TOSHIBA Insulated Gate Bipolar Transistor Silicon N Channel IGBT

GT60J323

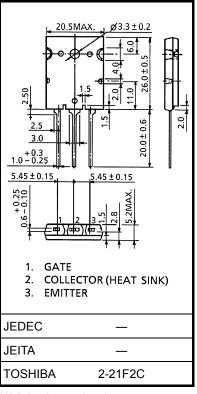
Current Resonance Inverter Switching Application

Unit: mm

- Enhancement mode type
- High speed : $t_f = 0.16 \mu s$ (typ.) (I_C = 60A)
- Low saturation voltage: $V_{CE (sat)} = 1.9 \text{ V (typ.)}$ (IC = 60A)
- FRD included between emitter and collector
- Fourth generation IGBT
- TO-3P(LH) (Toshiba package name)

Absolute Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit	
Collector-emitter voltage		V_{CES}	600	V	
Gate-emitter voltage		V_{GES}	±25	V	
Continuous collector current	@ Tc = 100°C	1-	33	Α	
	@ Tc = 25°C	IC	60		
Pulsed collector current		I _{CP}	120	Α	
Diode forward current	DC	ΙF	30	Α	
	Pulsed	I _{FP}	120		
Collector power dissipation	@ Tc = 100°C	Pc	68	W	
	@ Tc = 25°C	r.C.	170		
Junction temperature		Tj	150	°C	
Storage temperature range		T _{stg}	−55 to 150	°C	



Weight: 9.75 g (typ.)

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

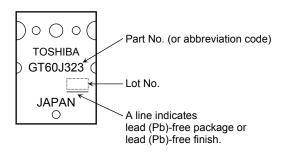
Thermal Characteristics

Characteristics	Symbol	Max	Unit
Thermal resistance (IGBT)	R _{th (j-c)}	0.74	°C/W
Thermal resistance (diode)	R _{th (j-c)}	1.56	°C/W

Equivalent Circuit

Gate Collector

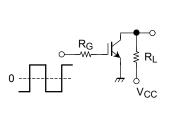
Marking

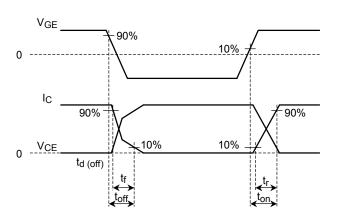


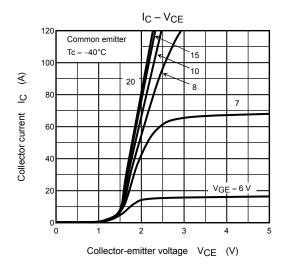
Electrical Characteristics (Ta = 25°C)

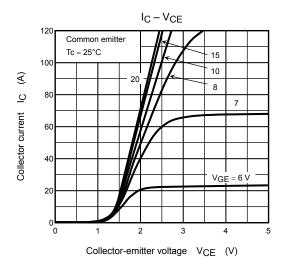
Chara	acteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Gate leakage cur	rent	I _{GES}	$V_{GE} = \pm 25 \text{ V}, V_{CE} = 0$	_	_	±500	nA
Collector cut-off of	current	I _{CES}	V _{CE} = 600 V, V _{GE} = 0	_	_	1.0	mA
Gate-emitter cut-	off voltage	V _{GE} (OFF)	I _C = 60 mA, V _{CE} = 5 V	3.0	_	6.0	V
Collector-emitter	saturation voltage	V _{CE} (sat)	I _C = 60 A, V _{GE} = 15 V	_	1.9	2.5	V
Input capacitance		C _{ies}	V _{CE} = 10 V, V _{GE} = 0, f = 1 MHz	_	4800	_	pF
Switching time	Rise time	t _r	Resistive Load	_	0.17	_	- - µs
	Turn-on time	t _{on}	V _{CC} = 300 V, I _C = 60 A	_	0.23	_	
	Fall time	t _f	V_{GG} = ±15 V, R_G = 30 Ω	_	0.16	0.26	
	Turn-off time	t _{off}	(Note 1)	_	0.41	_	
Diode forward vo	Diode forward voltage V _F		I _F = 30 A, V _{GE} = 0	_	1.4	2.0	V
Reverse recovery time t _{rr}		t _{rr}	I _F = 30 A, di/dt = -100 A/μs	_	0.1	0.2	μs

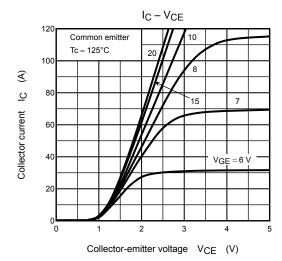
Note 1: Switching time measurement circuit and input/output waveforms

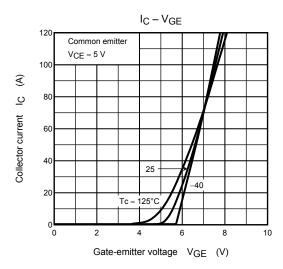


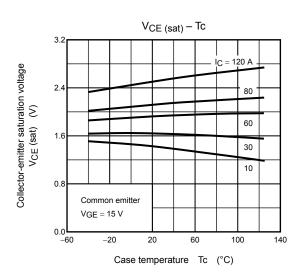


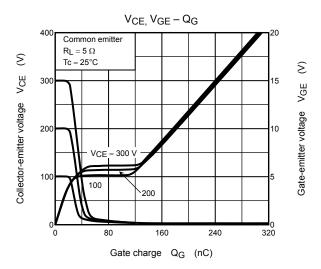


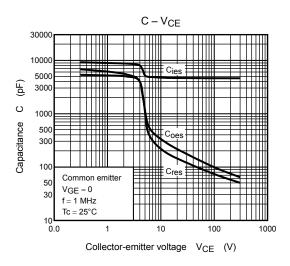


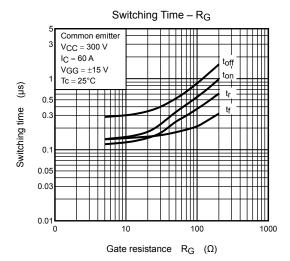


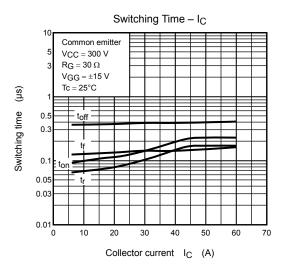


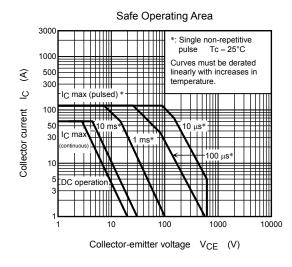


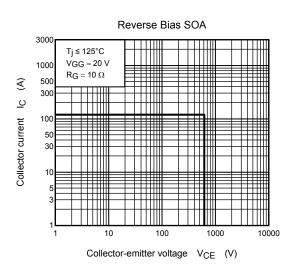


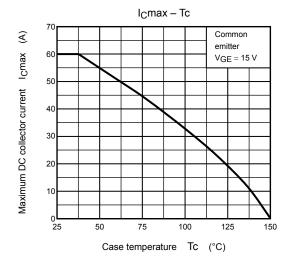


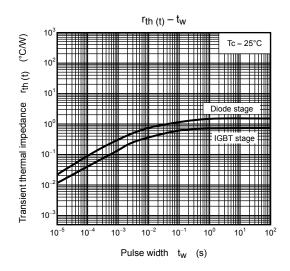


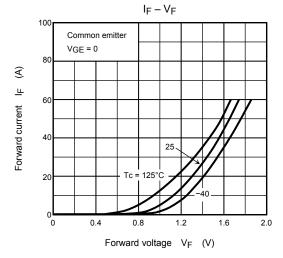


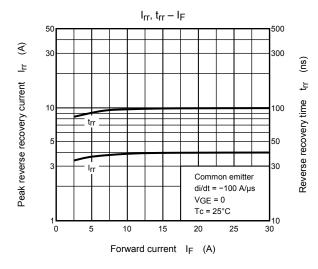


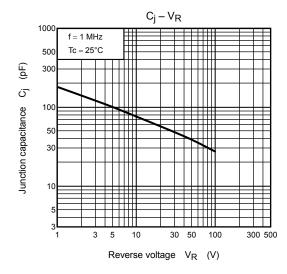


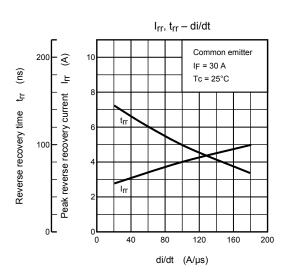












5

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6