

TOSHIBA INSULATED GATE BIPOLAR TRANSISTOR SILICON N-CHANNEL IGBT

# GT25Q101

HIGH POWER SWITCHING APPLICATIONS

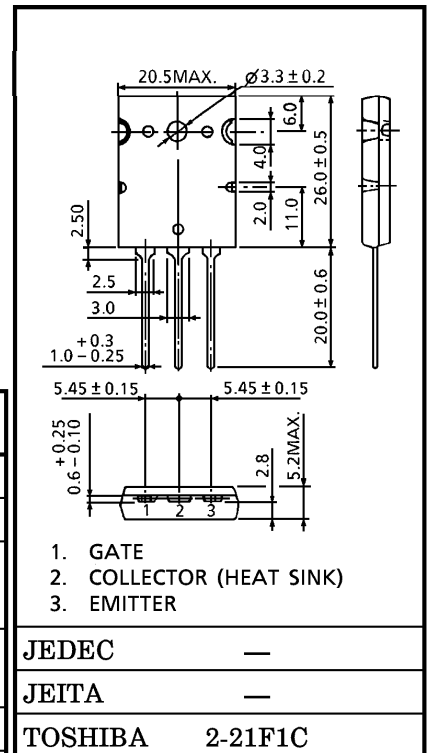
MOTOR CONTROL APPLICATIONS

Unit in mm

- High Input Impedance
- High Speed :  $t_f = 0.5 \mu s$  (Max.)
- Low Saturation Voltage :  $V_{CE(sat)} = 4.0 V$  (Max.)
- Enhancement-Mode

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

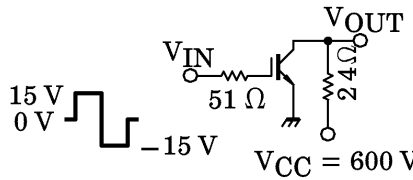
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	$V_{CES}$	1200	V
Gate-Emitter Voltage	$V_{GES}$	$\pm 20$	V
Collector Current	DC	$I_C$	25
	1ms	$I_{CP}$	50
Collector Power Dissipation ( $T_c = 25^\circ C$ )	$P_C$	200	W
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	$-55 \sim 150$	$^\circ C$

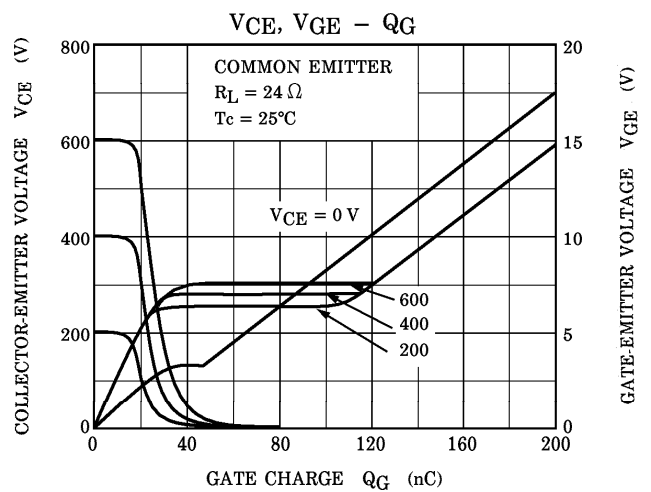
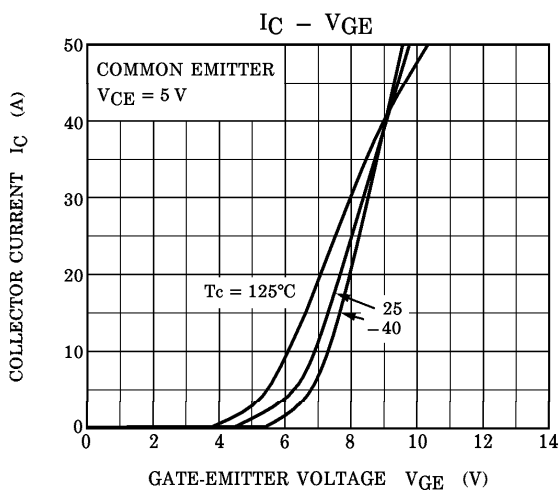
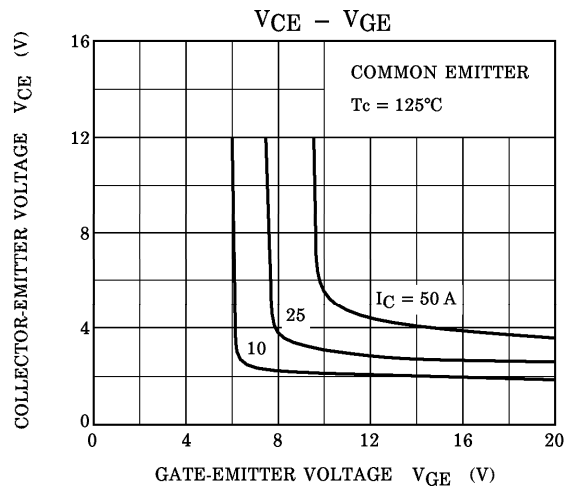
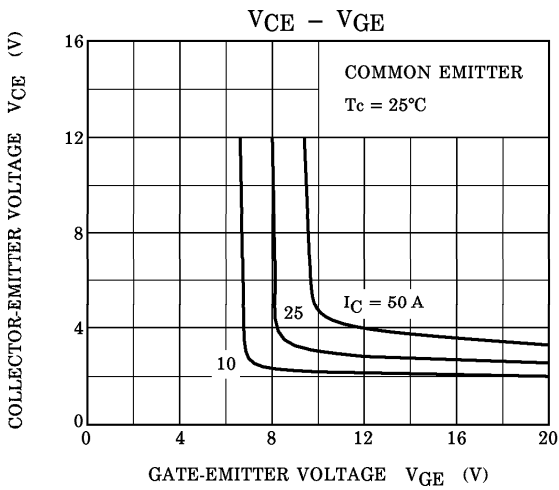
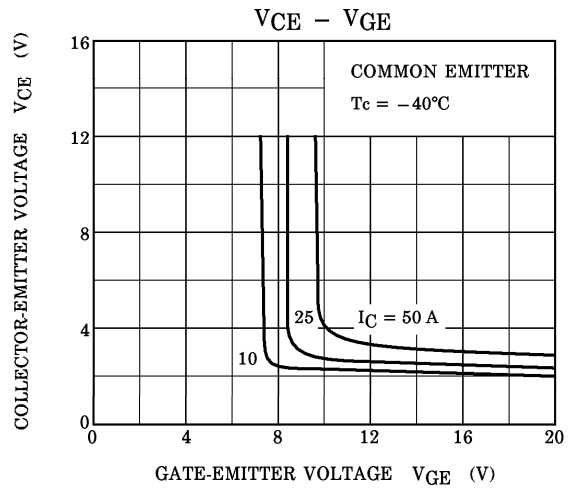
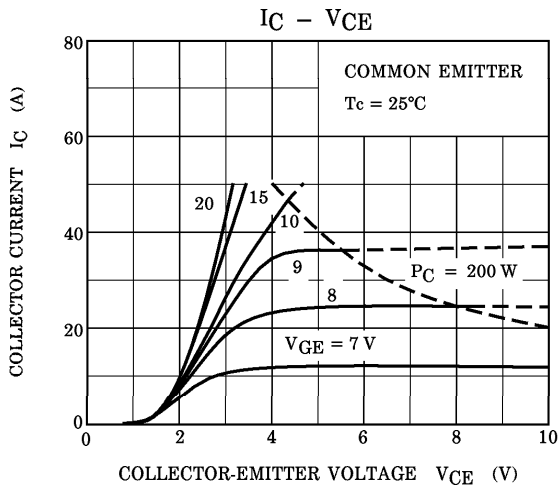


Weight : 9.75 g

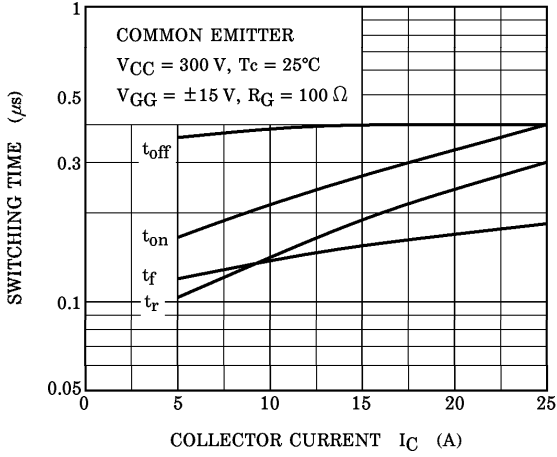
ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ C$ )

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current	$I_{GES}$	$V_{GE} = \pm 20 V, V_{CE} = 0$	—	—	$\pm 500$	nA
Collector Cut-off Current	$I_{CES}$	$V_{CE} = 1200 V, V_{GE} = 0$	—	—	1.0	mA
Gate-Emitter Cut-off Voltage	$V_{GE(OFF)}$	$I_C = 25 mA, V_{CE} = 5 V$	3.0	—	6.0	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 25 A, V_{GE} = 15 V$	—	3.0	4.0	V
Input Capacitance	$C_{ies}$	$V_{CE} = 10 V, V_{GE} = 0, f = 1 MHz$	—	3200	—	pF
Switching Time	Rise Time	$t_r$	—	0.2	0.6	$\mu s$
	Turn-on Time	$t_{on}$	—	0.3	0.8	
	Fall Time	$t_f$	—	0.3	0.5	
	Turn-off Time	$t_{off}$	—	0.8	1.5	

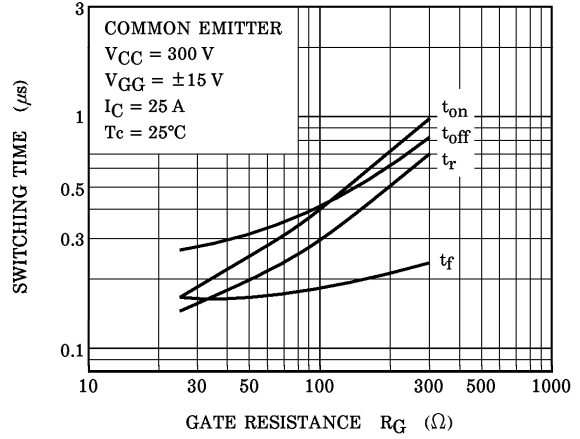




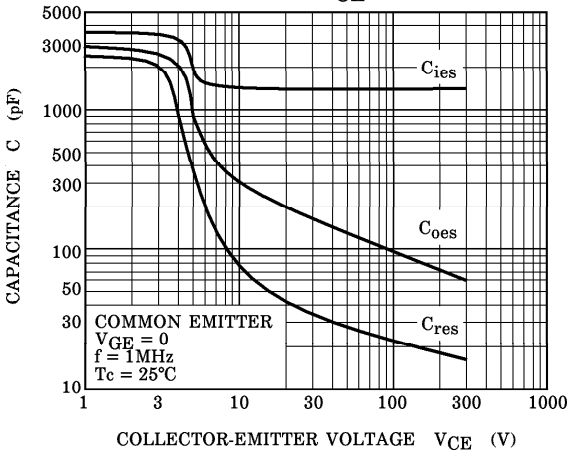
SWITCHING TIME -  $I_C$



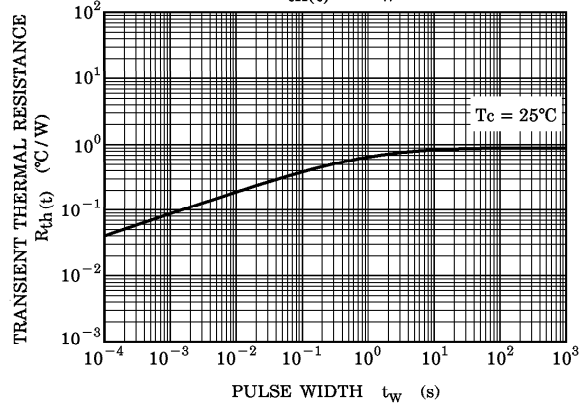
SWITCHING TIME -  $R_G$



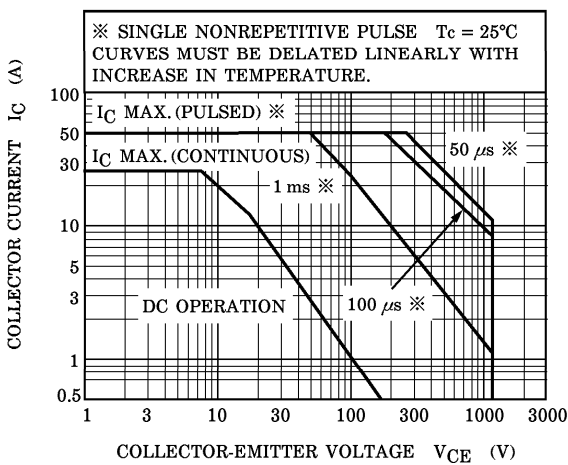
C -  $V_{CE}$



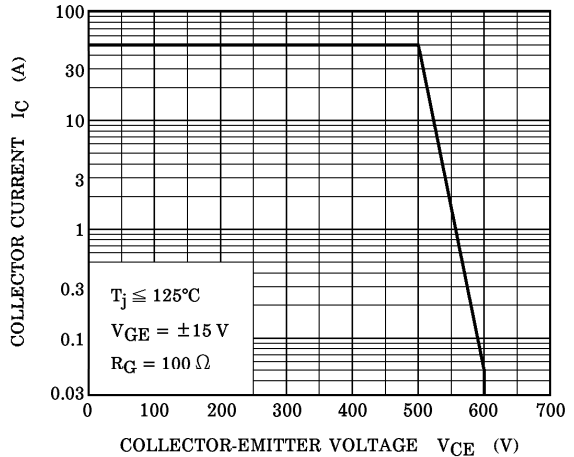
$R_{th}(t) - t_w$



SAFE OPERATING AREA



REVERSE BIAS SOA



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