

TOSHIBA Insulated Gate Bipolar Transistor Silicon N Channel IGBT

GT50J328

Current Resonance Inverter Switching Application Fourth Generation IGBT

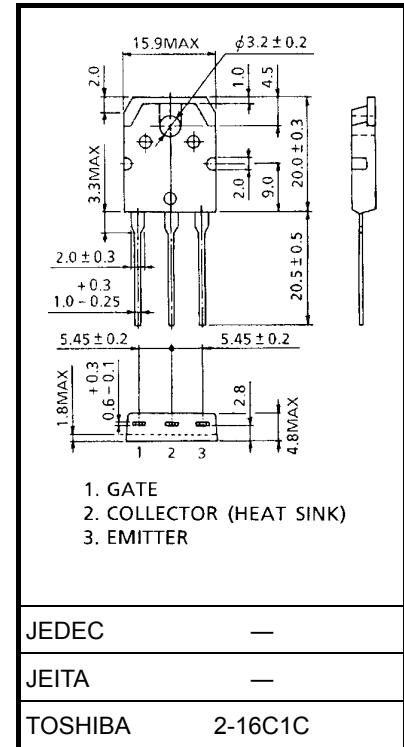
- Enhancement mode type
- High speed : $t_f = 0.1 \mu s$ (Typ.)
- Low saturation voltage : $V_{CE(sat)} = 2.0 V$ (Typ.)

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	DC	I_C	50	A
	1ms	I_{CP}	120	
Diode forward current	DC	I_F	30	A
	1ms	I_{FP}	120	
Collector power dissipation (Tc = 25°C)		P_C	140	W
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-55 to 150	°C

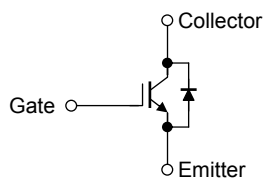
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

Unit: mm

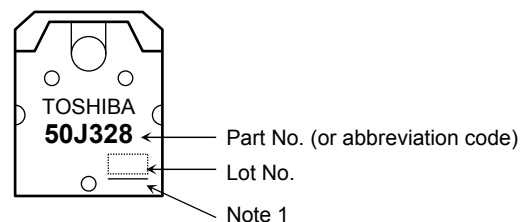


Weight: 4.6 g (typ.)

Equivalent Circuit



Marking



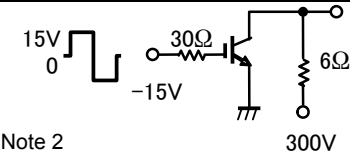
Note 1: A line under a Lot No. identifies the indication of product Labels.

[[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

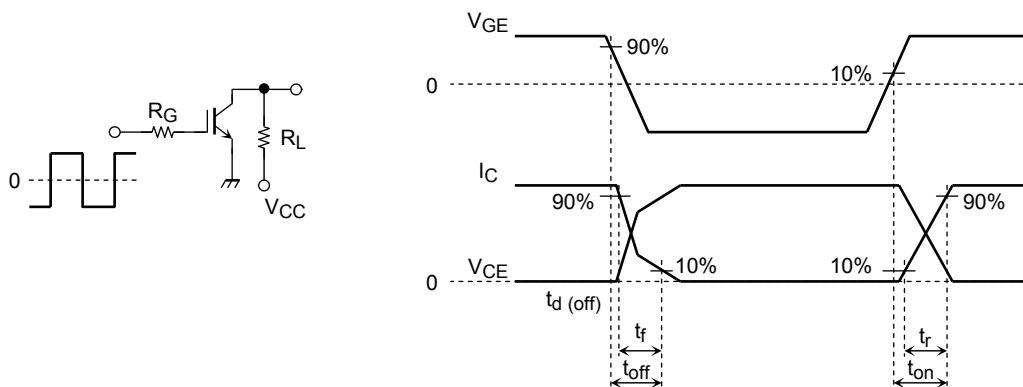
Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product.

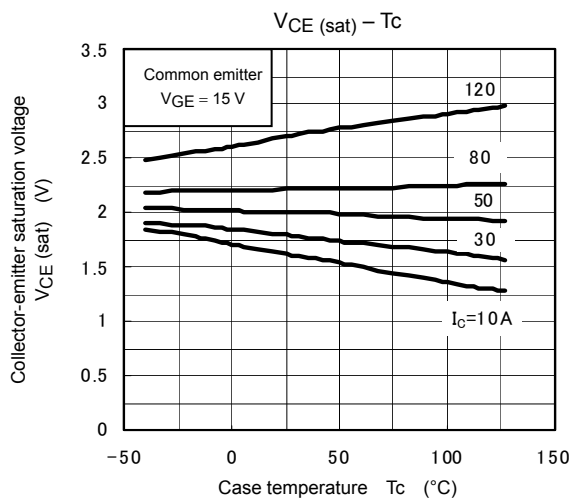
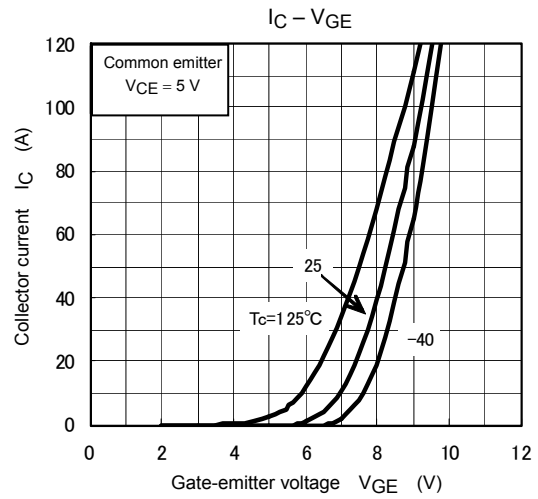
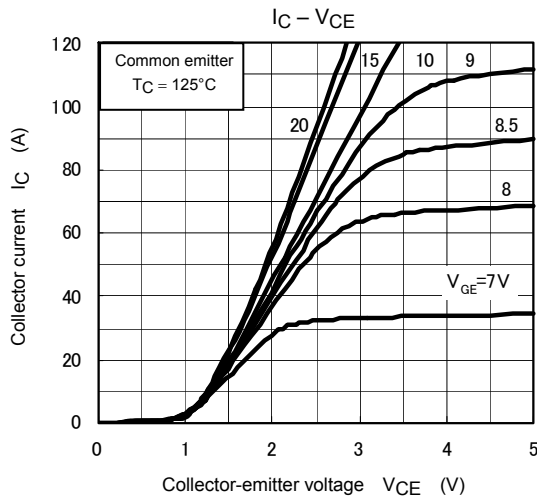
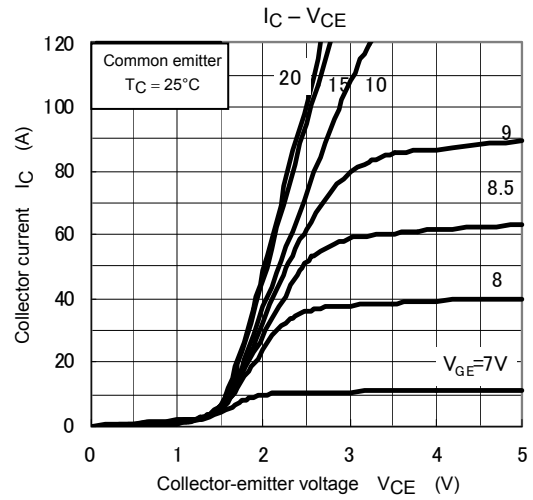
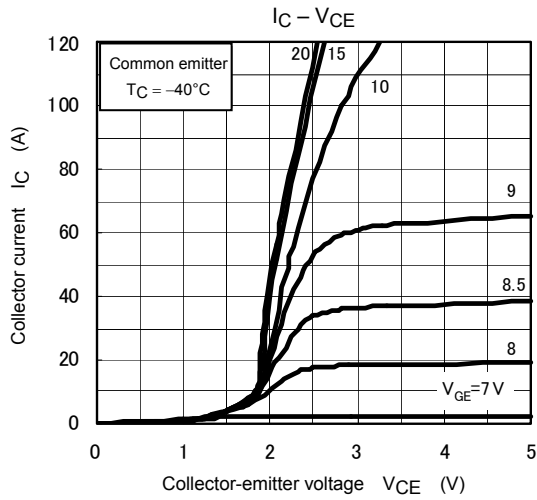
The RoHS is the Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

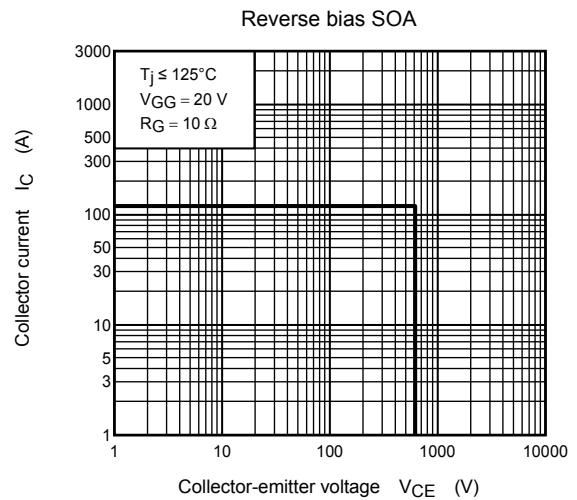
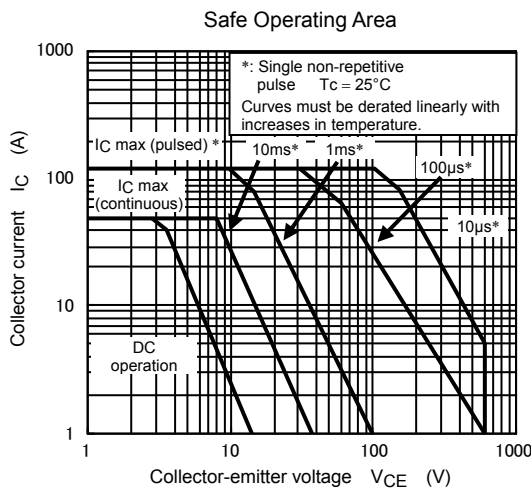
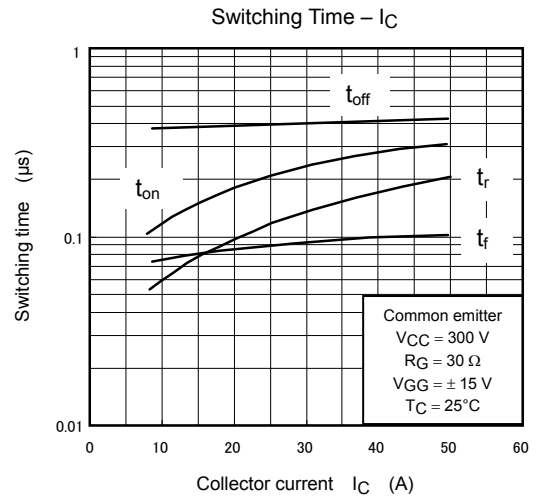
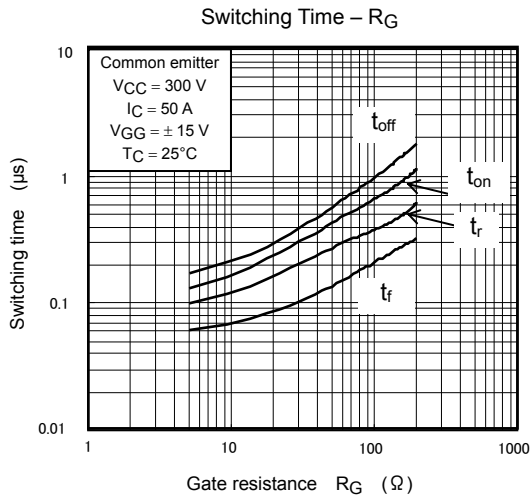
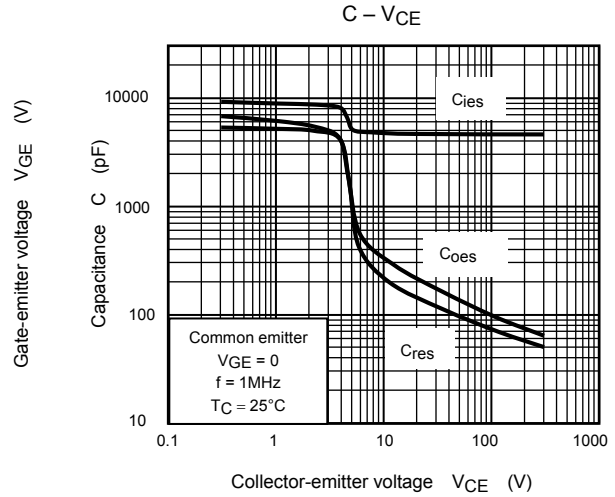
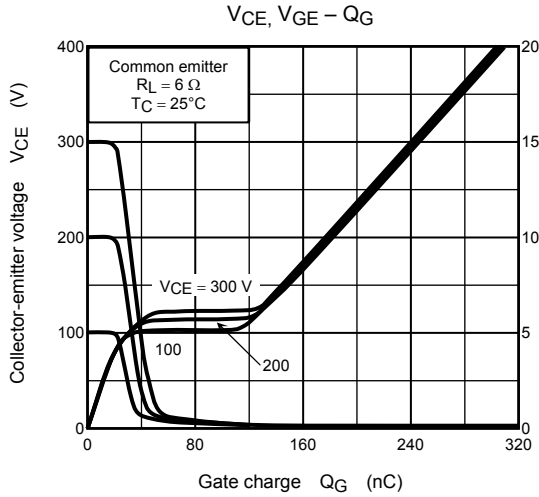
Electrical Characteristics (T_a=25°C)

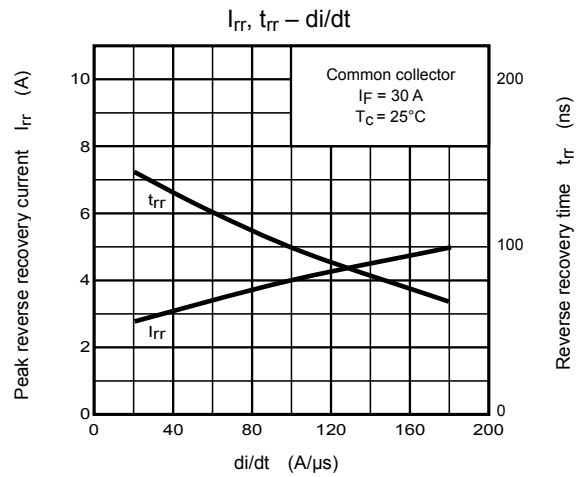
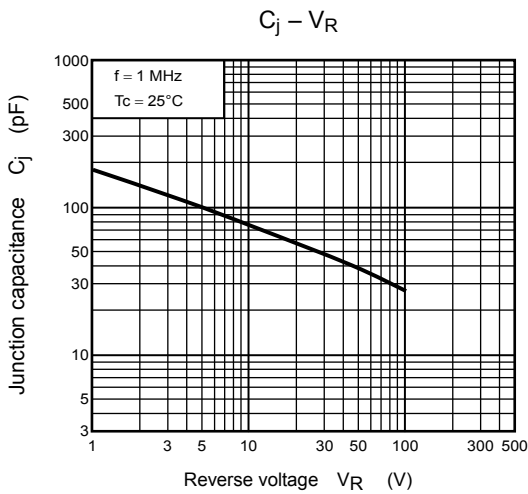
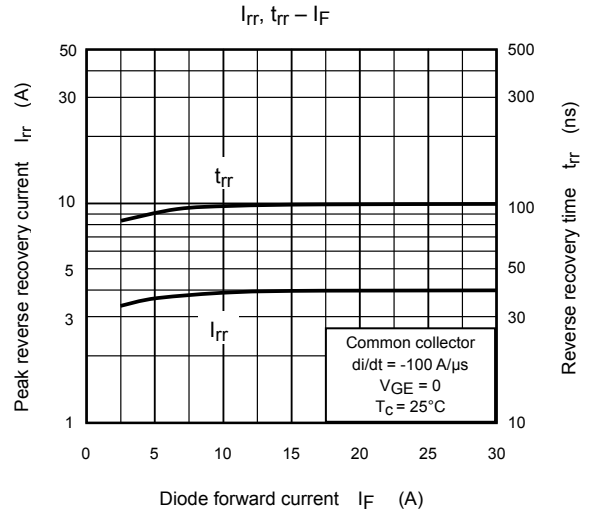
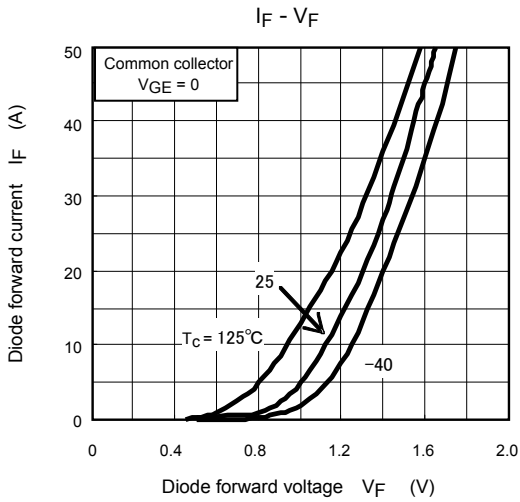
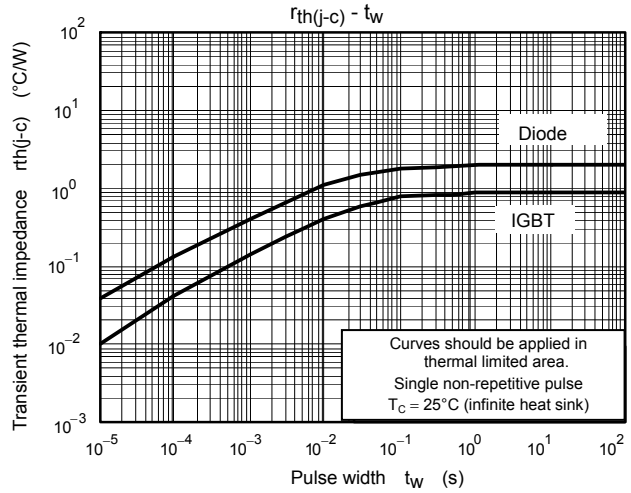
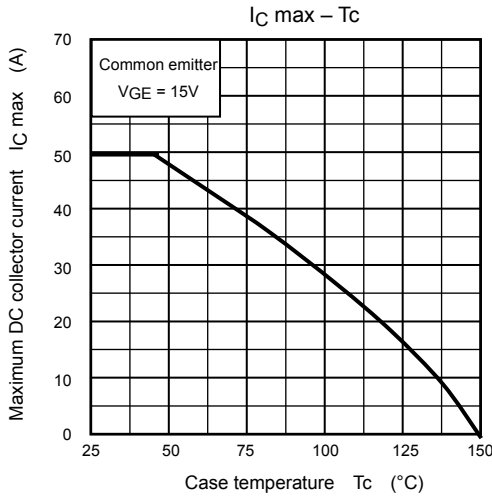
Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		I _{GES}	V _{GE} = ±25 V, V _{CE} = 0	—	—	± 100	nA
Collector cut-off current		I _{CES}	V _{CE} = 600 V, V _{GE} = 0	—	—	1.0	mA
Gate-emitter cut-off voltage		V _{GE (OFF)}	I _C = 50 mA, V _{CE} = 5 V	3.0	—	6.0	V
Collector-emitter saturation voltage		V _{CE (sat)}	I _C = 50 A, V _{GE} = 15 V	—	2.0	2.8	V
Input capacitance		C _{ies}	V _{CE} = 10 V, V _{GE} = 0, f = 1 MHz	—	4800	—	pF
Switching time	Rise time	t _r	 Note 2	—	0.2	—	μs
	Turn-on time	t _{on}		—	0.3	—	
	Fall time	t _f		—	0.1	0.17	
	Turn-off time	t _{off}		—	0.4	—	
Diode forward voltage		V _F	I _F = 30 A, V _{GE} = 0	—	—	2.0	V
Reverse recovery time		t _{rr}	I _F = 30A, V _{GE} = 0, di/dt = - 100 A/μs	—	—	0.2	μs
Thermal Resistance (IGBT)		R _{th (j-c)}	—	—	—	0.89	°C/W
Thermal Resistance (Diode)		R _{th (j-c)}	—	—	—	2.0	°C/W

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









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