TOSHIBA INSULATED GATE BIPOLAR TRANSISTOR SILICON N-CHANNEL IGBT

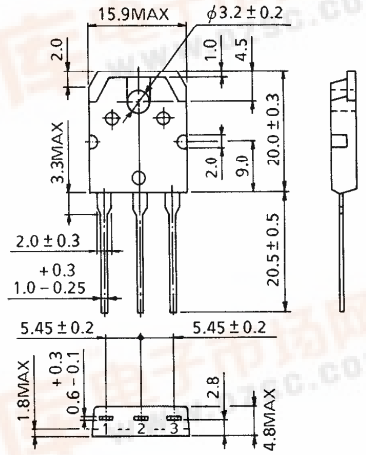
GT15Q101

HIGH POWER SWITCHING APPLICATIONS

MOTOR CONTROL APPLICATIONS

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

Unit in mm



1. GATE
2. COLLECTOR (HEAT SINK)
3. EMITTER

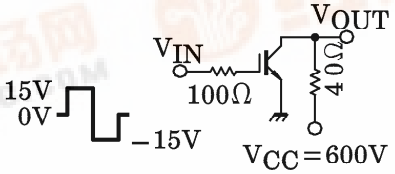
JEDEC	—
EIAJ	—
TOSHIBA	2-16C1C

Weight : 4.6g

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	15	A
	1ms	I_{CP}	30	
Collector Power Dissipation (Tc = 25°C)		P_C	150	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GES}	$V_{GE} = \pm 20V$, $V_{CE} = 0$	—	—	±500	nA
Collector Cut-off Current		I_{CES}	$V_{CE} = 1200V$, $V_{GE} = 0$	—	—	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	—	1800	—	pF
Switching Time	Rise Time	t_r		—	0.3	0.6	μs
	Turn-on Time	t_{on}		—	0.4	0.8	
	Fall Time	t_f		—	0.25	0.5	
	Turn-off Time	t_{off}		—	0.8	1.5	

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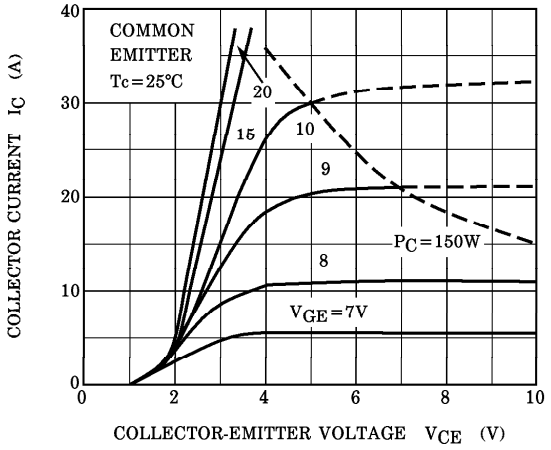
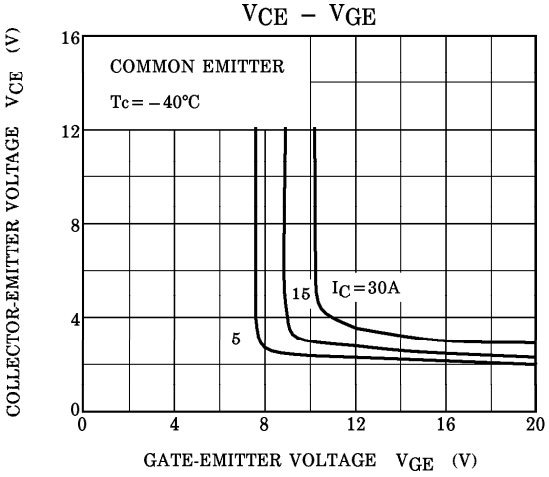
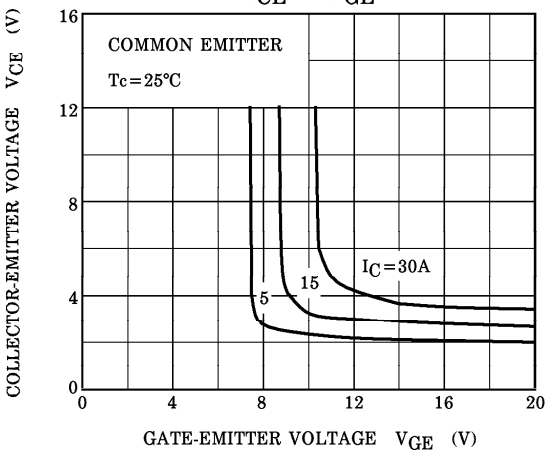
I_C – V_{CE}



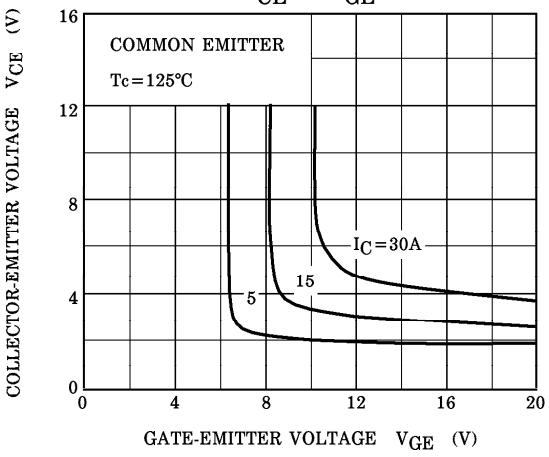
V_{CE} – V_{GE}



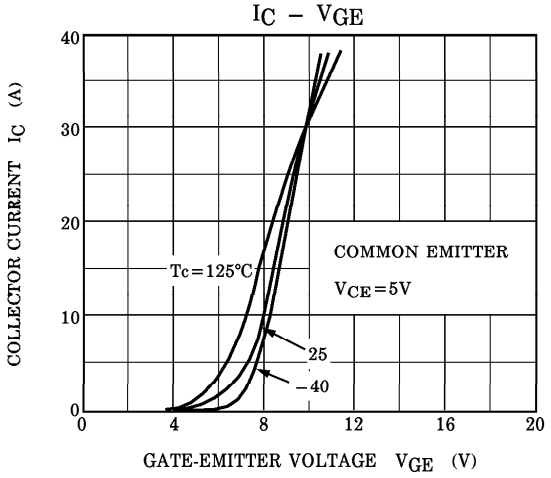
V_{CE} – V_{GE}



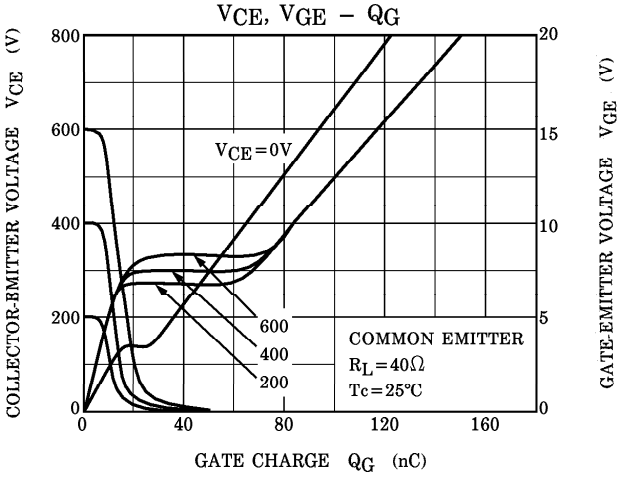
V_{CE} – V_{GE}



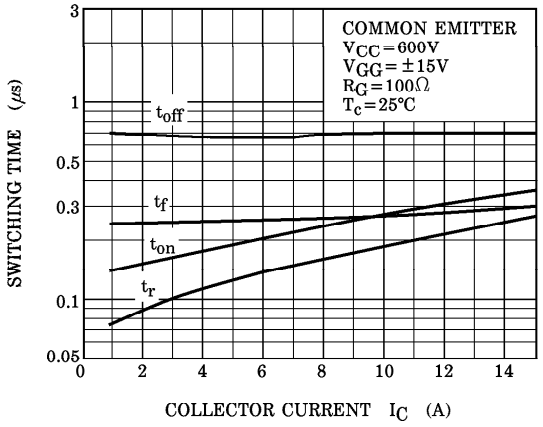
I_C – V_{GE}



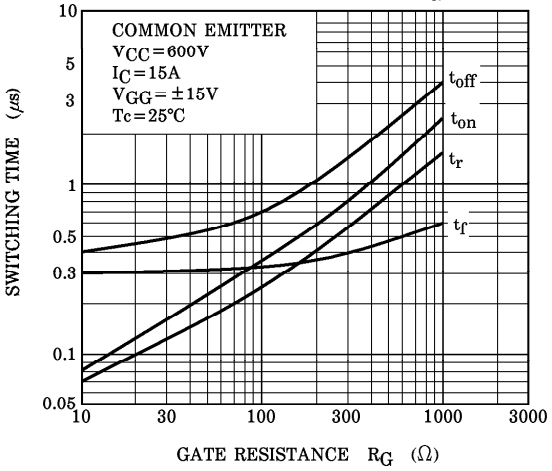
V_{CE}, V_{GE} – Q_G



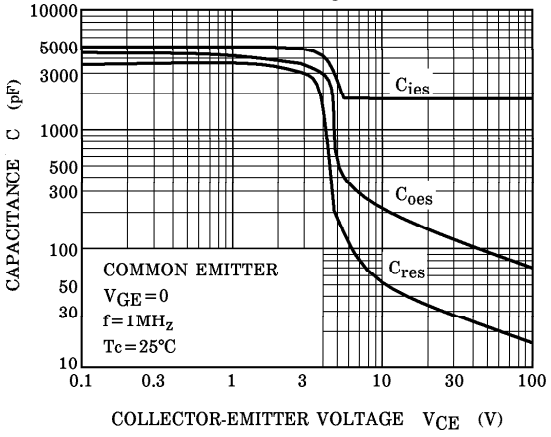
SWITCHING TIME – I_C



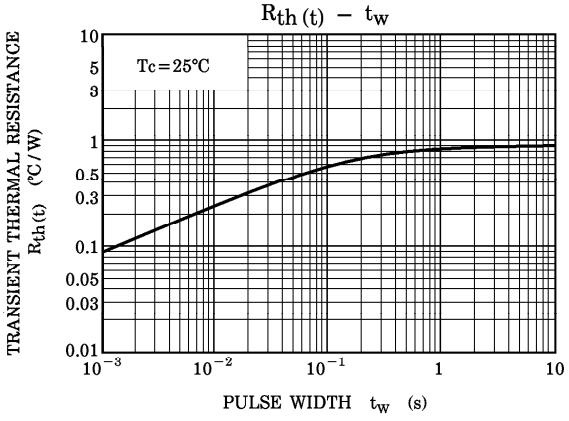
SWITCHING TIME – R_G



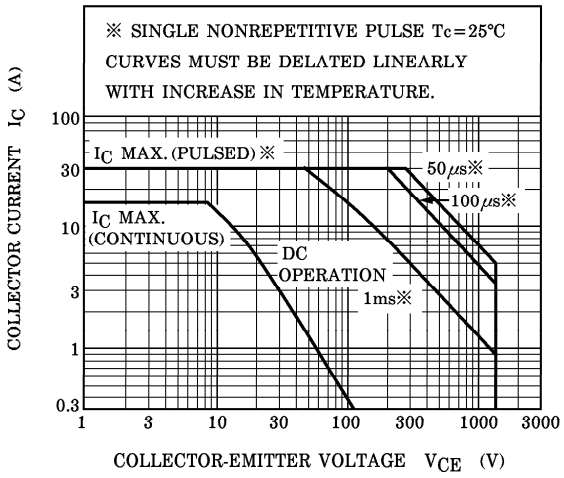
C – V_{CE}



$R_{th\,(t)}$ – t_w



SAFE OPERATING AREA



REVERSE BIAS SOA