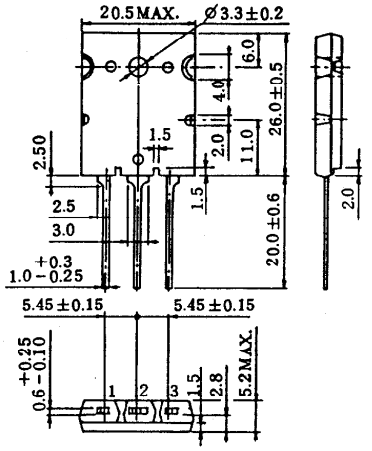
TOSHIBA INSULATED GATE BIPOLAR TRANSISTOR SILICON N CHANNEL MOS TYPE

GT40T101

HIGH POWER SWITCHING APPLICATIONS.

Unit in mm

- Enhancement-Mode
- High Speed : $t_f = 0.4\mu s$ (Max.) ($I_C = 40A$)
- Low Saturation : $V_{CE\,(sat)} = 5.0V$ (Max.) ($I_C = 40A$)



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

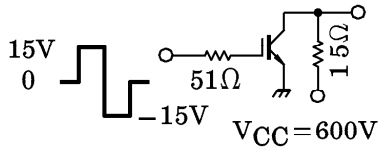
JEDEC	—
EIAJ	—
TOSHIBA	2-21F2C

Weight : 9.75g

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		V_{CES}	1500	V
Gate-Emitter Voltage		V_{GES}	±25	V
Collector Current	DC	I_C	40	A
Collector Current	1ms	I_{CP}	80	A
Collector Power Dissipation	(Tc = 25°C)	P_C	200	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}	$V_{GE} = \pm 25V$, $V_{CE} = 0$	—	—	±500	nA
Collector Cut-off Current		I_{CES}	$V_{CE} = 1500V$, $V_{GE} = 0$	—	—	1.0	mA
Gate-Emitter Cut-off Voltage		$V_{GE\,(OFF)}$	$I_C = 40mA$, $V_{CE} = 5V$	3.0	—	6.0	V
Collector-Emitter Saturation Voltage		$V_{CE\,(sat)}$	$I_C = 40A$, $V_{GE} = 15V$	—	4.0	5.0	V
Input Capacitance		C_{ies}	$V_{CE} = 10V$, $V_{GE} = 0$, f = 1MHz	—	3600	—	pF
Switching Time	Rise Time	t_r		—	0.6	1.0	μs
	Turn-on Time	t_{on}		—	0.7	1.1	
	Fall Time	t_f		—	0.2	0.4	
	Turn-off Time	t_{off}		—	0.5	1.0	
Thermal Resistance		$R_{th\,(j\text{-}c)}$	—	—	—	0.625	°C / W

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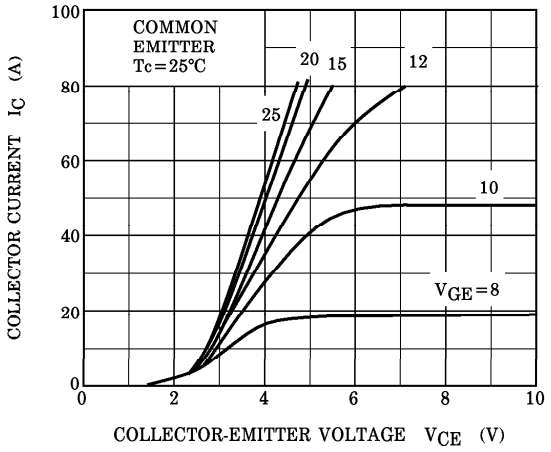
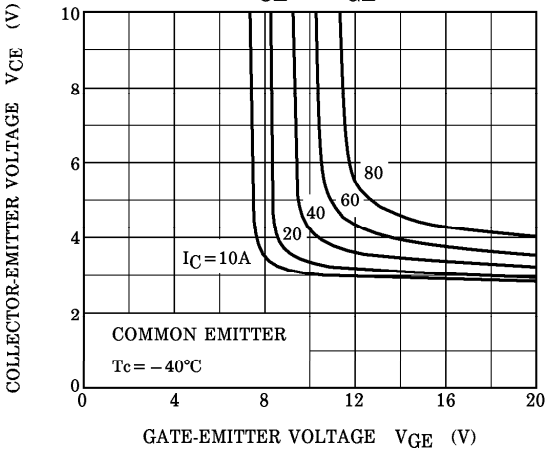
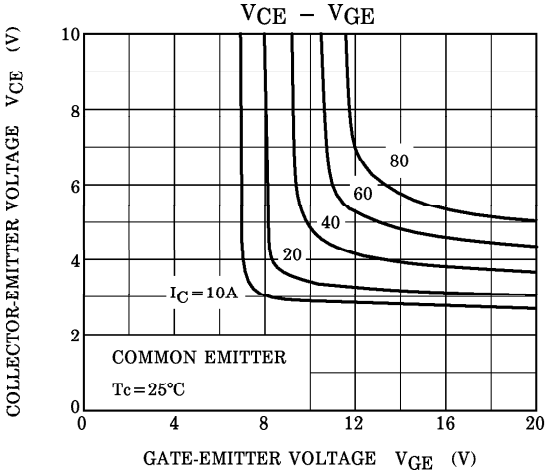
I_C – V_{CE}



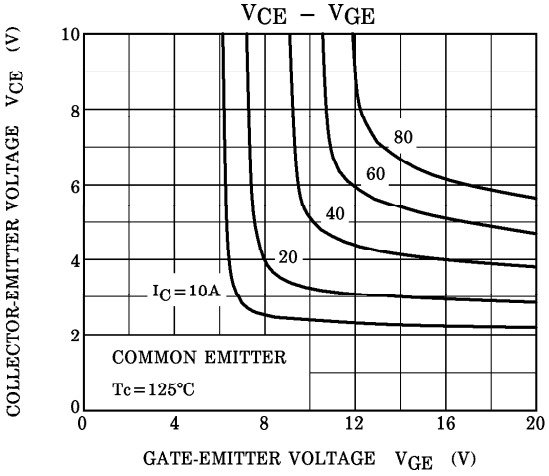
V_{CE} – V_{GE}



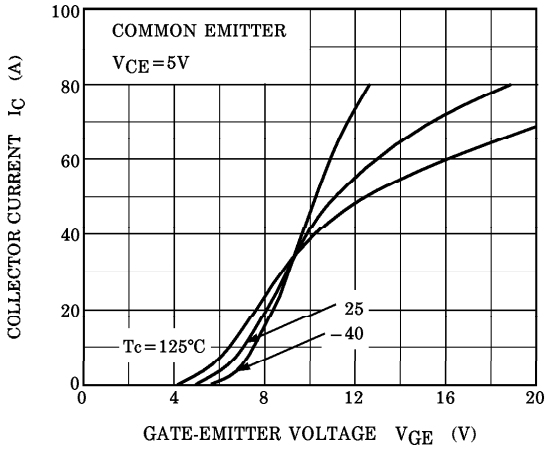
V_{CE} – V_{GE}



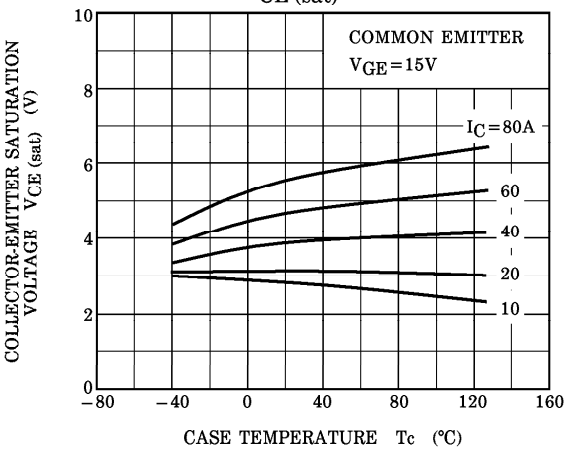
V_{CE} – V_{GE}



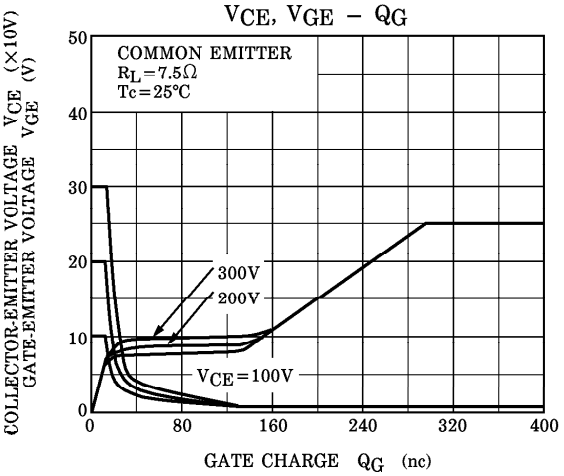
I_C – V_{GE}



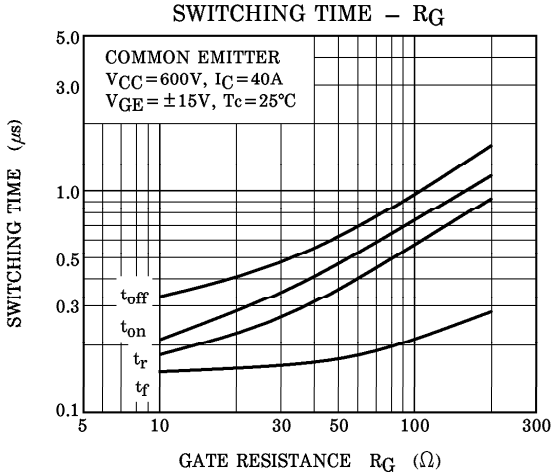
$V_{CE\,(sat)}$ – Tc



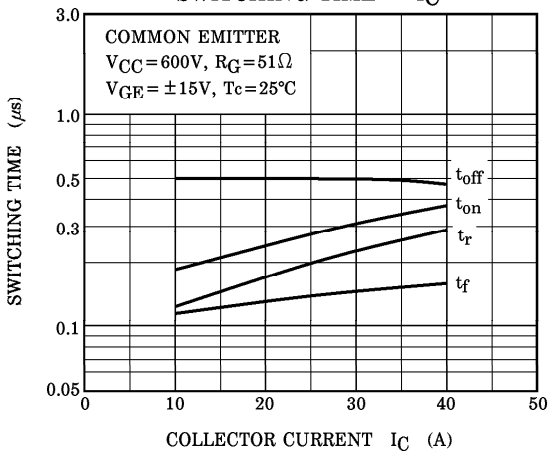
V_{CE}, V_{GE} – Q_G



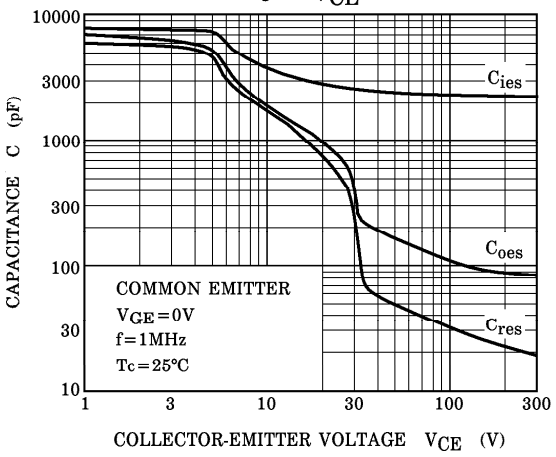
SWITCHING TIME – R_G



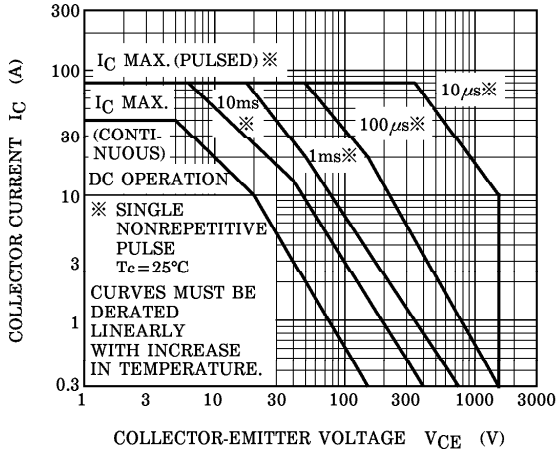
SWITCHING TIME – I_C



C – V_{CE}



SAFE OPERATING AREA



REVERSE BIAS SOA