

TOSHIBA INSULATED GATE BIPOLAR TRANSISTOR SILICON N CHANNEL MOS TYPE

GT50J322

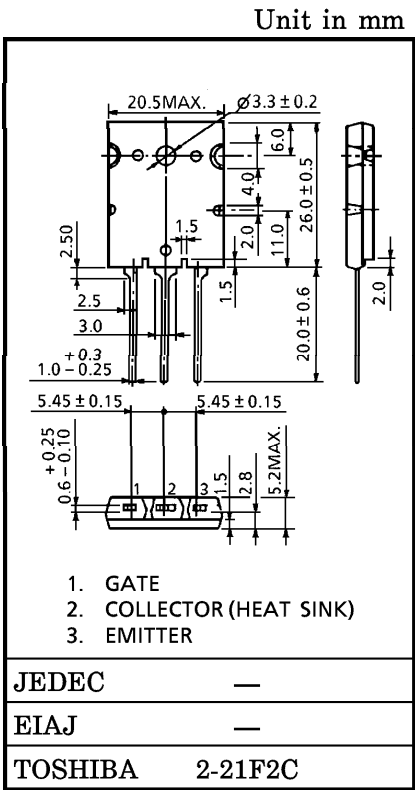
THE 4TH GENERATION

CURRENT RESONANCE INVERTER SWITCHING APPLICATIONS

- FRD Included Between Emitter and Collector
- Enhancement-Mode
- High Speed : $t_f=0.25\mu s$ (Typ.) ($I_C=50A$)
- Low Saturation Voltage : $V_{CE(sat)}=2.1V$ (Typ.) ($I_C=50A$)

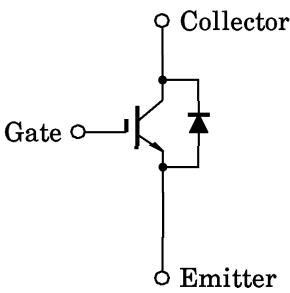
MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		V_{CES}	600	V
Gate-Emitter Voltage		V_{GES}	± 20	V
Collector Current	DC	I_C	50	A
	1ms	I_{CP}	100	
Emitter-Collector Foward Current	DC	I_F	30	A
	1ms	I_{FP}	60	
Collector Power Dissipation (Tc=25°C)		P_C	130	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-55~150	°C



Weight : 9.75g

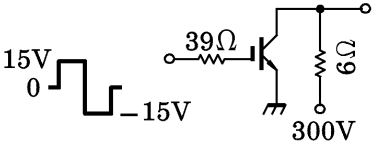
EQUIVALENT CIRCUIT

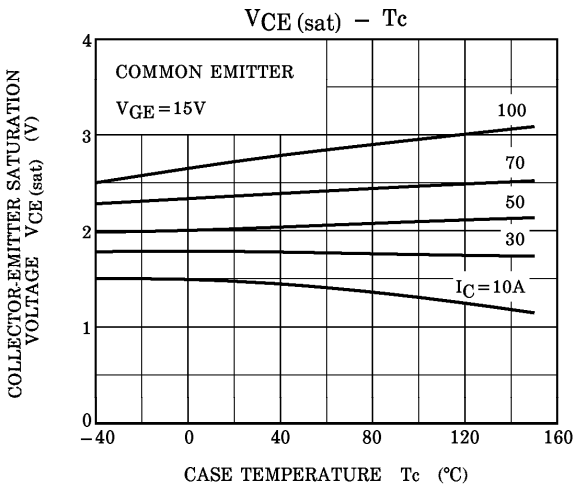
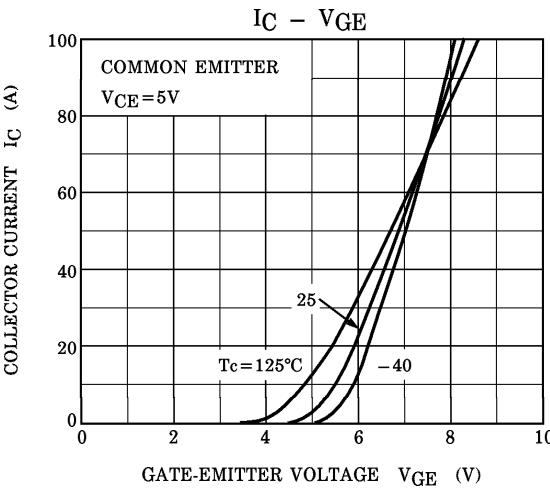
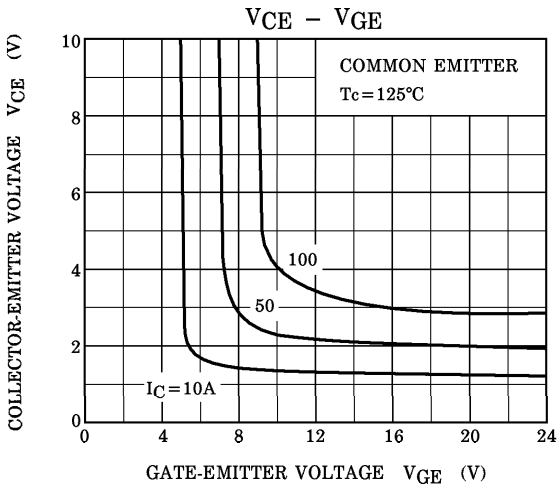
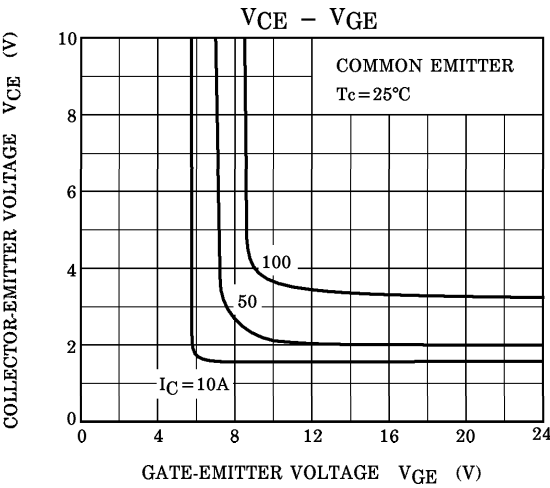
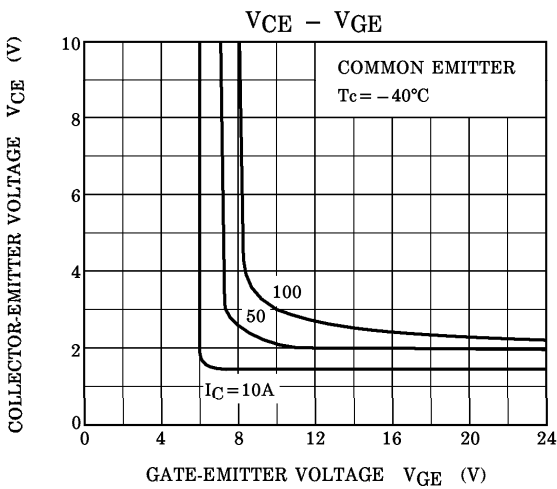
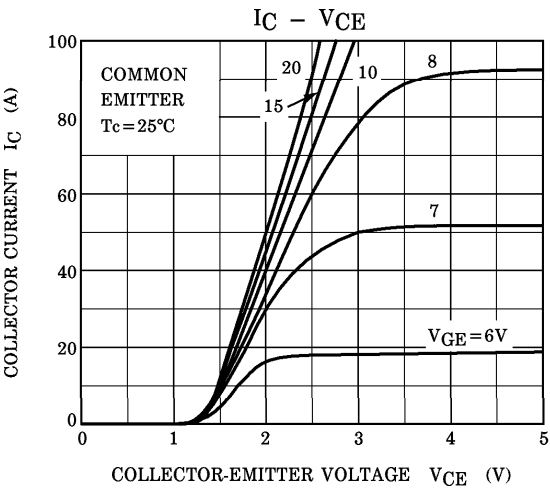


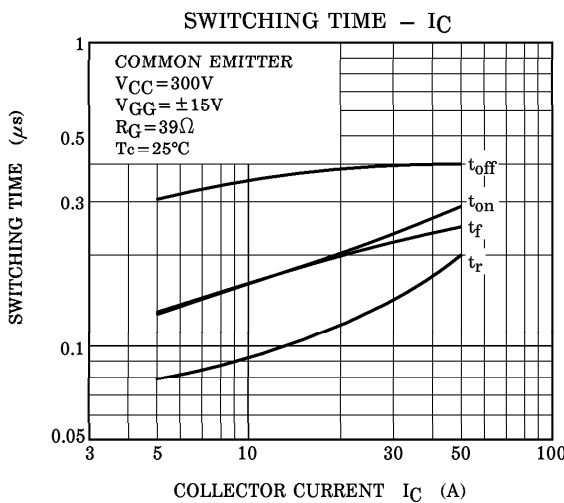
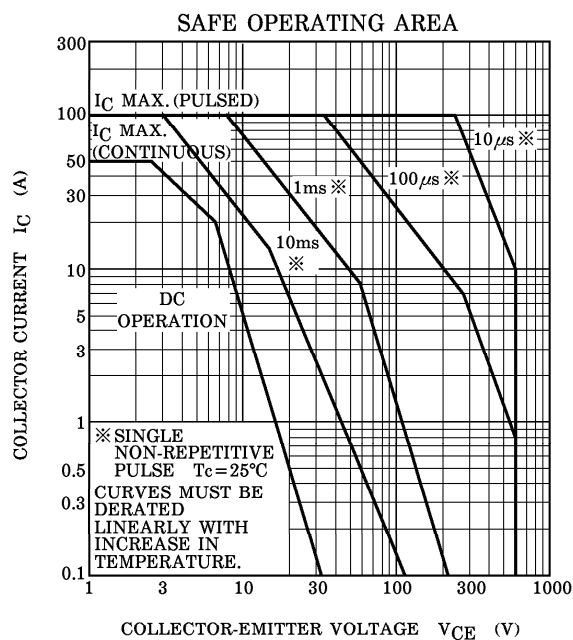
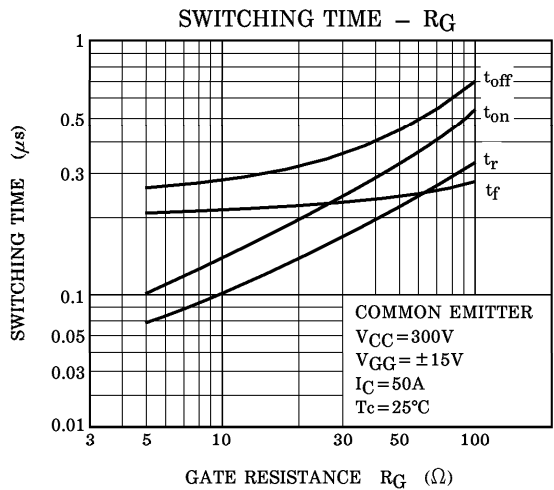
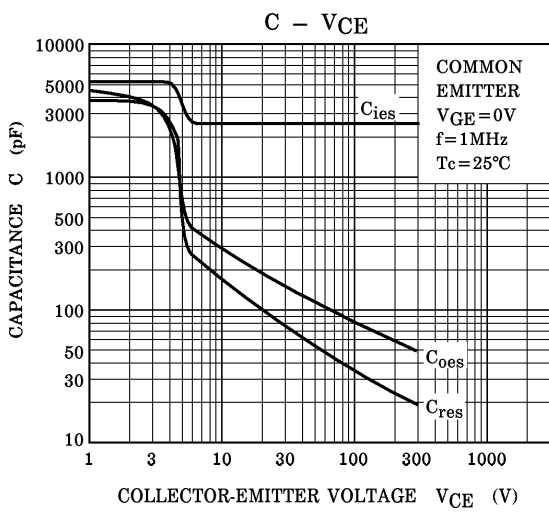
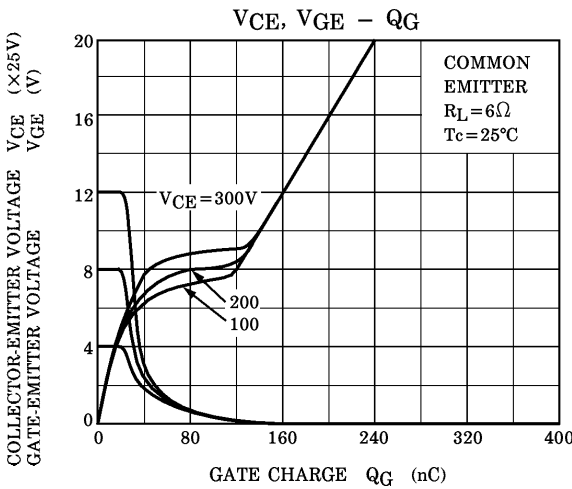
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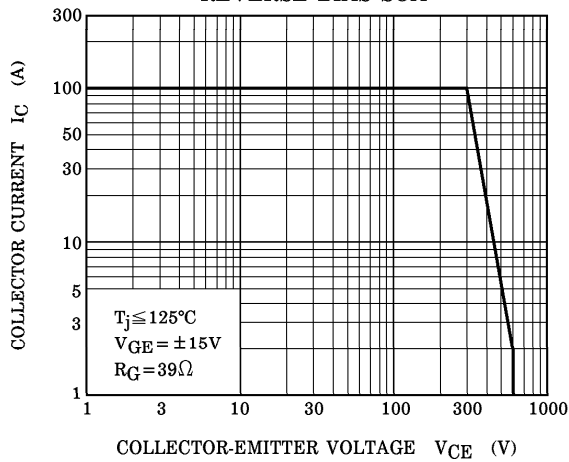
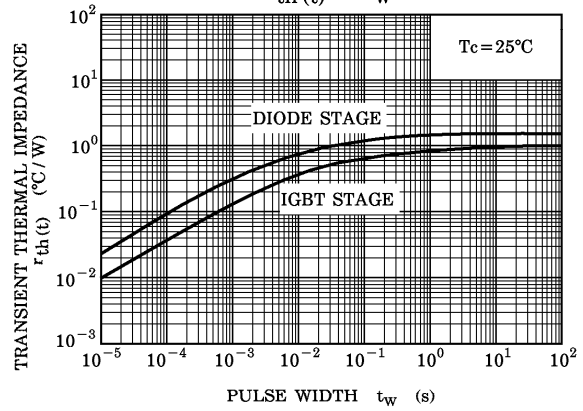
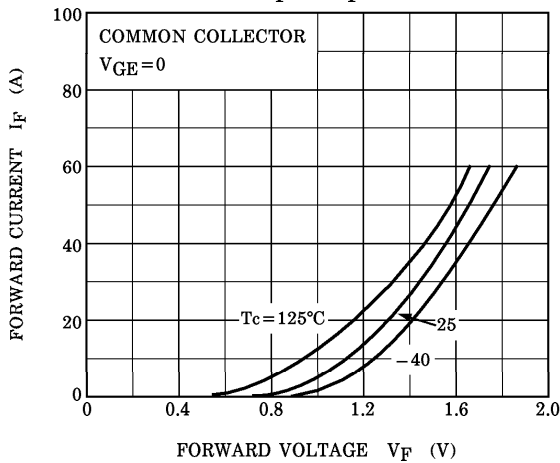
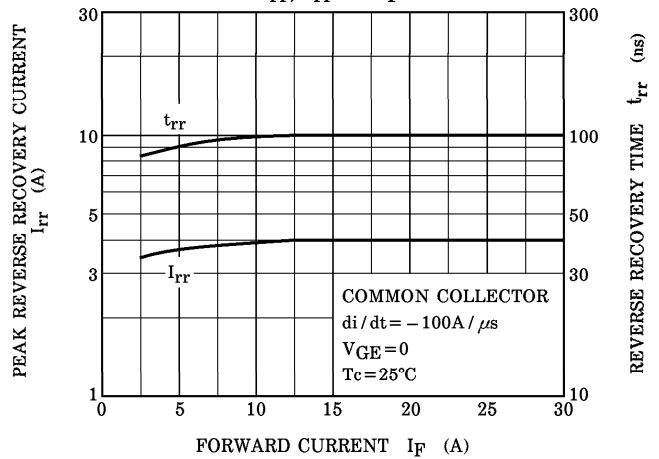
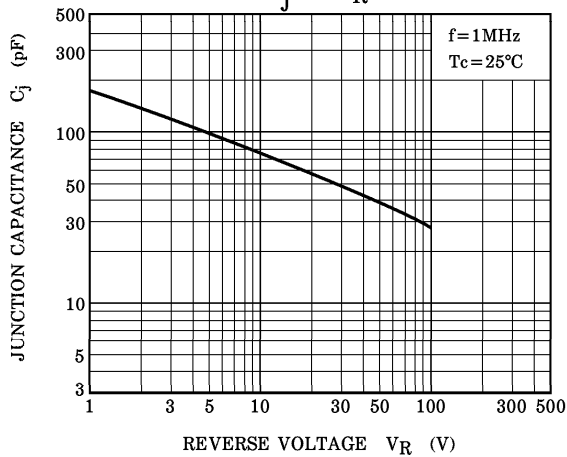
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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	—	
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		$R_{th(j-c)}$	IGBT	—	—	0.96	$^{\circ}C/W$
Thermal Resistance		$R_{th(j-c)}$	Diode	—	—	1.56	$^{\circ}C/W$





REVERSE BIAS SOA

 $r_{th}(t) - t_w$  $I_F - V_F$  $I_{rr}, t_{rr} - I_F$  $C_j - V_R$  $I_{rr}, t_{rr} - di/dt$ 