

Preliminary

TOSHIBA Insulated Gate Bipolar Transistor
Silicon N Channel IGBT

GT30J101

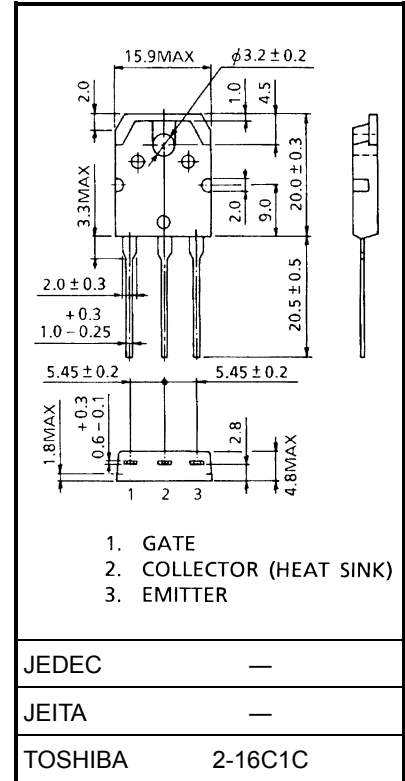
High Power Switching Applications

- The 3rd Generation
- Enhancement-Mode
- High Speed: $t_f = 0.30 \mu\text{s}$ (max)
- Low Saturation Voltage: $V_{CE(sat)} = 2.7 \text{ V}$ (max)

Maximum Ratings ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Rating	Unit	
Collector-emitter voltage	V_{CES}	600	V	
Gate-emitter voltage	V_{GES}	± 20	V	
Collector current	DC	I_C	30	A
	1 ms	I_{CP}	60	
Collector power dissipation ($T_c = 25^\circ\text{C}$)	P_C	155	W	
Junction temperature	T_j	150	$^\circ\text{C}$	
Storage temperature range	T_{stg}	-55~150	$^\circ\text{C}$	

Unit: mm

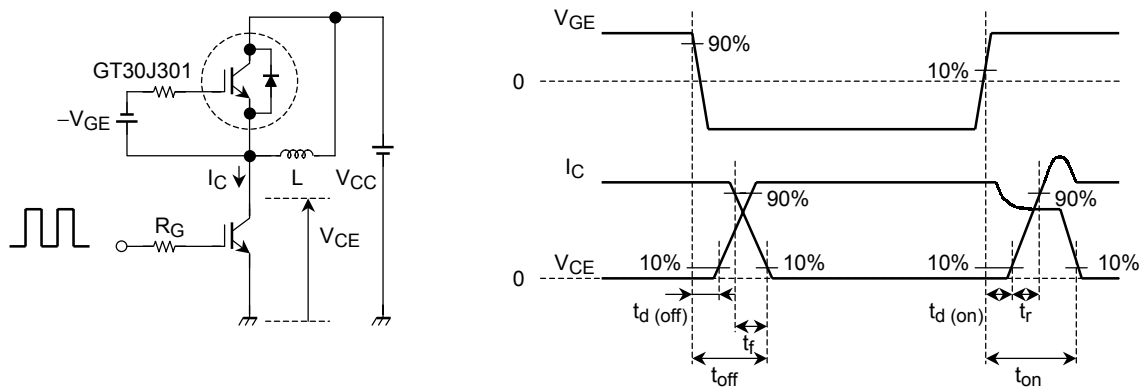


Weight: 4.6 g

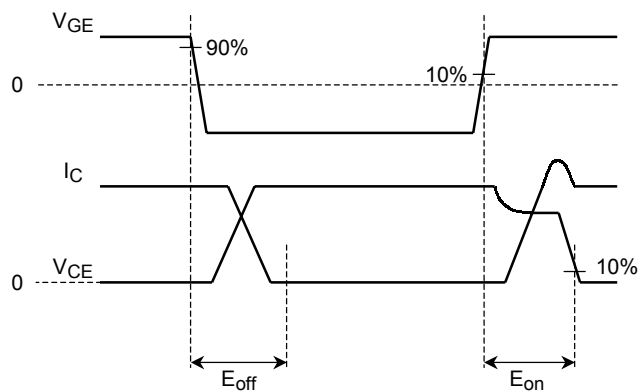
Electrical Characteristics (Ta = 25°C)

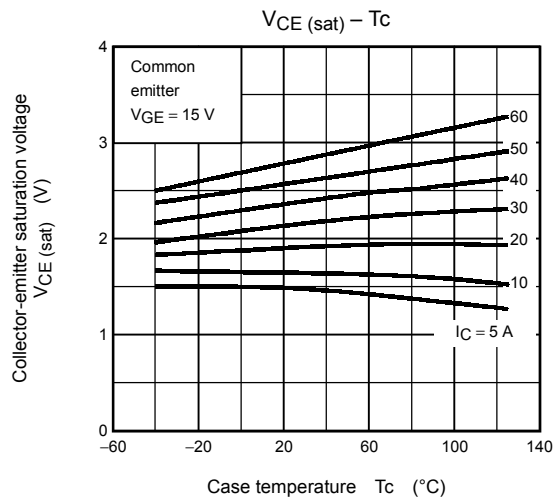
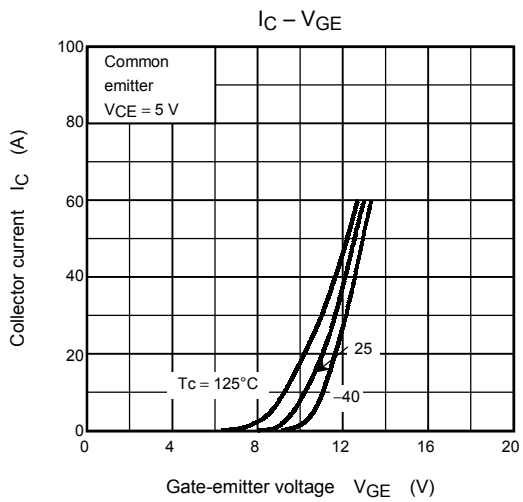
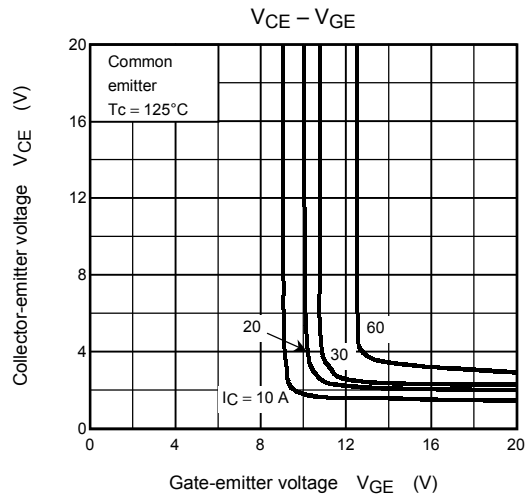
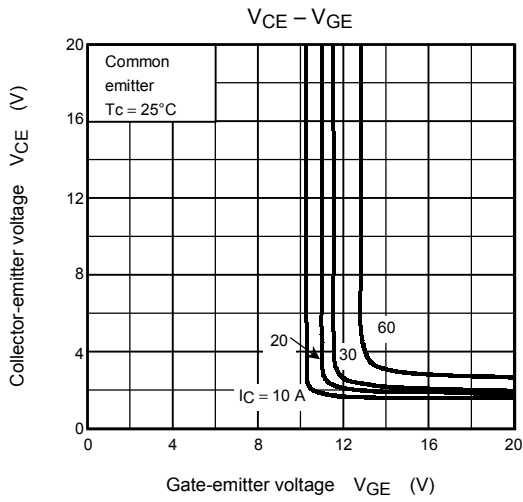
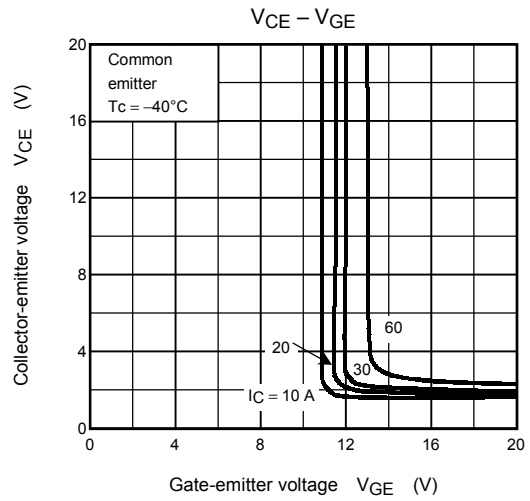
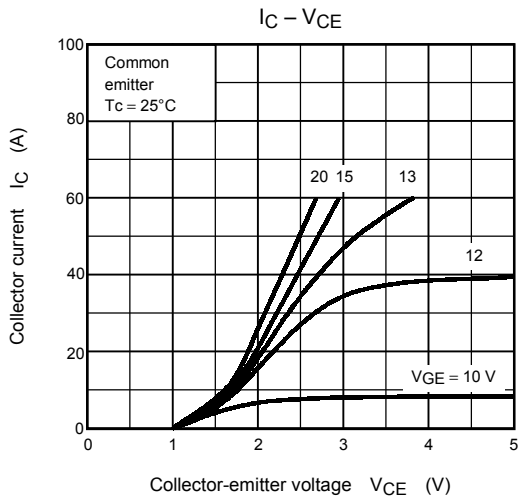
Characteristic		Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		I_{GES}	$V_{GE} = \pm 20\text{ V}, V_{CE} = 0$	—	—	± 500	nA
Collector cut-off current		I_{CES}	$V_{CE} = 600\text{ V}, V_{GE} = 0$	—	—	1.0	mA
Gate-emitter cut-off voltage		$V_{GE (OFF)}$	$I_C = 3\text{ mA}, V_{CE} = 5\text{ V}$	5.0	—	8.0	V
Collector-emitter saturation voltage		$V_{CE (sat)}$	$I_C = 30\text{ A}, V_{GE} = 15\text{ V}$	—	2.1	2.7	V
Input capacitance		C_{ies}	$V_{CE} = 20\text{ V}, V_{GE} = 0, f = 1\text{ MHz}$	—	2200	—	pF
Switching time	Rise time	t_r	Inductive Load $V_{CC} = 300\text{ V}, I_C = 30\text{ A}$ $V_{GG} = \pm 15\text{ V}, R_G = 43\ \Omega$ (Note1)	—	0.12	—	μs
	Turn-on time	t_{on}		—	0.40	—	
	Fall time	t_f		—	0.15	0.30	
	Turn-off time	t_{off}		—	0.70	—	
Thermal resistance		$R_{th (j-c)}$	—	—	0.81	$^{\circ}\text{C/W}$	

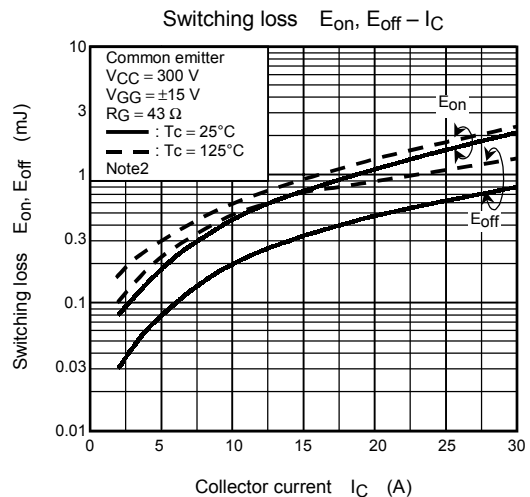
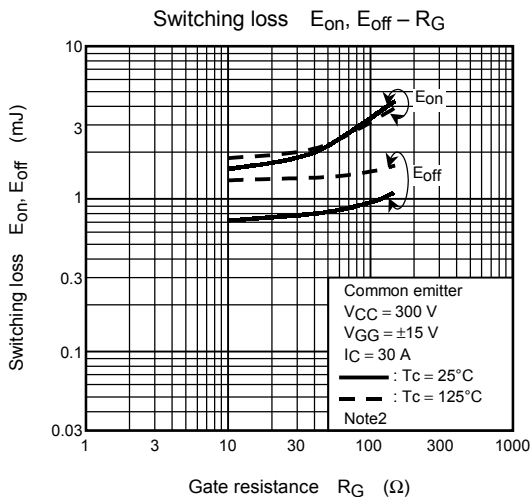
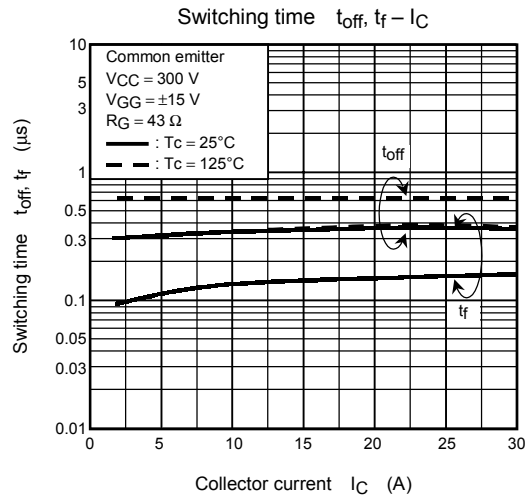
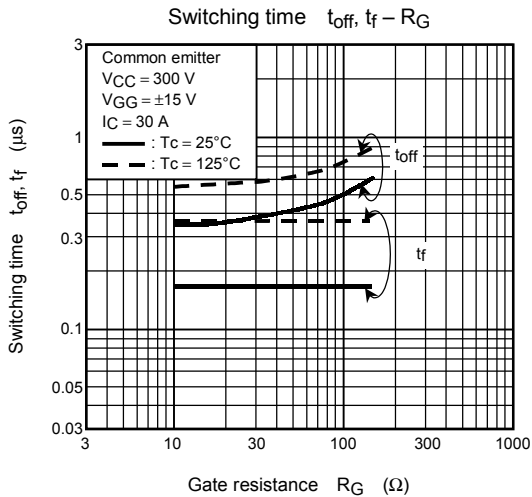
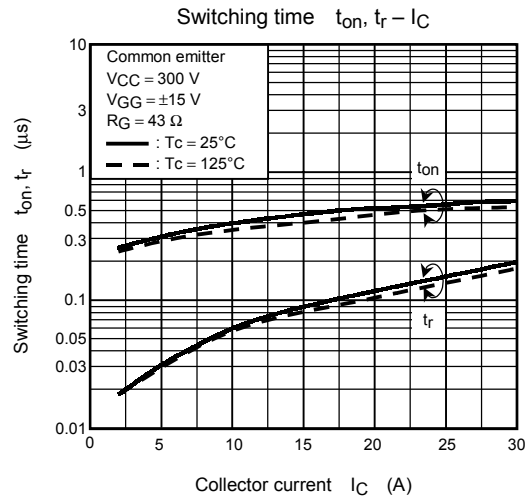
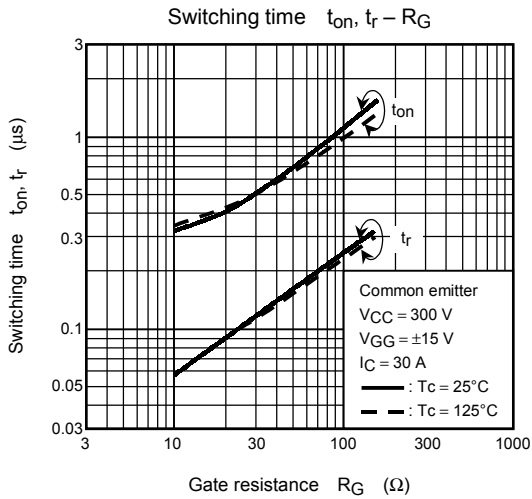
Note1: Switching time measurement circuit and input/output waveforms

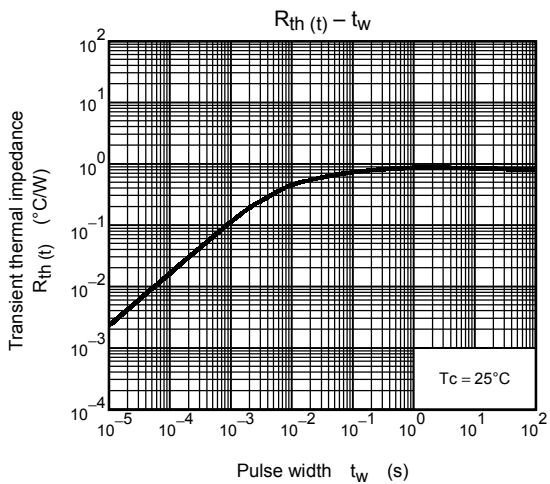
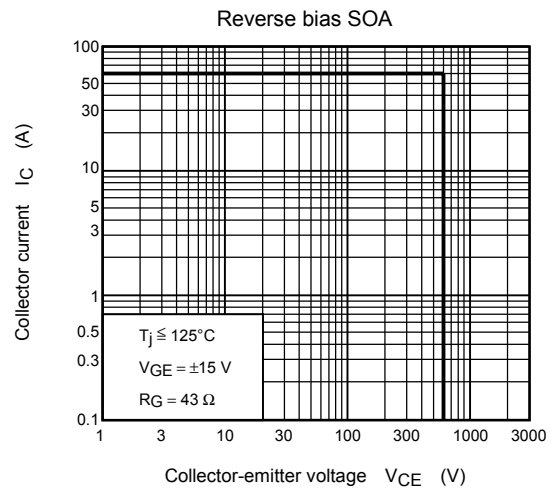
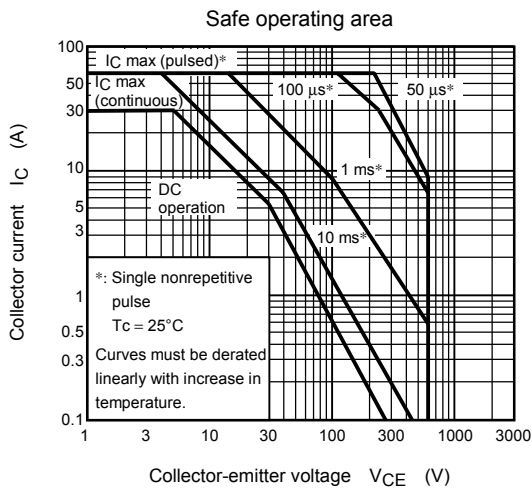
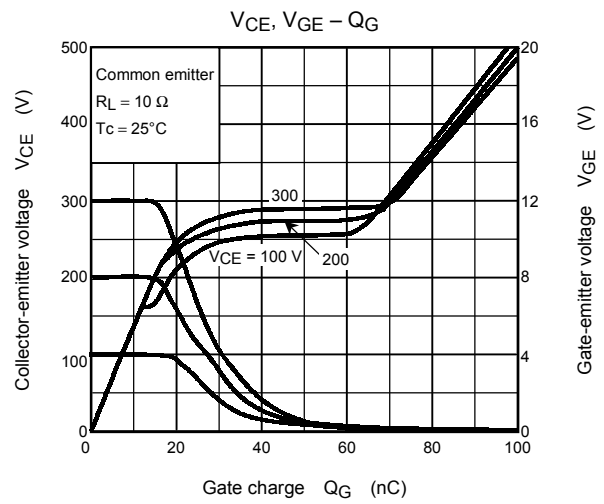
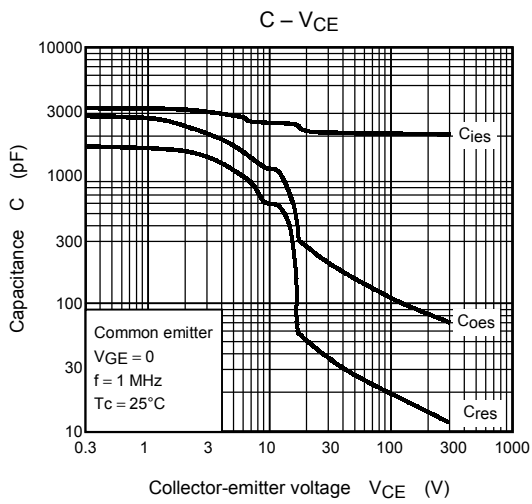


Note2: Switching loss measurement waveforms









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