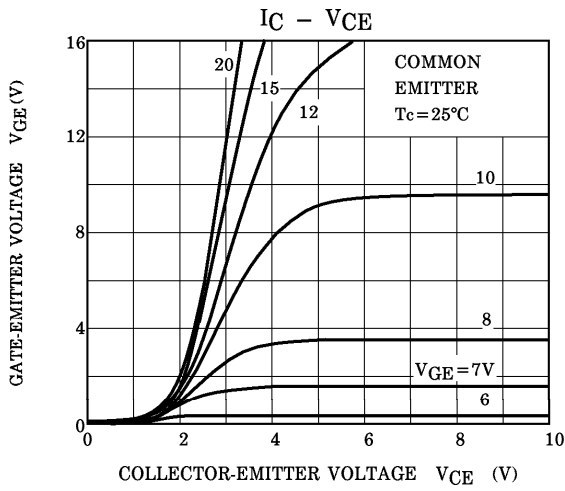
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		$V_{CES}$	600	V
Gate-Emitter Voltage		$V_{GES}$	$\pm 20$	V
Collector Current	DC	$I_C$	8	A
	1ms	$I_{CP}$	16	
Collector Power Dissipation ( $T_c = 25^\circ C$ )		$P_C$	50	W
Junction Temperature		$T_j$	150	$^\circ C$
Storage Temperature Range		$T_{stg}$	-55~150	$^\circ C$



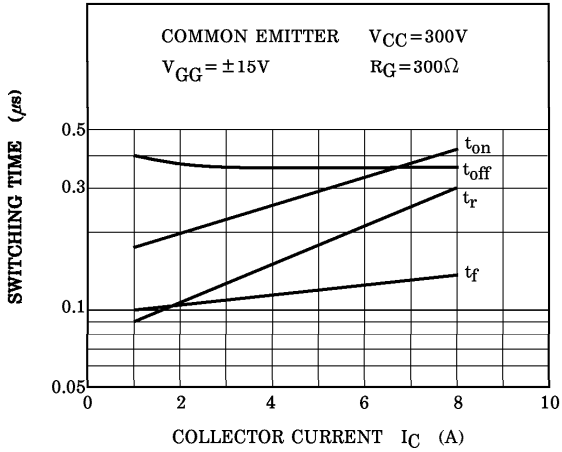
Weight : 1.4g

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

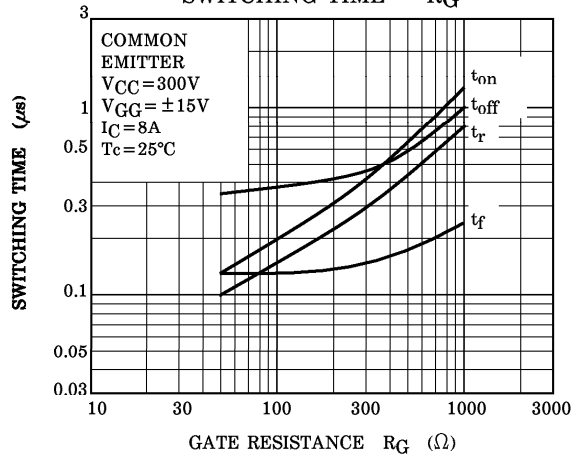
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP	MAX.	UNIT
Gate Leakage Current		$I_{GES}$	$V_{GE} = \pm 20V, V_{CE} = 0$	—	—	$\pm 500$	nA
Collector Cut-off Current		$I_{CES}$	$V_{CE} = 600V, V_{GE} = 0$	—	—	1.0	mA
Gate-Emitter Cut-off Voltage		$V_{GE(OFF)}$	$I_C = 5V, I_C = 8mA$	3.0	—	6.0	V
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 8A, V_{GE} = 15V$	—	3.0	4.0	V
Input Capacitance		$C_{ies}$	$V_{CE} = 10V, V_{GE} = 0, f = 1MHz$	—	650	—	pF
Switching Time	Rise Time	$t_r$		—	0.3	0.6	$\mu s$
	Turn-on Time	$t_{on}$		—	0.4	0.8	
	Fall Time	$t_f$		—	0.15	0.35	
	Turn-off Time	$t_{off}$		—	0.5	1.0	



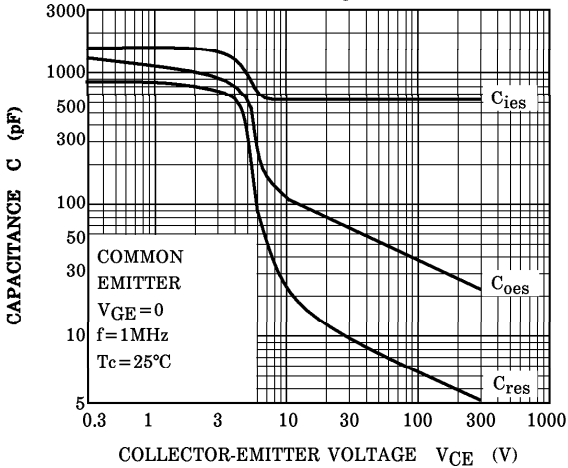
SWITCHING TIME -  $I_C$



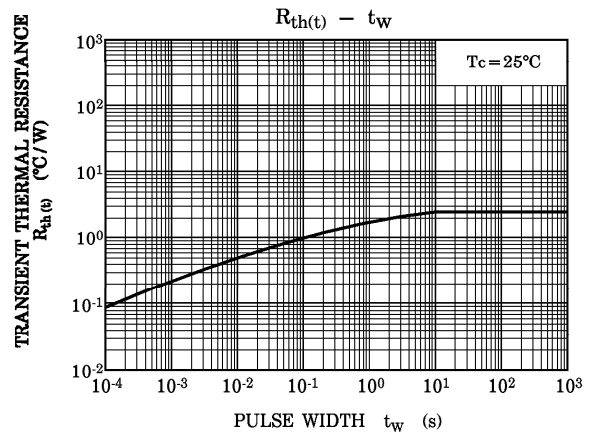
SWITCHING TIME -  $R_G$



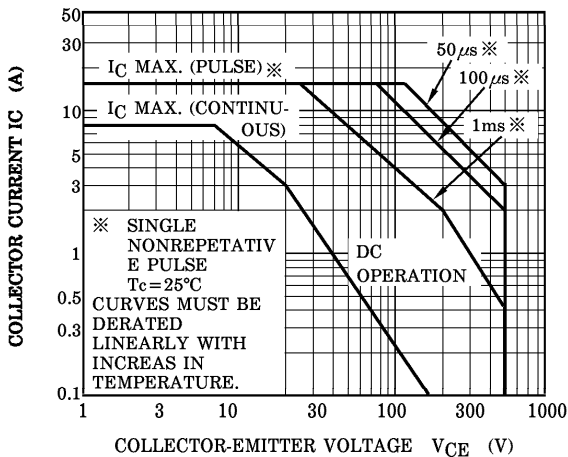
C -  $V_{CE}$



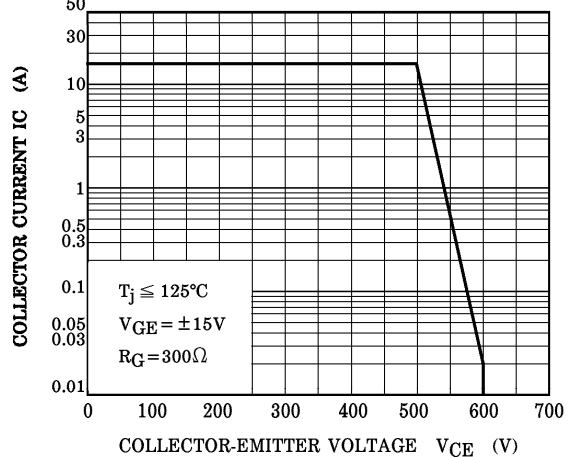
$R_{th}(t) - t_w$



SAFE OPERATING AREA



REVERSE BIAS SOA



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