

TOSHIBA Insulated Gate Bipolar Transistor Silicon N Channel IGBT

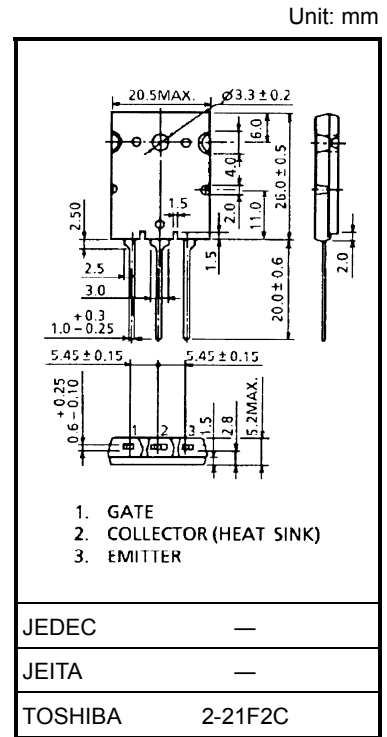
GT60M322

Voltage Resonance Inverter Switching Application
Current Resonance Inverter Switching Application

- Enhancement mode type
- High speed : $t_f = 0.15 \mu s$ (typ.) ($I_C = 60 A$)
- Low saturation voltage : $V_{CE(sat)} = 2.3 V$ (typ.) ($I_C = 60 A$)
- FRD included between emitter and collector
- TO-3P(LH) (Toshiba package name)

Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Collector-emitter voltage		V_{CES}	950	V
Gate-emitter voltage		V_{GES}	± 25	V
Collector current	DC	I_C	60	A
	1ms	I_{CP}	120	
Diode forward current	DC	I_F	25	A
	Pulsed	I_{FP}	50	
Collector power dissipation	@ Tc = 100°C	P_C	76	W
	@ Tc = 25°C		190	
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-55 to 150	°C

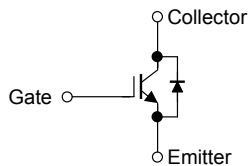


Weight: 9.75 g (typ.)

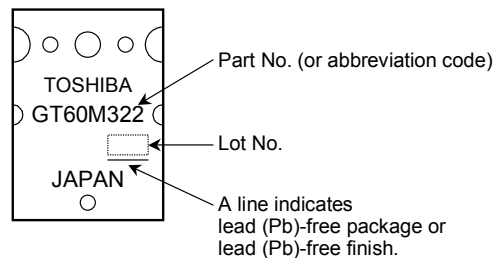
Thermal Characteristics

Characteristics	Symbol	Max	Unit
Thermal resistance (IGBT)	$R_{th(j-c)}$	0.66	°C/W
Thermal resistance (diode)	$R_{th(j-c)}$	1.38	°C/W

Equivalent Circuit



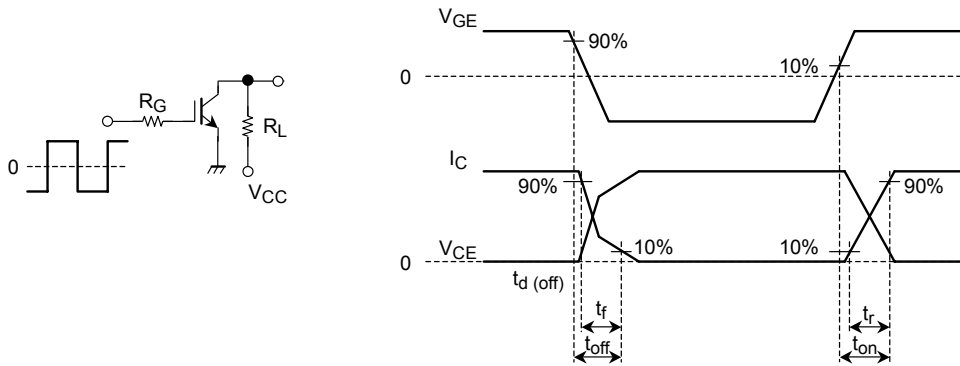
Marking

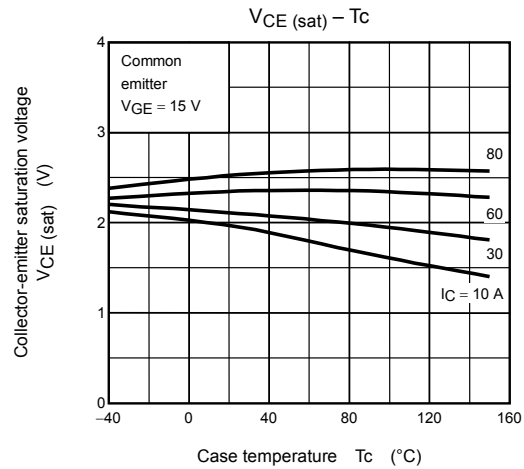
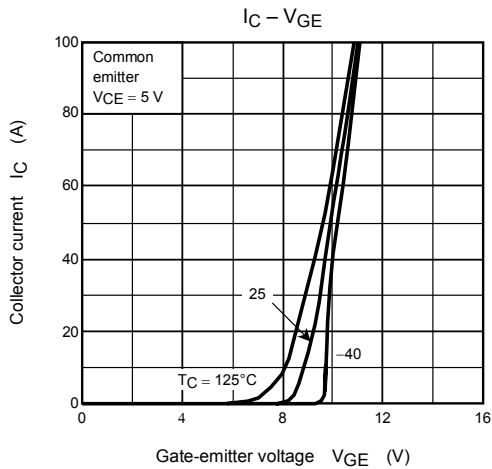
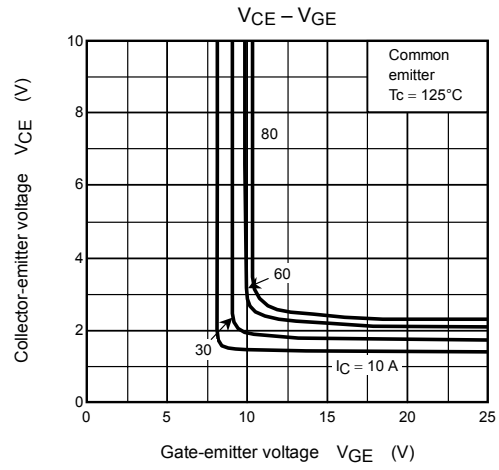
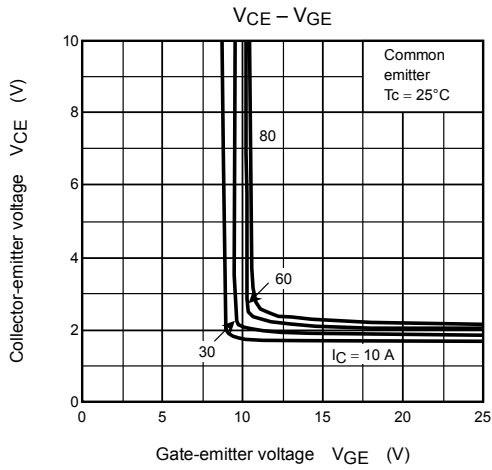
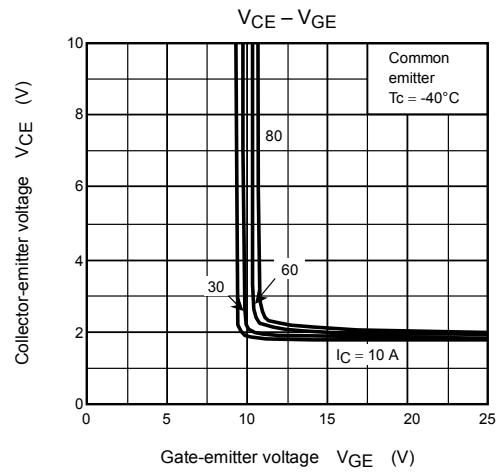
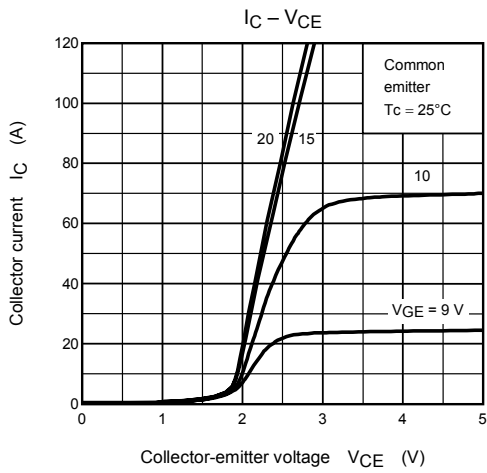


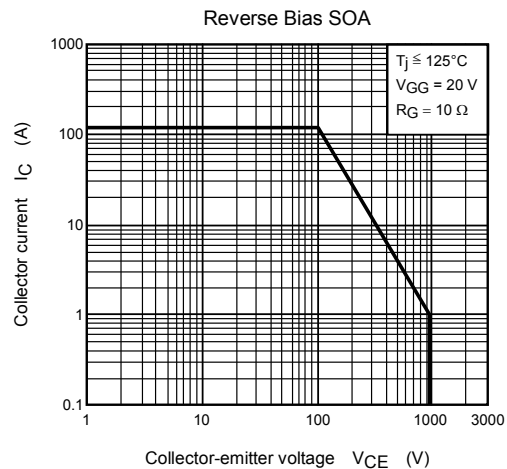
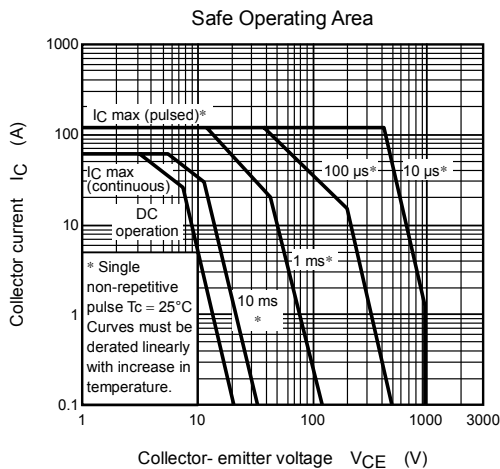
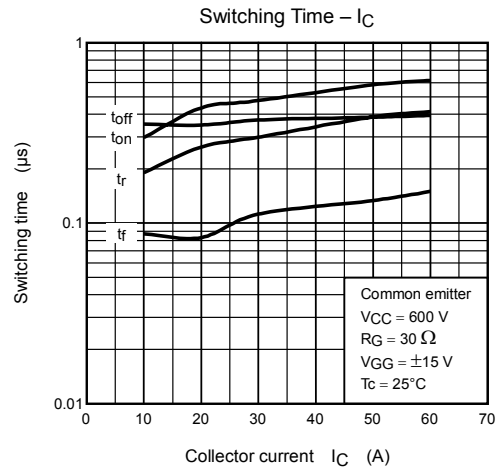
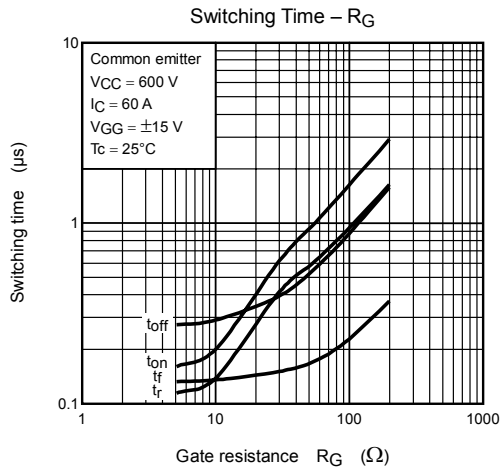
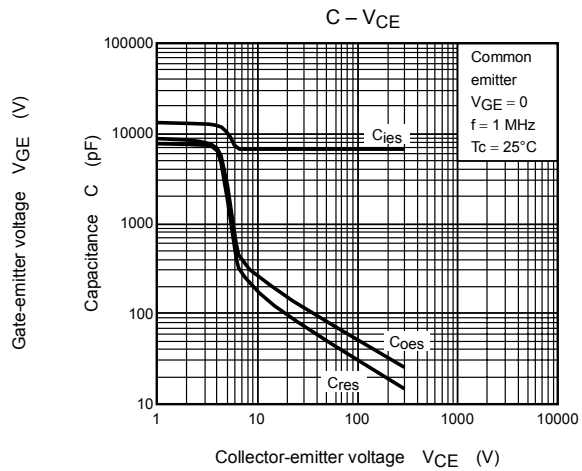
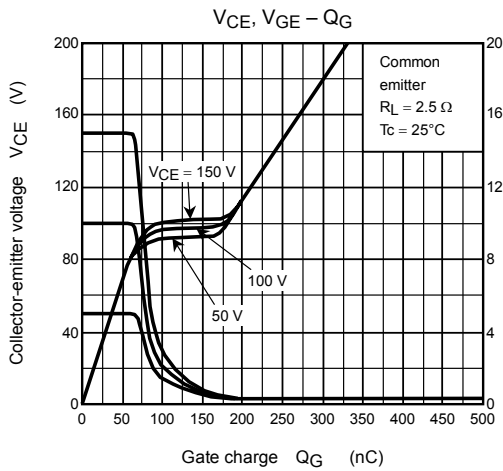
Electrical Characteristics (Ta = 25°C)

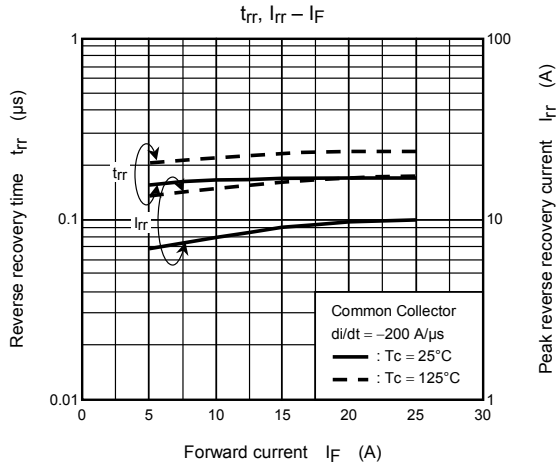
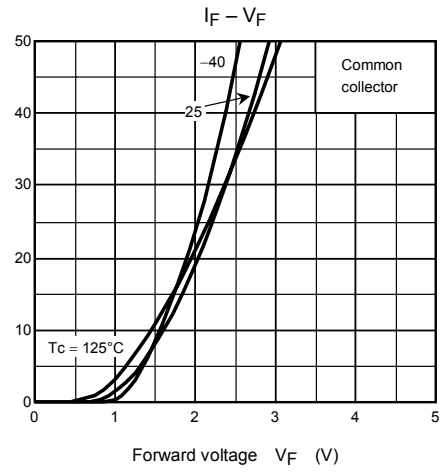
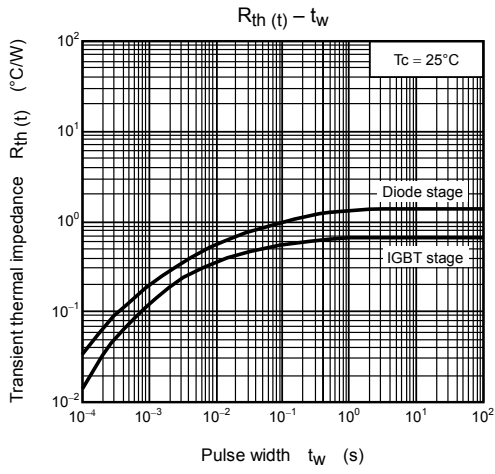
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current	I_{GES}	$V_{GE} = \pm 25 \text{ V}, V_{CE} = 0$	—	—	± 500	nA
Collector cut-off current	I_{CES}	$V_{CE} = 950 \text{ V}, V_{GE} = 0$	—	—	1.0	mA
Gate-emitter cut-off voltage	$V_{GE(OFF)}$	$I_C = 60 \text{ mA}, V_{CE} = 5 \text{ V}$	6.0	—	9.0	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 60 \text{ A}, V_{GE} = 15 \text{ V}$	—	2.3	2.7	V
Input capacitance	C_{ies}	$V_{CE} = 10 \text{ V}, V_{GE} = 0, f = 1 \text{ MHz}$	—	6800	—	pF
Switching time	Rise time	Resistive Load $V_{CC} = 600 \text{ V}, I_C = 60 \text{ A}$ $V_{GG} = \pm 15 \text{ V}, R_G = 30 \Omega$ (Note 1)	—	0.42	—	μs
	Turn-on time		—	0.62	—	
	Fall time		—	0.15	0.21	
	Turn-off time		—	0.39	—	
Diode forward voltage	V_F	$I_F = 25 \text{ A}, V_{GE} = 0$	—	—	3.0	V
Reverse recovery time	t_{rr}	$I_F = 25 \text{ A}, di/dt = -200 \text{ A}/\mu\text{s}$	—	—	0.35	μs

Note 1: Switching time measurement circuit and input/output waveforms









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