Unit: mm

TOSHIBA Insulated Gate Bipolar Transistor Silicon N Channel IGBT

GT30J126

High Power Switching Applications Fast Switching Applications

- Fourth-generation IGBT
- Enhancement mode type
- Fast switching (FS):

High speed: $t_f = 0.05 \mu s$ (typ.)

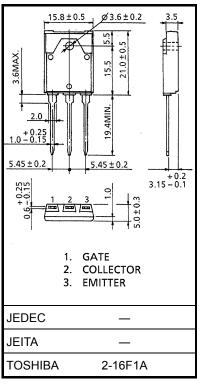
Low switching loss: $E_{on} = 1.00 \text{ mJ (typ.)}$

 $: E_{off} = 0.80 \text{ mJ (typ.)}$

• Low saturation voltage: VCE (sat) = 1.95 V (typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit	
Collector-emitter voltage		V _{CES}	600	V	
Gate-emitter voltage		V _{GES}	±20	V	
Collector current	DC	Ic	30	Α	
	1 ms	I _{CP}	60		
Collector power dissipation (Tc = 25°C)		P _C	90	W	
Junction temperature		Tj	150	°C	
Storage temperature range		T _{stg}	-55 to 150	°C	



Weight: 5.8 g (typ.)

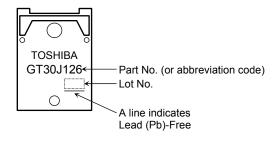
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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	R _{th (j-c)}	1.39	°C/W

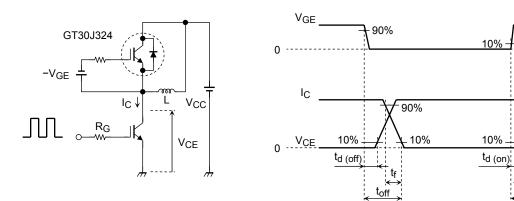
Marking



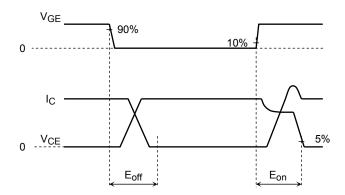
Electrical Characteristics (Ta = 25°C)

Cha	racteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Gate leakage cu	ırrent	I _{GES}	V _{GE} = ±20 V, V _{CE} = 0	_	_	±500	nA
Collector cut-off current		I _{CES}	V _{CE} = 600 V, V _{GE} = 0	_	_	1.0	mA
Gate-emitter cut-off voltage		V _{GE} (OFF)	I _C = 3 mA, V _{CE} = 5 V	3.5	_	6.5	V
Collector-emitter saturation voltage		V _{CE} (sat)	I _C = 30 A, V _{GE} = 15 V	_	1.95	2.45	V
Input capacitance		C _{ies}	V _{CE} = 10 V, V _{GE} = 0, f = 1 MHz	_	4650	_	pF
Switching time	Turn-on delay time	t _{d (on)}	Inductive Load $V_{CC} = 300 \text{ V, } I_{C} = 30 \text{ A}$ $V_{GG} = +15 \text{ V, } R_{G} = 24 \Omega$ (Note 1) (Note 2)	_	0.09	_	μs
	Rise time	t _r		_	0.07	_	
	Turn-on time	t _{on}		_	0.24	_	
	Turn-off delay time	^t d (off)		_	0.30	_	
	Fall time	t _f		_	0.05	_	
	Turn-off time	t _{off}		_	0.43	_	
Switching loss	Turn-on switching loss	E _{on}			1.00	_	- mJ
	Turn-off switching loss	E _{off}		_	0.80		

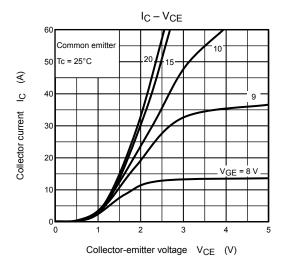
Note 1: Switching time measurement circuit and input/output waveforms

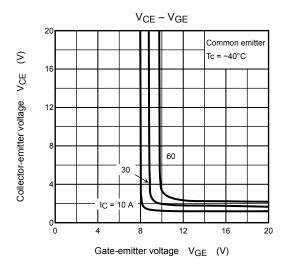


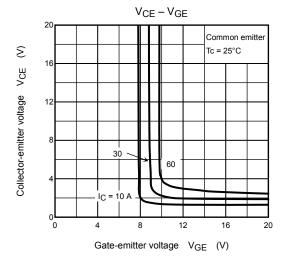
Note 2: Switching loss measurement waveforms

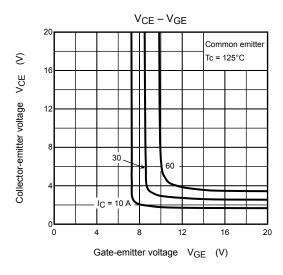


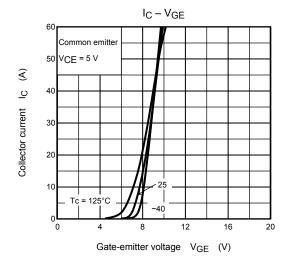
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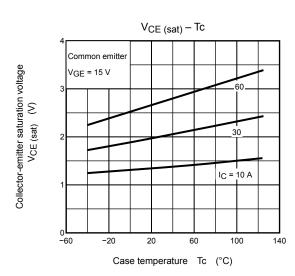


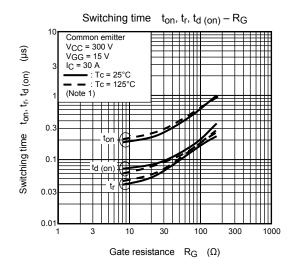


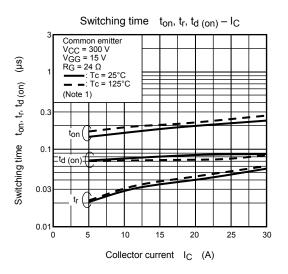


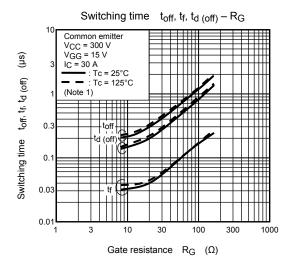


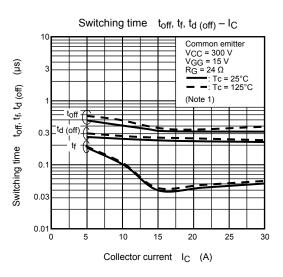


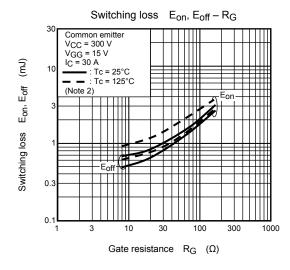


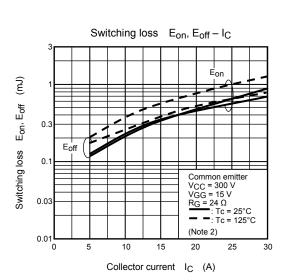


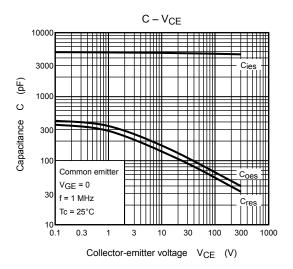


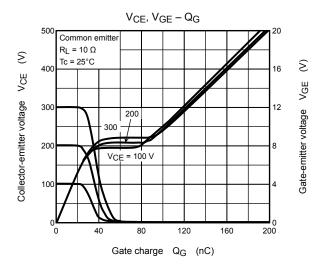


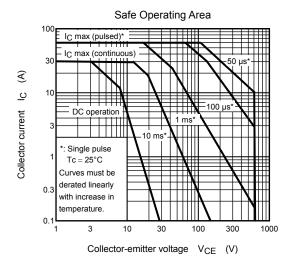


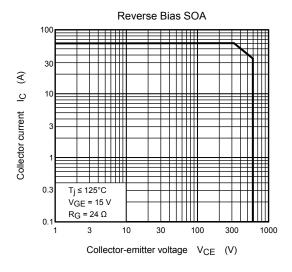


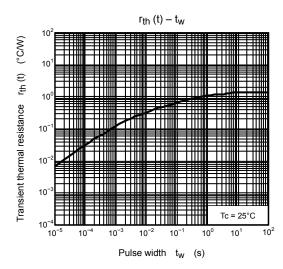












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20070701-EN GENERAL

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