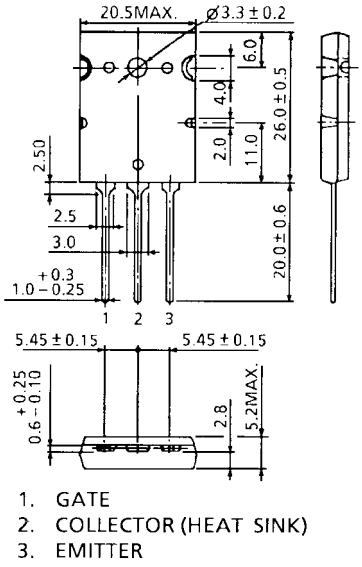
TOSHIBA INSULATED GATE BIPOLAR TRANSISTOR SILICON N − CHANNEL MOS TYPE

GT80J101

Unit: mm

HIGH POWER SWITCHING APPLICATIONS

- High Input Impedance
- High Speed : t_f = 0.40μs (Max.)
- Low Saturation Voltage : $V_{CE\ (sat)}$ = 3.5V (Max.)
- Enhancement−Mode



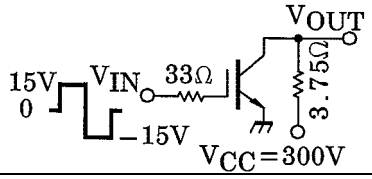
JEDEC	—
JEITA	—
TOSHIBA	2−10F1C

Weight: 9.75g

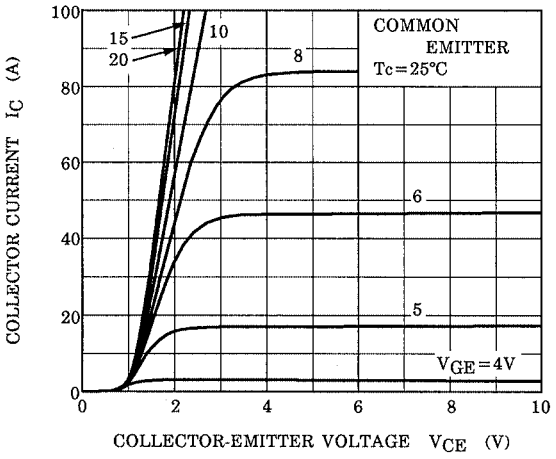
MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector−Emitter Voltage		V_{CES}	600	V
Gate−Emitter Voltage		V_{GES}	±20	V
Collector Current	DC	I_C	80	A
	1ms	I_{CP}	160	
Collector Power Dissipation (Tc = 25°C)		P_C	200	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C
Screw Torque		—	0.8	N·m

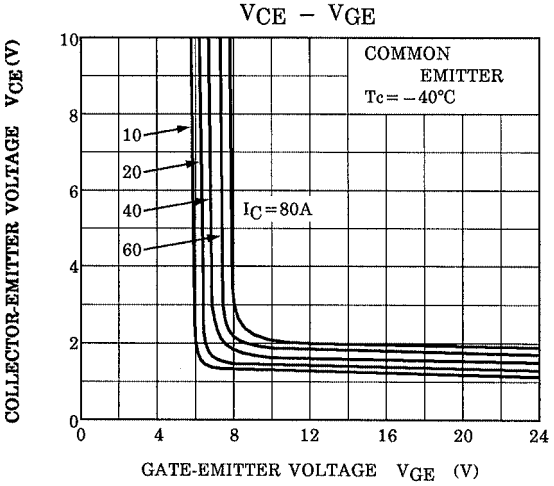
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Gate Leakage Current		I_{GES}	V_{GE} = ±20V, V_{CE} = 0	—	—	±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 = 80mA, V_{CE} = 5V	3.0	—	6.0	V
Collector−Emitter Saturation Voltage		$V_{CE\ (sat)\ (1)}$	I_C = 10A, V_{GE} = 15V	—	—	2.0	V
		$V_{CE\ (sat)\ (2)}$	I_C = 80A, V_{GE} = 15V	—	2.5	3.5	
Input Capacitance		C_{ies}	V_{CE} = 10V, V_{GE} = 0, f = 1MHz	—	5500	—	pF
Switching Time	Rise Time	t_r		—	0.3	0.6	μs
	Turn−on Time	t_{on}		—	0.5	0.8	
	Fall Time	t_f		—	0.25	0.40	
	Turn−off Time	t_{off}		—	0.7	1.0	
Thermal Resistance		$R_{th\ (j-c)}$	—	—	—	0.625	°C / W

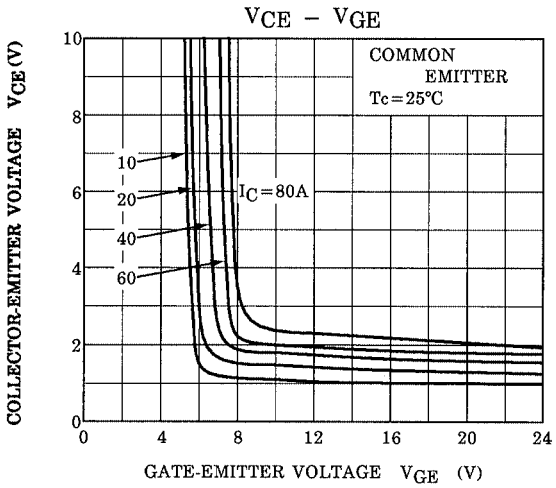
I_C – V_{CE}



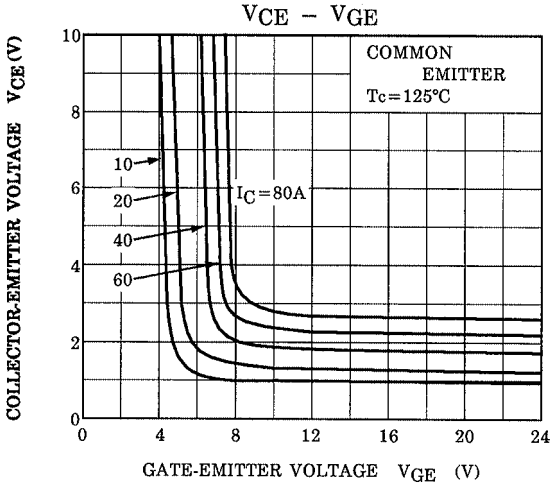
V_{CE} – V_{GE}



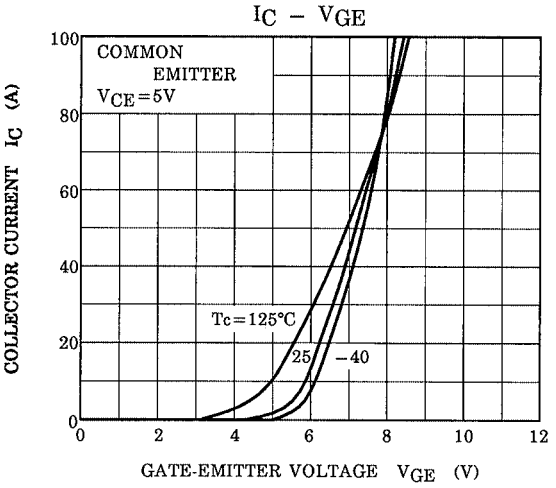
V_{CE} – V_{GE}



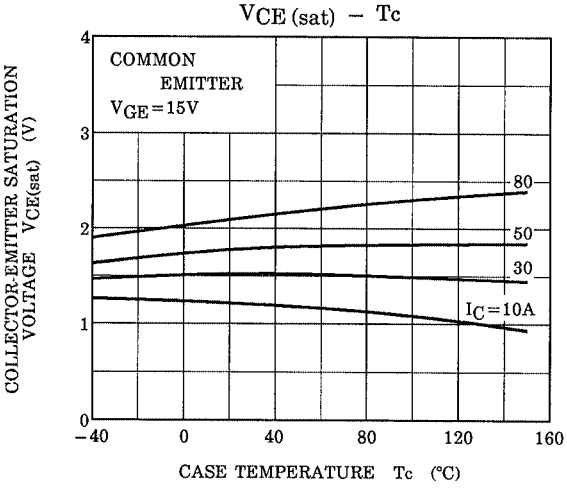
V_{CE} – V_{GE}



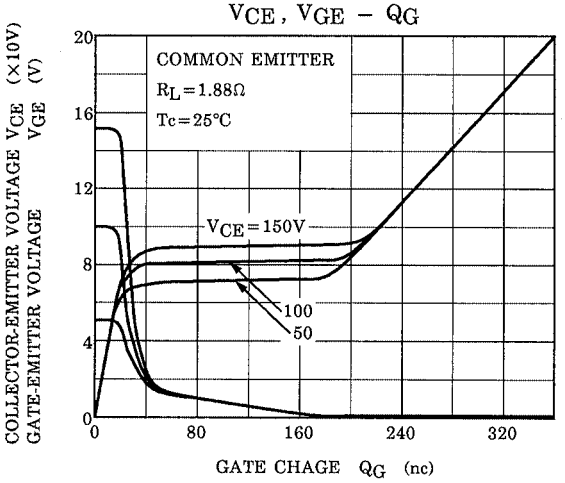
I_C – V_{GE}



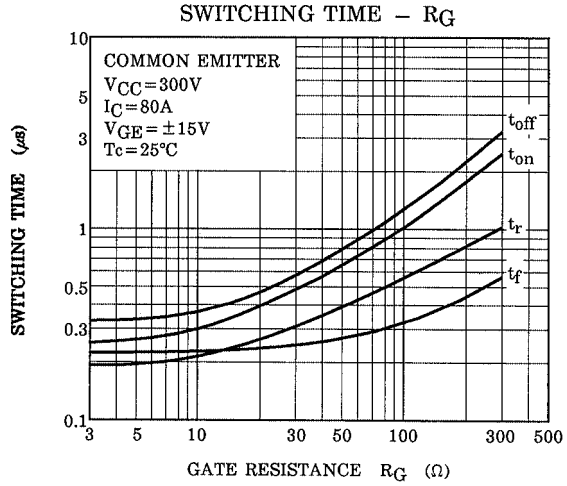
V_{CE} (sat) – Tc



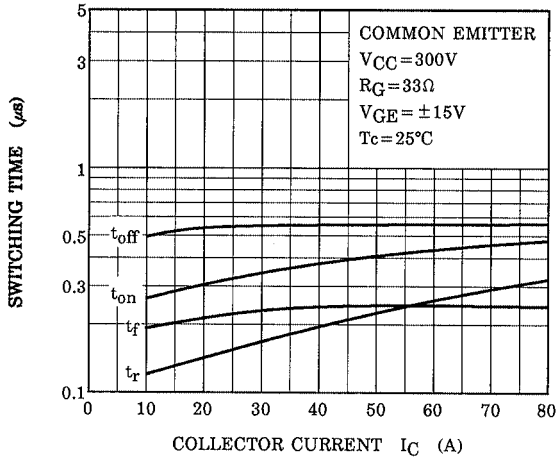
V_{CE}, V_{GE} – Q_G



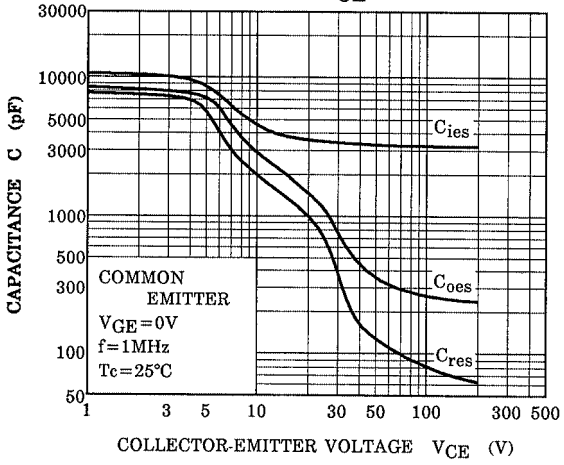
SWITCHING TIME – R_G



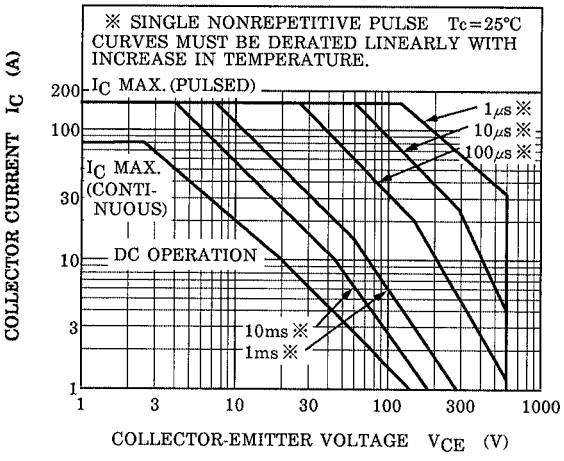
SWITCHING TIME – I_C



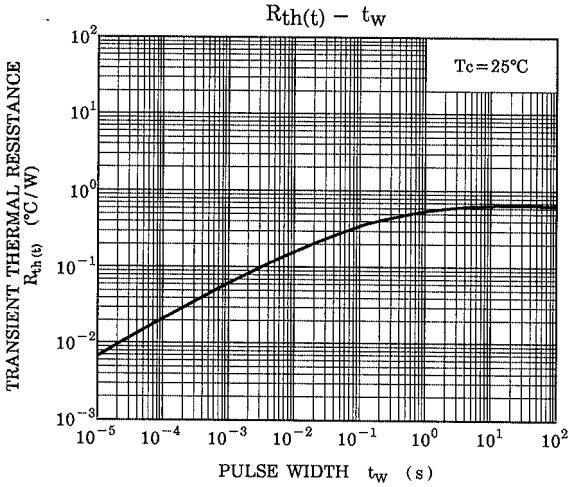
C – V_{CE}

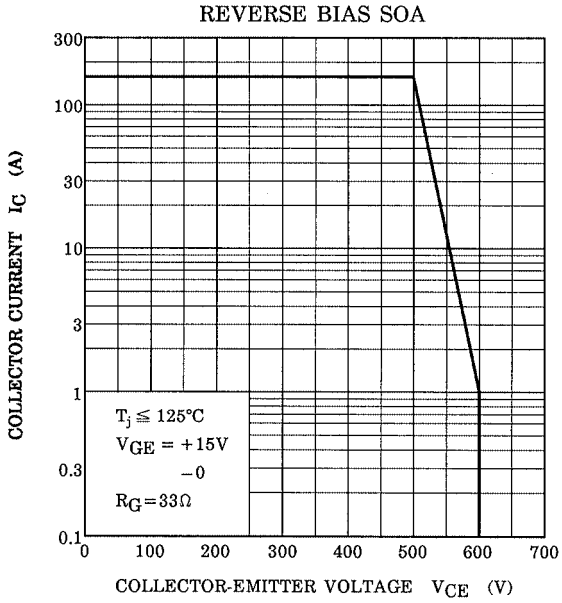


SAFE OPERATING AREA



$R_{th(t)}$ – t_w




REVERSE BIAS SOA
COLLECTOR CURRENT I_C (A)
300
100
30
10
3
1
0.3
0.1
$T_j \leqq 125°C$
V_{GE} = +15V
−0
R_G = 33Ω
0
100
200
300
400
500
600
700
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)

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