

# GT30J322

## FOURTH-GENERATION IGBT

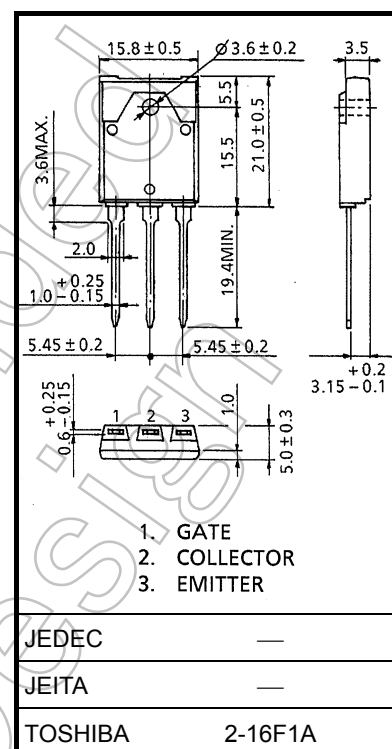
Unit: mm

## 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		$V_{GES}$	$\pm 20$	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	$^\circ\text{C}$

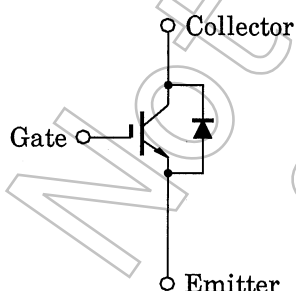


Weight: 5.8 g (typ.)

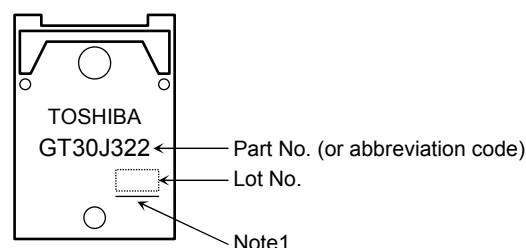
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

### EQUIVALENT CIRCUIT



## MARKING



Note1: A line under a Lot No. identifies the indication of product Labels.

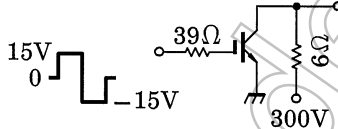
[[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

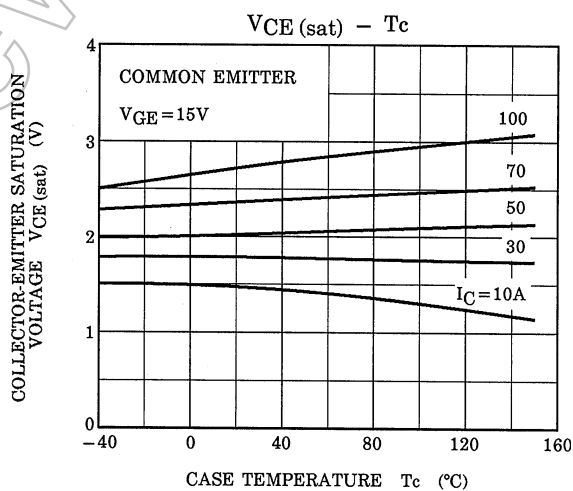
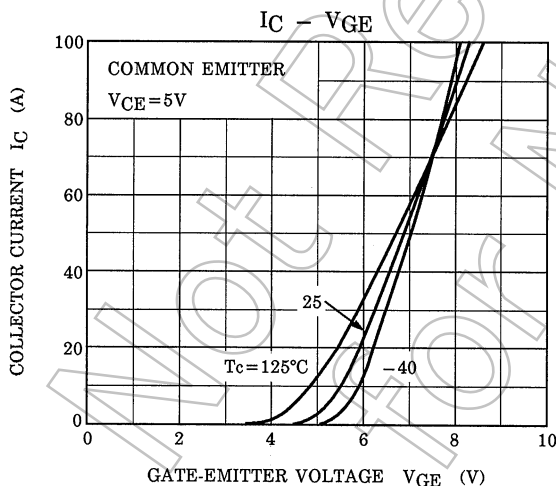
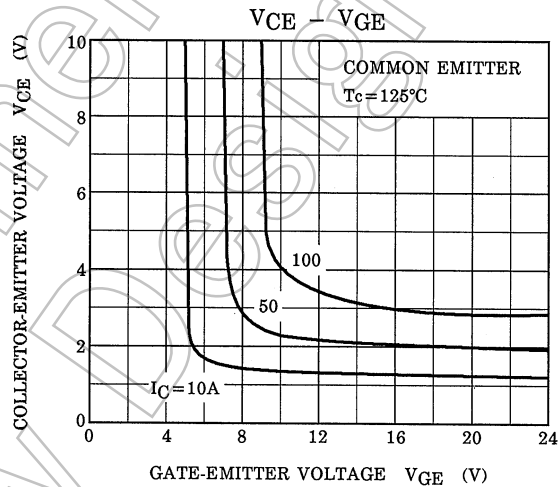
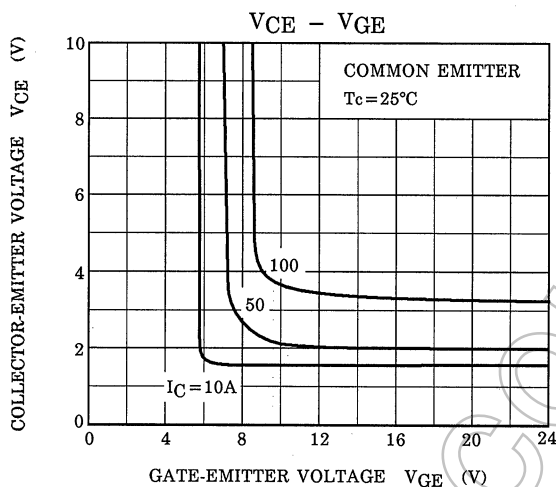
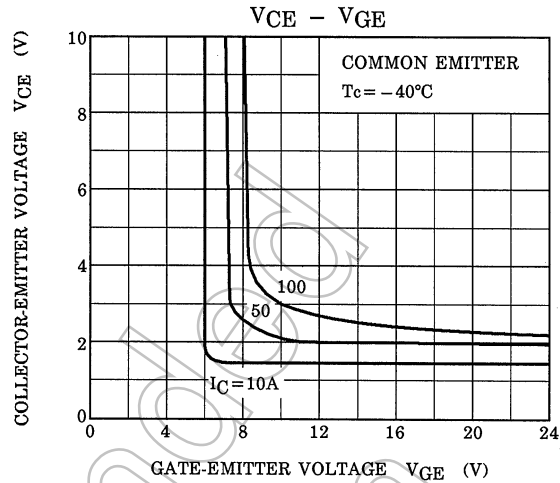
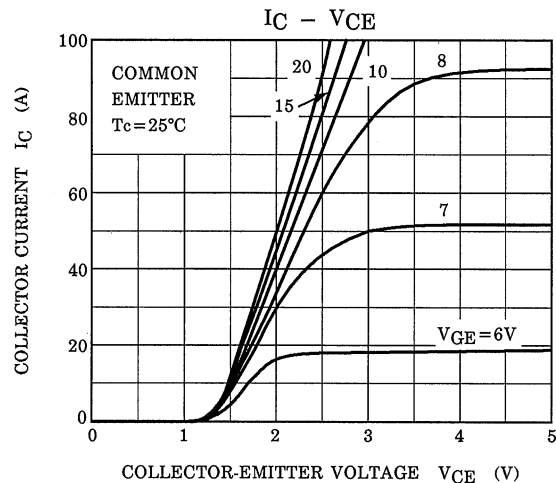
Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product.

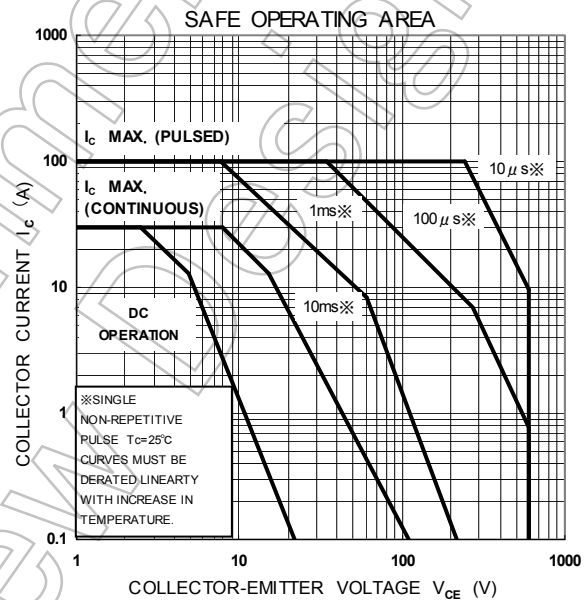
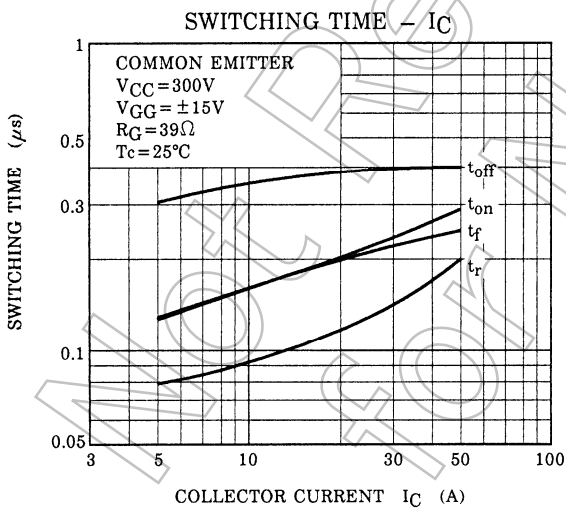
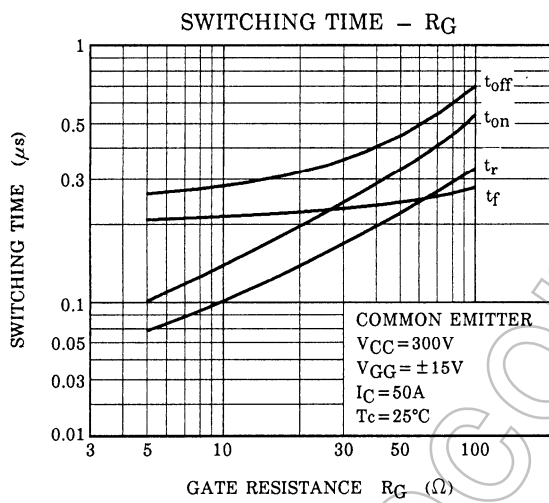
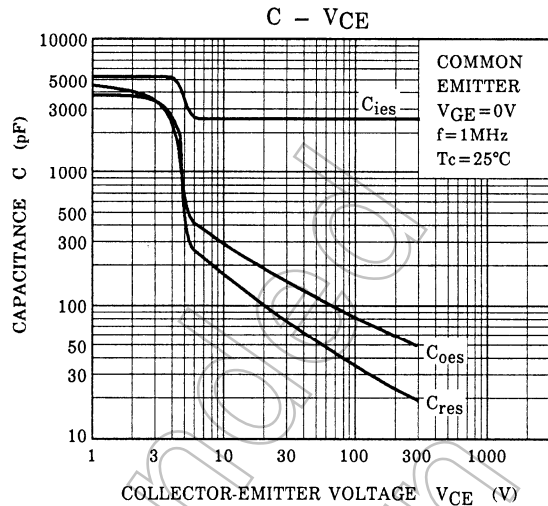
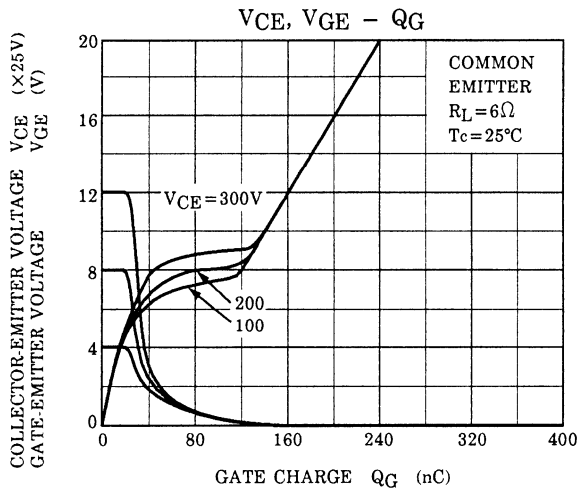
The RoHS is the Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

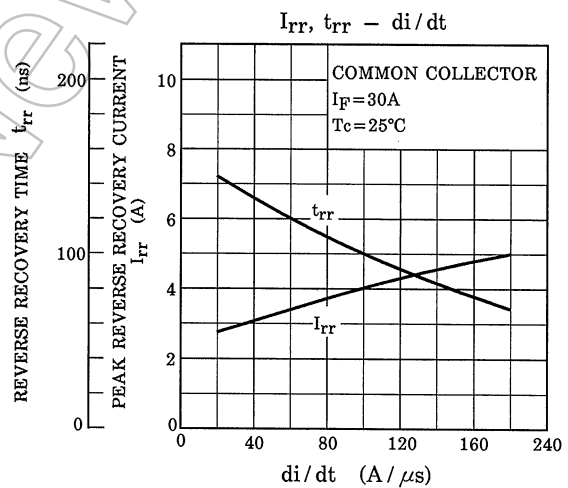
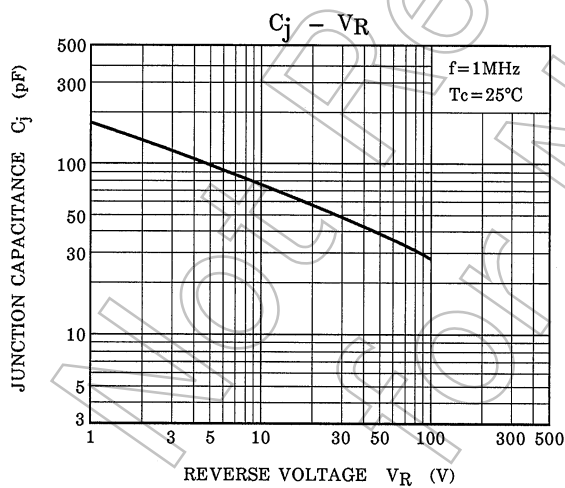
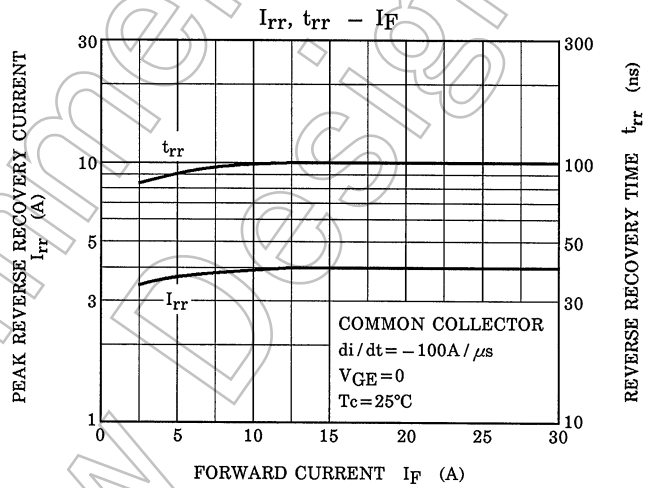
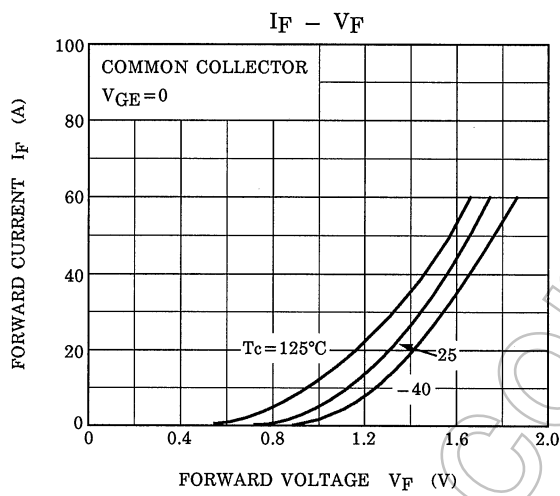
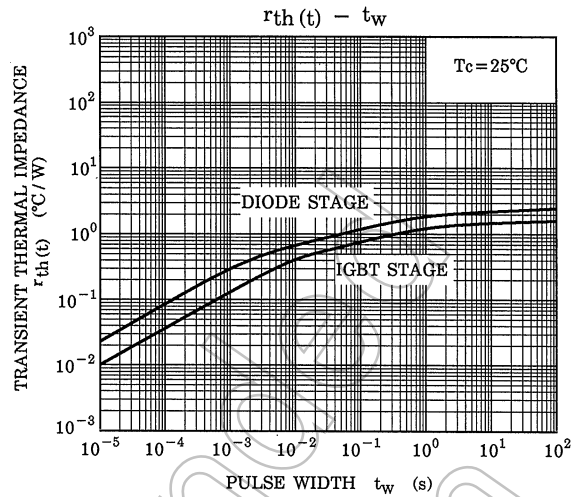
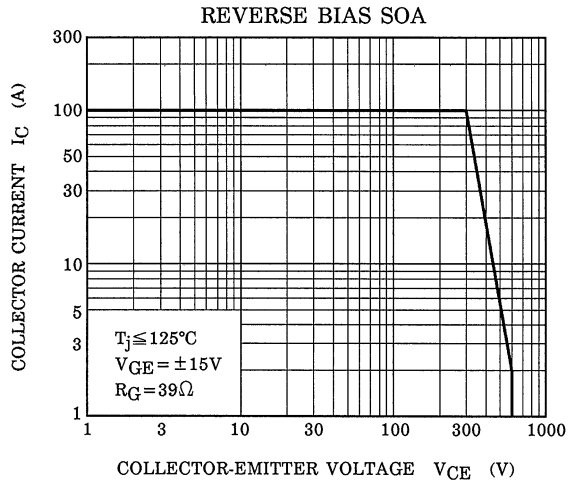
Start of commercial production  
1998-11

## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Gate Leakage Current		$I_{GES}$	$V_{GE} = \pm 20V, V_{CE} = 0$	—	—	$\pm 500$	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	—	$\mu s$
	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	$\mu s$
Thermal Resistance (IGBT)		$R_{th (j-c)}$		—	—	1.67	$^{\circ}C/W$
Thermal Resistance (Diode)		$R_{th (j-c)}$		—	—	2.27	$^{\circ}C/W$







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