

TOSHIBA INSULATED GATE BIPOLAR TRANSISTOR SILICON N CHANNEL MOS TYPE

# GT50J322

THE 4TH GENERATION

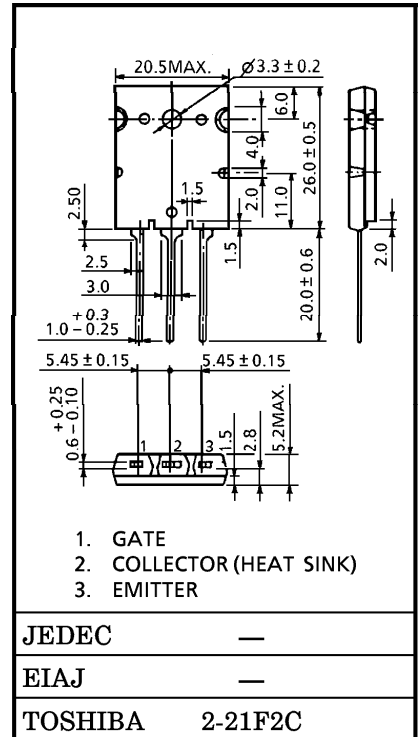
CURRENT RESONANCE INVERTER SWITCHING APPLICATIONS

- 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 ( $T_a = 25^\circ C$ )

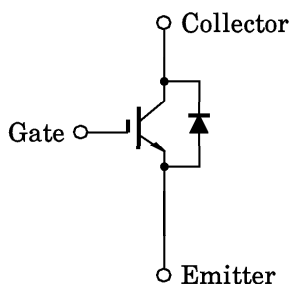
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Emitter Voltage	$V_{CES}$	600	V
Gate-Emitter Voltage	$V_{GES}$	$\pm 20$	V
Collector Current	DC	$I_C$	50
	1ms	$I_{CP}$	100
Emitter-Collector Forward Current	DC	$I_F$	30
	1ms	$I_{FP}$	60
Collector Power Dissipation ( $T_c = 25^\circ C$ )	$P_C$	130	W
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	$-55 \sim 150$	$^\circ C$

Unit in mm



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		$I_{GES}$	$V_{GE} = \pm 20V, V_{CE} = 0$	—	—	$\pm 500$	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	—	
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		$R_{th(j-c)}$	IGBT	—	—	0.96	$^{\circ}C/W$
Thermal Resistance		$R_{th(j-e)}$	Diode	—	—	1.56	$^{\circ}C/W$

