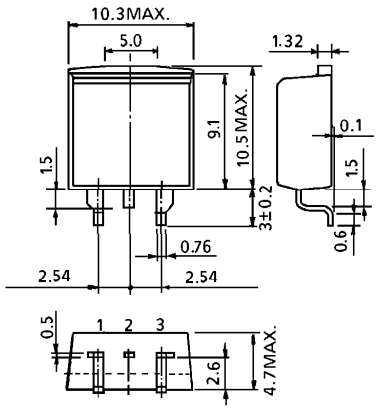
TOSHIBA INSULATED GATE BIPOLAR TRANSISTOR SILICON N-CHANNEL IGBT

GT20G102(SM)

STROBE FLASH APPLICATIONS

Unit in mm

- High Input Impedance
- Low Saturation Voltage : $V_{CE\,(sat)}$ = 8V (Max.) (I_C = 130A)
- Enhancement-Mode
- 12V Gate Drive



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

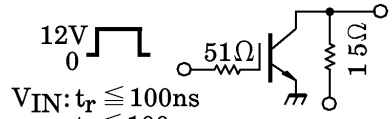
JEDEC	—
EIAJ	—
TOSHIBA	2-10S2C

Weight : 1.4g

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		V_{CES}	400	V
Gate-Emitter Voltage		V_{GES}	±20	V
Collector Current	DC	I_C	20	A
	1ms	I_{CP}	130	
Collector Power Dissipation	Ta = 25°C	P_C	1.3	A
	Tc = 25°C	P_C	60	
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} = ±20V, V_{CE} = 0	—	—	±100	nA
Collector Cut-off Current		I_{CES}	V_{CE} = 400V, V_{GE} = 0	—	—	10	μA
Gate-Emitter Cut-off Voltage		$V_{CE\,(OFF)}$	I_C = 1mA, V_{CE} = 5V	2	—	5	V
Collector-Emitter Saturation Voltage		$V_{CE\,(sat)}$	I_C = 130A, V_{GE} = 12V (Pulsed)	—	5	8	V
Input Capacitance		C_{ies}	V_{CE} = 10V, V_{GE} = 0, f = 1MHz	—	1850	—	pF
Switching Time	Rise Time	t_r		—	0.1	0.5	μs
	Turn-on Time	t_{on}		—	0.15	0.5	
	Fall Time	t_f		—	4.0	6.0	
	Turn-off Time	t_{off}		—	4.5	7.0	
Thermal Resistance		$R_{th\,(j\text{-}c)}$	—	—	—	2.08	°C / W

V_{IN}: $t_r \leqq 100$ns, $t_f \leqq 100$ns, Duty cycle ≦ 1%

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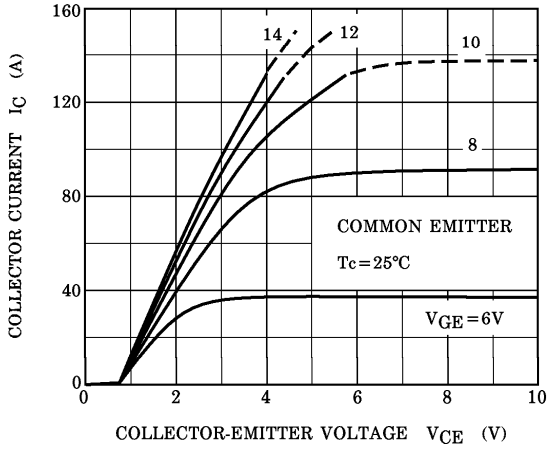
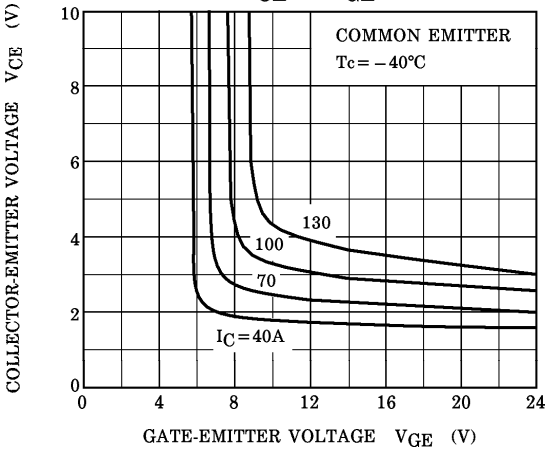
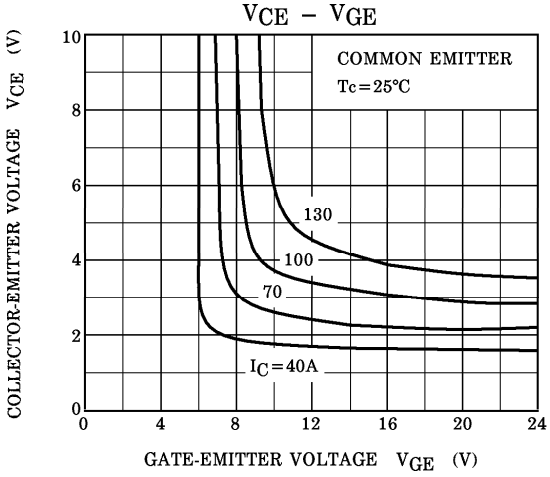
I_C – V_{CE}



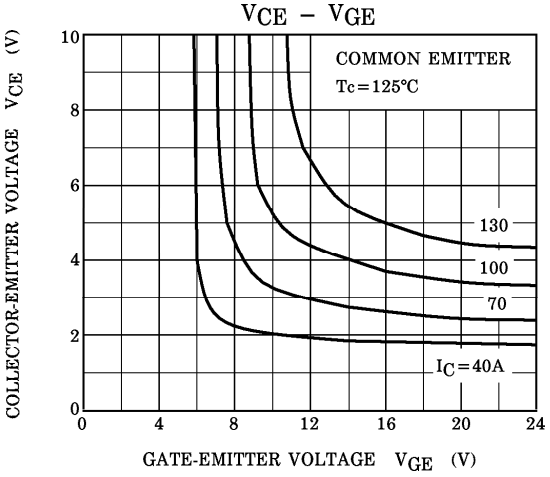
V_{CE} – V_{GE}



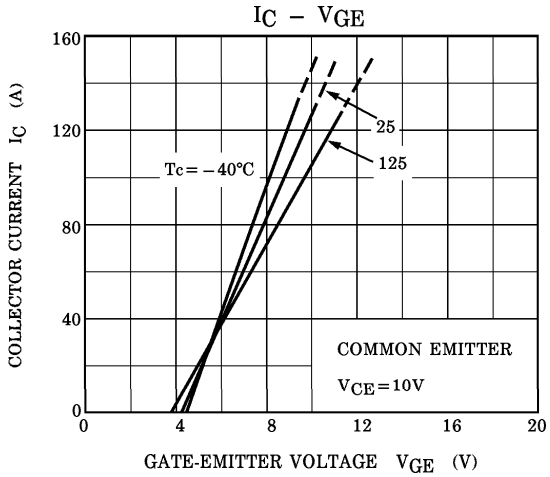
V_{CE} – V_{GE}



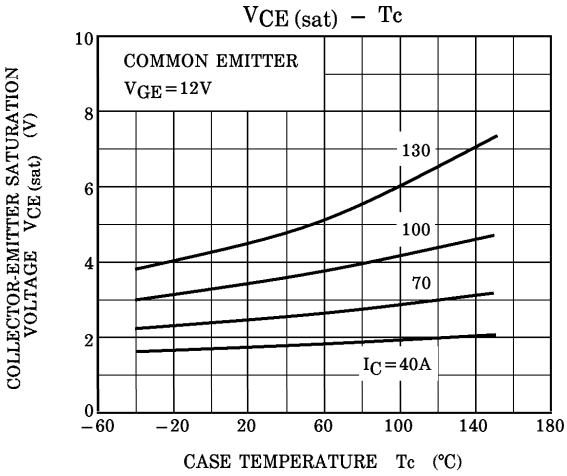
V_{CE} – V_{GE}



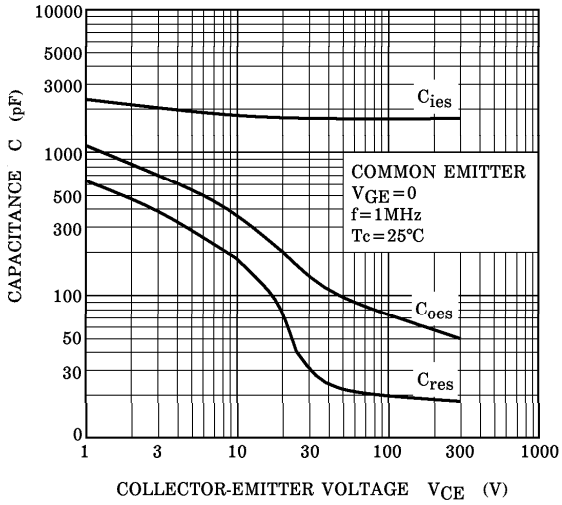
I_C – V_{GE}



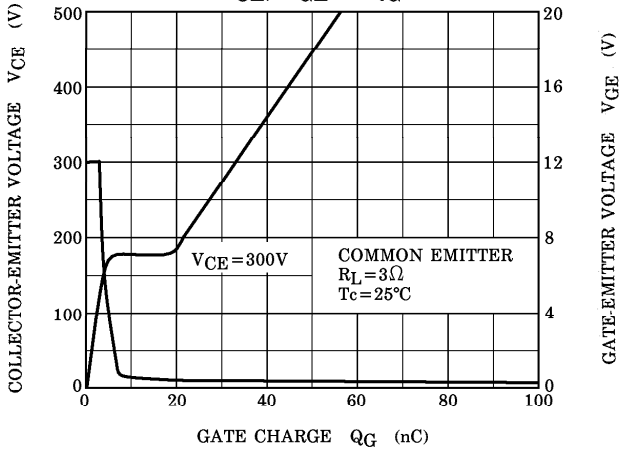
$V_{CE\,(sat)}$ – Tc



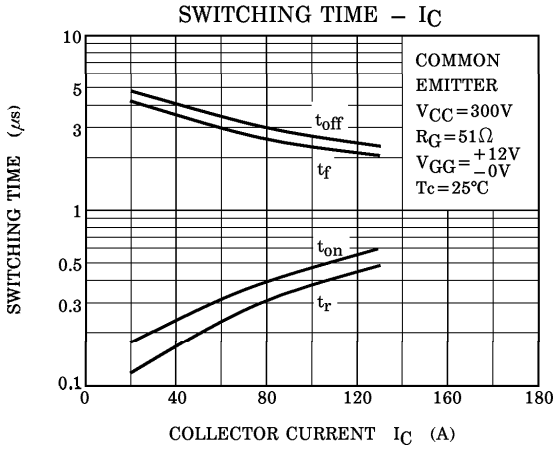
C – V_{CE}



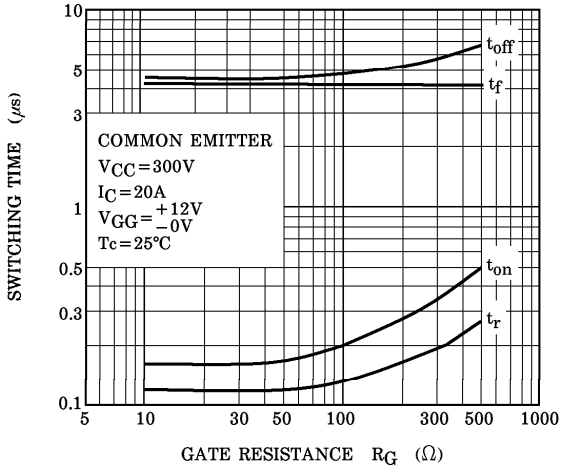
V_{CE}, V_{GE} – Q_G



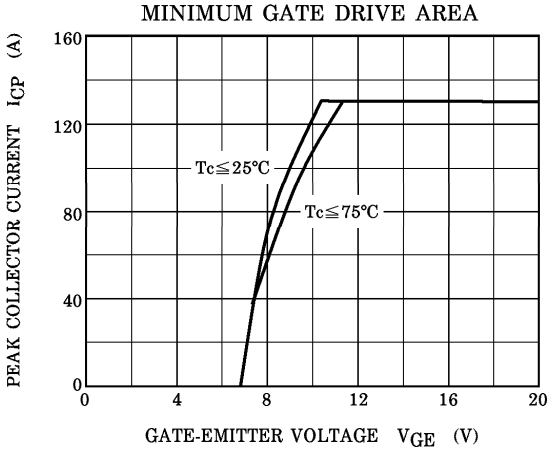
SWITCHING TIME – I_C



SWITCHING TIME – R_G



MINIMUM GATE DRIVE AREA



MAXIMUM OPERATING AREA