

GT30J322

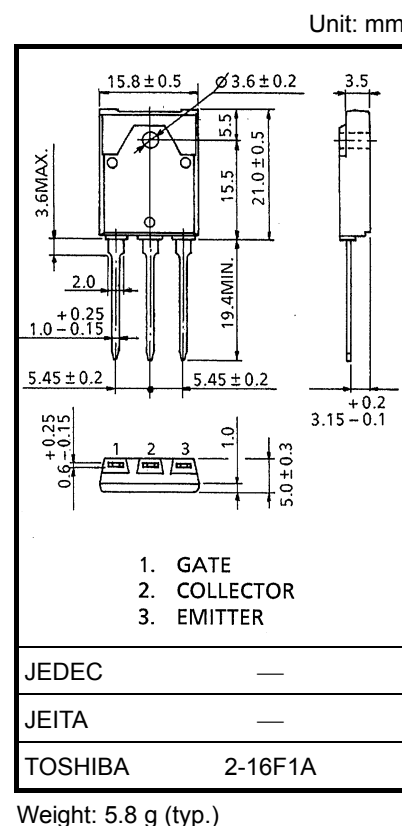
FOURTH-GENERATION IGBT

CURRENT RESONANCE INVERTER SWITCHING APPLICATIONS

- FRD included between emitter and collector
- Enhancement mode type
- High speed : $t_f = 0.25\mu s$ (Typ.) ($I_C = 50A$)
- Low saturation voltage : $V_{CE(sat)} = 2.1V$ (Typ.) ($I_C = 50A$)

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

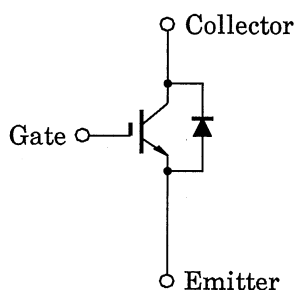
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		V_{CES}	600	V
Gate-Emitter Voltage		V_{GES}	± 20	V
Collector Current	DC	I_C	30	A
	1ms	I_{CP}	100	
Emitter-Collector Forward Current	DC	I_F	30	A
	1ms	I_{FP}	60	
Collector Power Dissipation ($T_c = 25^\circ\text{C}$)		P_C	75	W
Junction Temperature		T_j	150	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	-55 to 150	$^\circ\text{C}$



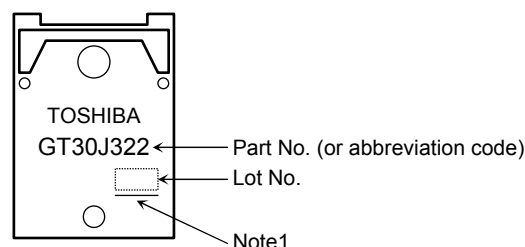
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

EQUIVALENT CIRCUIT



MARKING

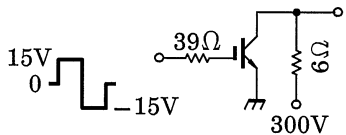


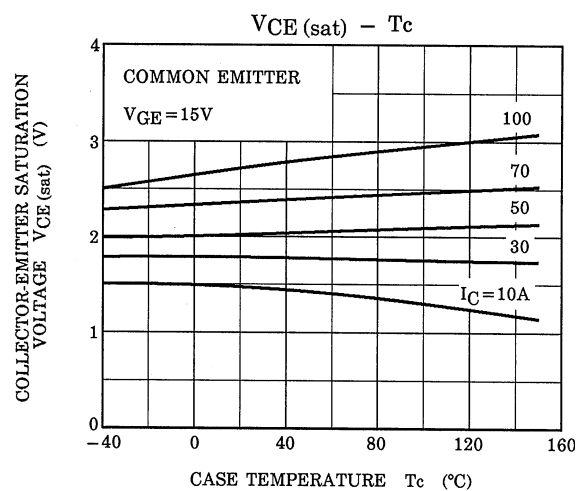
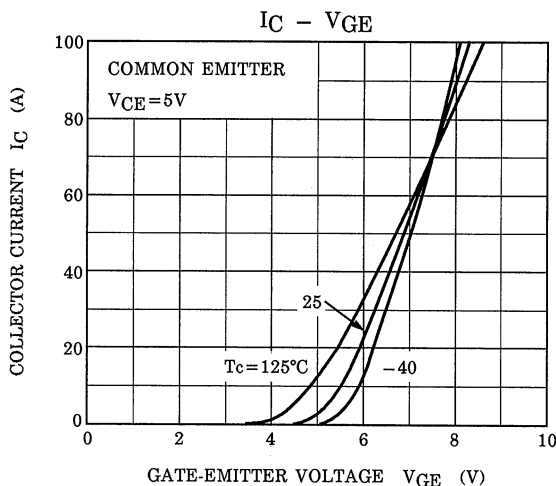
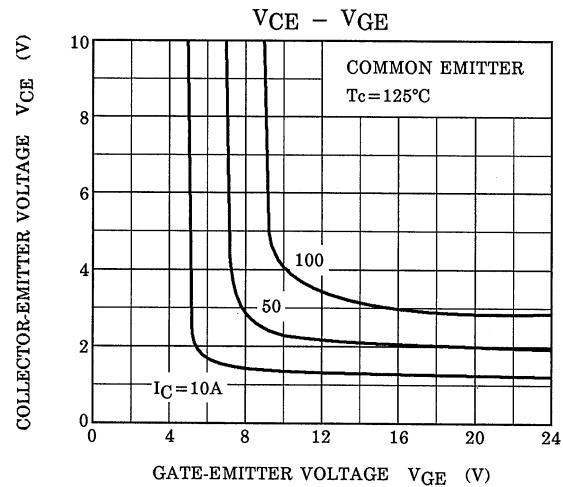
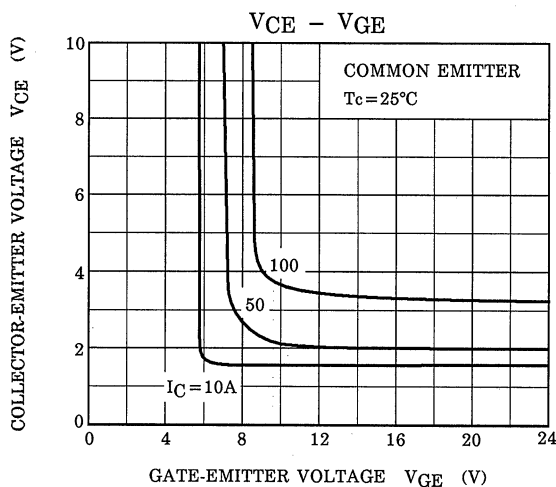
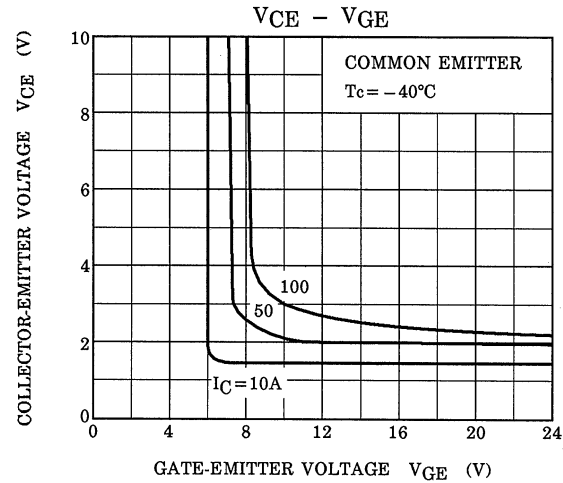
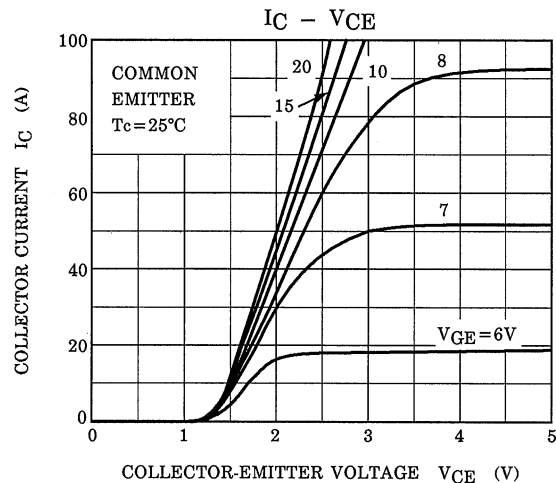
Note1: A line under a Lot No. identifies the indication of product Labels.
[[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

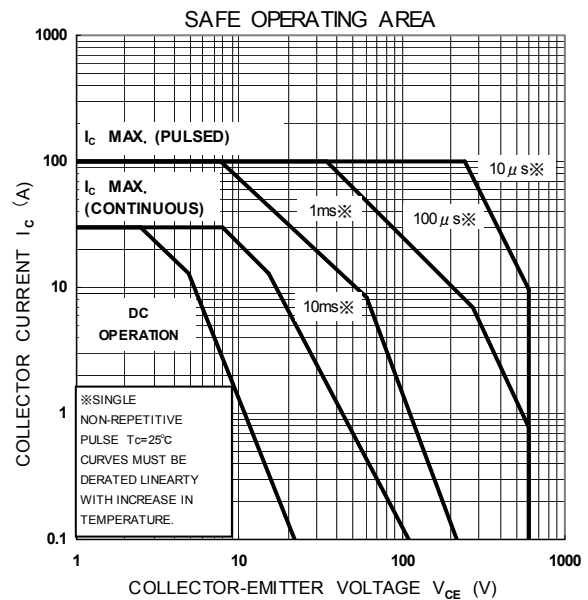
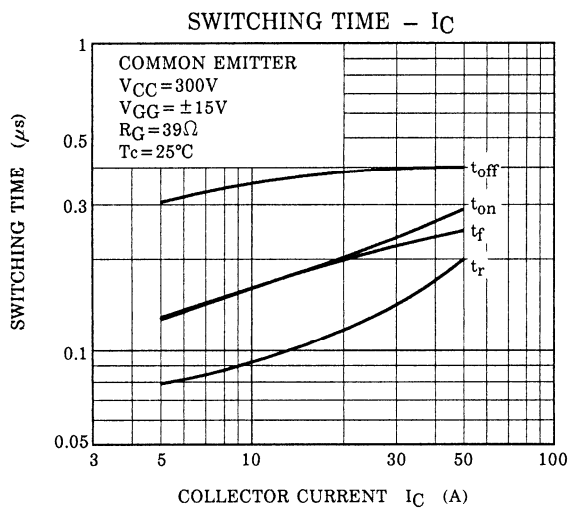
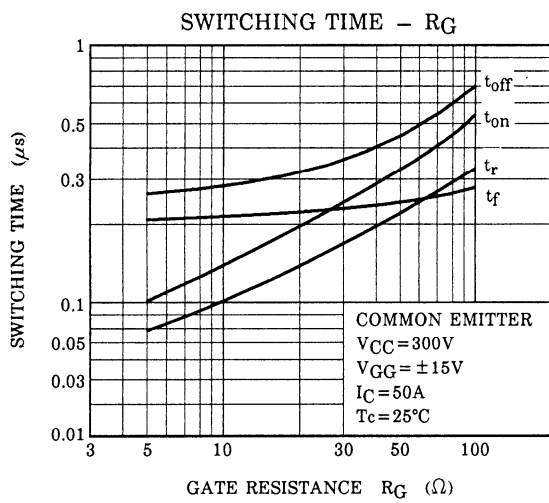
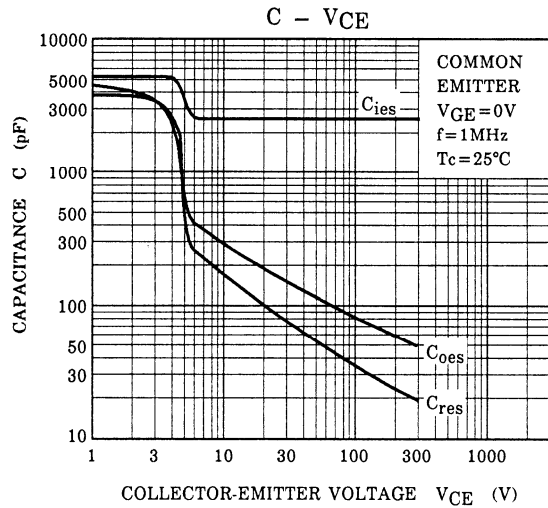
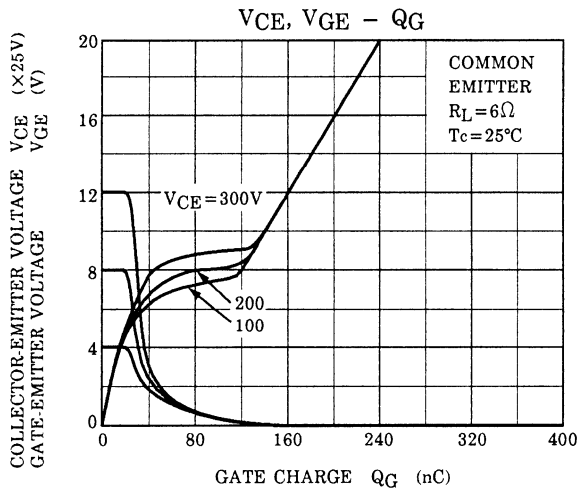
Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product.

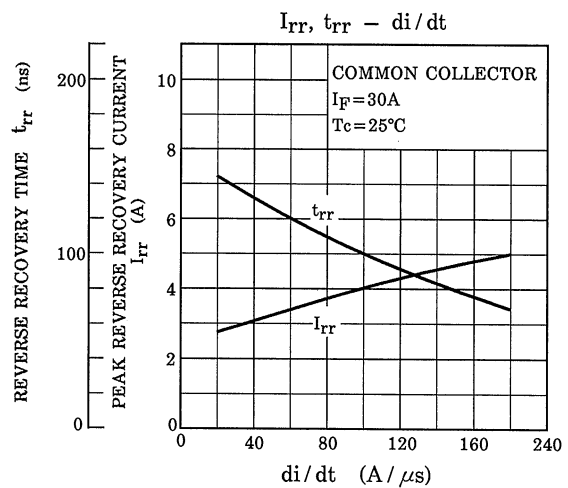
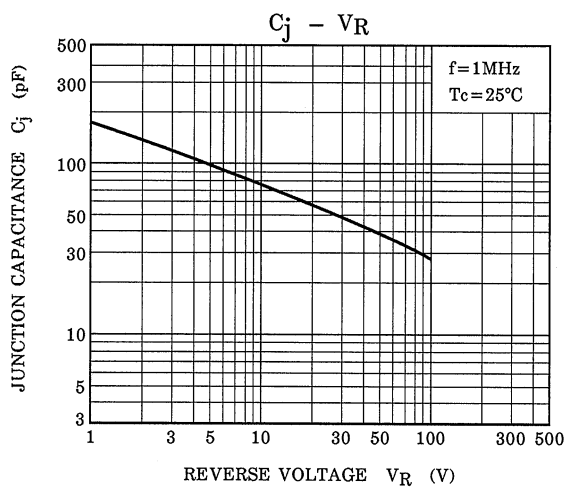
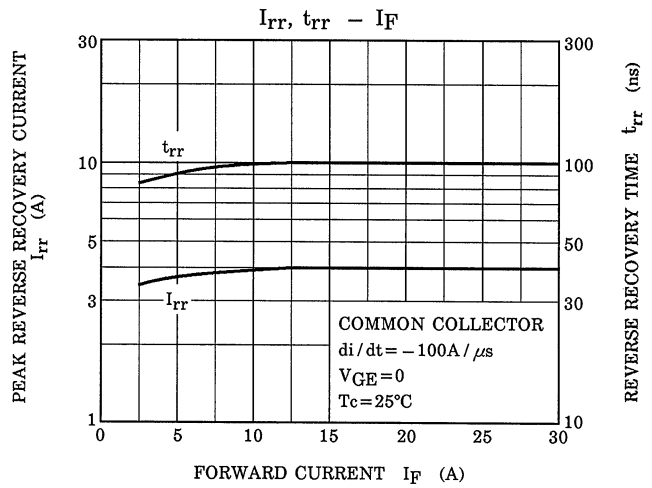
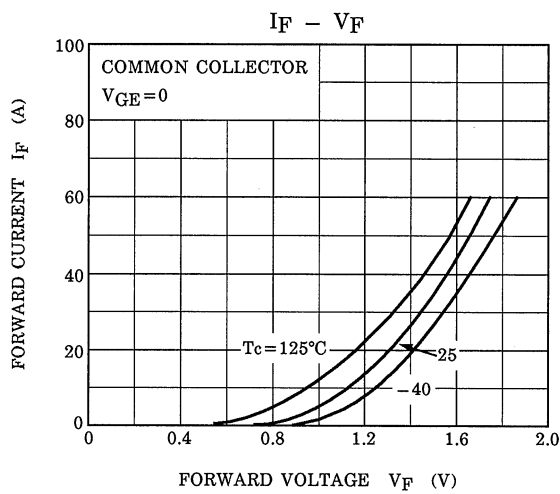
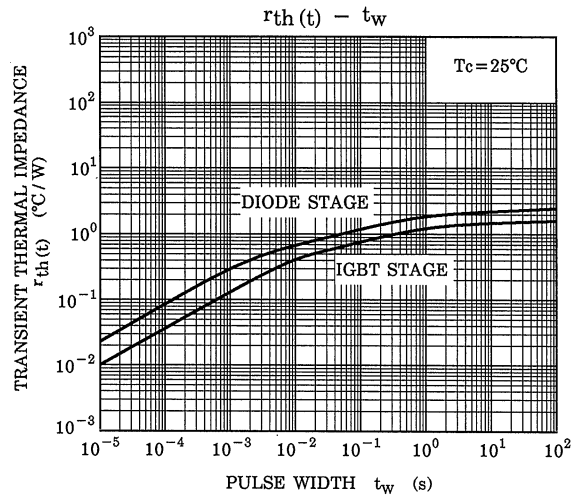
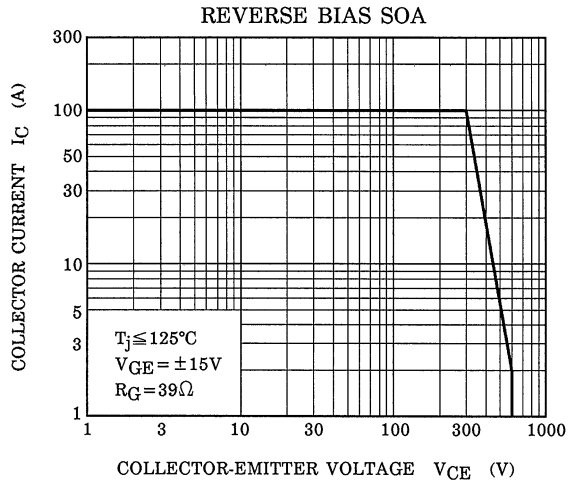
The RoHS is the Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Gate Leakage Current		I_{GES}	$V_{GE} = \pm 20V, V_{CE} = 0$	—	—	± 500	nA
Collector Cut-Off Current		I_{CES}	$V_{CE} = 600V, V_{GE} = 0$	—	—	1.0	mA
Gate-Emitter Cut-Off Voltage		$V_{GE (OFF)}$	$I_C = 50mA, V_{CE} = 5V$	3.0	—	6.0	V
Collector-Emitter Saturation Voltage		$V_{CE (sat)}$	$I_C = 50A, V_{GE} = 15V$	—	2.1	2.8	V
Input Capacitance		C_{ies}	$V_{CE} = 10V, V_{GE} = 0, f = 1MHz$	—	2500	—	pF
Switching Time	Rise Time	t_r		—	0.20	—	μs
	Turn-On Time	t_{on}		—	0.30	—	
	Fall Time	t_f		—	0.25	0.40	
	Turn-Off Time	t_{off}		—	0.40	—	
Peak Forward Voltage		V_F	$I_F = 30A, V_{GE} = 0$	—	—	2.0	V
Reverse Recovery Time		t_{rr}	$I_F = 30A, V_{GE} = 0$ $di/dt = -100A/\mu s$	—	—	0.2	μs
Thermal Resistance (IGBT)		$R_{th (j-c)}$		—	—	1.67	°C / W
Thermal Resistance (Diode)		$R_{th (j-c)}$		—	—	2.27	°C / W







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