

TOSHIBA Insulated Gate Bipolar Transistor Silicon N Channel IGBT

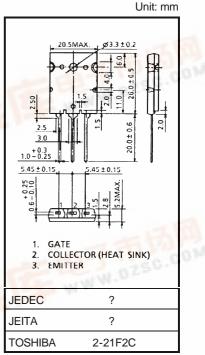
GT80J101B

High Power Switching Applications

- Enhancement mode type
- High speed: $t_f = 0.40 \ \mu s \ (max) \ (I_C = 80 \ A)$
- Low saturation voltage: V_{CE (sat)} = 2.9 V (max) (I_C = 80 A)

Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit V	
		VCES	600		
		VGES	±20	V	
Continuous collector	@Tc = 100°C	1-	33		
current	@Tc = 25°C	IC	80	A	
Pulsed collector current (Note 1)		I _{CP}	160	А	
Collector power dissipation	@Tc = 100°C		80		
	@Tc = 25°C	PC	200	W	
	@Ta = 25°C		3.5	10 11	
Junction temperature		Tj	150	°C	
Storage temperature		T _{stg}	-55~150	°C	
Screw torque		0250.0	0.8	N∙m	



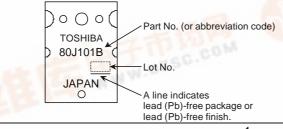
Weight: 9.75 g (typ.)

Note 1: The Maximum rating of I_{CP}=160A is limited by pulse (1ms). Refer to the graph of safe operating area for the detail.

Thermal Characteristics

Characteristics	Symbol	Rating	Unit	
Thermal resistance , junction to case $(Tc = 25^{\circ}C)$	Rth (j-c)	0.625	°C/W	
Thermal resistance , junction to air (Ta = 25°C)	R _{th} (j-a)	35.7	°C/W	

MARKING

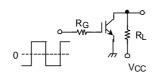


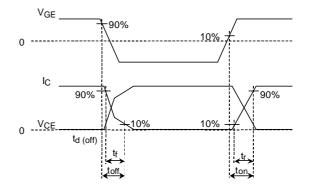


Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Тур.	Max	Unit	
Gate leakage current		IGES	$V_{GE} = \pm 25 V, V_{CE} = 0$	_		±500	nA	
Collector cut-off current		ICES	$V_{CE} = 600 V, V_{GE} = 0$	_		1.0	mA	
Gate-emitter cut-off voltage VGE (0		VGE (OFF)	V _{CE} = 5 V, I _C = 80 mA	3.0	_	6.0	V	
Collector-emitter saturation voltage		V _{CE (sat)} (1)	$I_{C} = 10 \text{ A}, V_{GE} = 15 \text{ V}$	_	_	2.0	V	
		V _{CE (sat)} (2)	$I_{C} = 80 \text{ A}, V_{GE} = 15 \text{ V}$		2.4	2.9	v	
Input capacitance		Cies	$V_{CE} = 10 V, V_{GE} = 0, f = 1 MHz$		5500	_	pF	
Switching time	Rise time	tr	Resistive load $V_{CC} = 300 \text{ V}, I_C = 80 \text{ A}$ $V_{GG} = \pm 15 \text{ V}, R_G = 33\Omega$ (Note 2)		0.3	_	μs	
	Turn-on time	ton		_	0.5	_		
	Fall time	t _f			0.25	0.40		
	Turn-off time	t _{off}		_	0.7			

Note 2: Switching time measurement circuit and input/output waveforms.

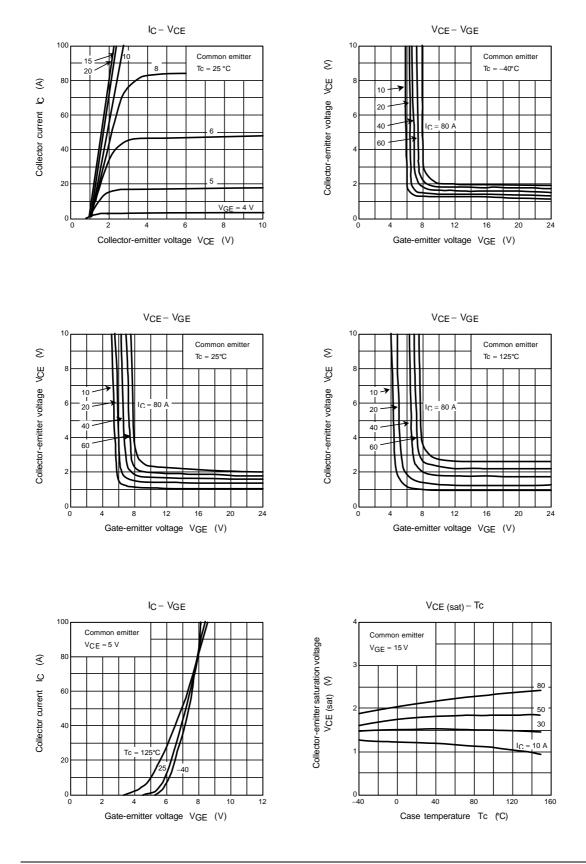




Caution on handling

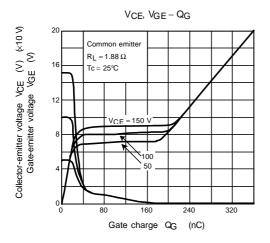
This device is MOS gate type. Therefore, please care about ESD when use.

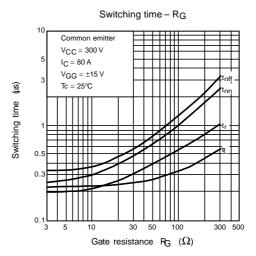
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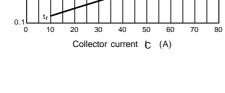
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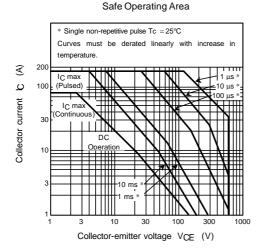
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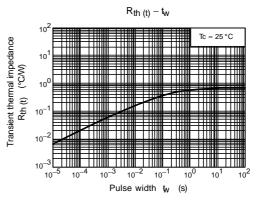


Switching time - IC Common emitter V_{CC} = 300 V $R_G = 33 \Omega$ $V_{GG} = \pm 15 V$ (sn) Tc = 25°C Switching time 0.5 0.3 to 0.1 70 10 20 30 40 50 60 80 С Collector current C (A)



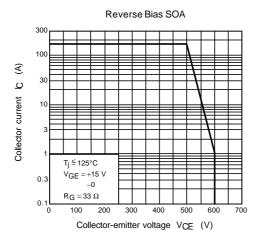


30000 10000 Ħ (PF) 5000 3000 с Ш Capacitance 1000 500 300 Common emitter $V_{GE} = 0 V$ f = 1 MHz 100 Tc = 25°C 50 3 5 10 30 50 100 300 500 Collector-emitter voltage VCE (V)



 $C - V_{CE}$

2006-06-05



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