

TOSHIBA INSULATED GATE BIPOLAR TRANSISTOR SILICON N CHANNEL MOS TYPE

GT60M302

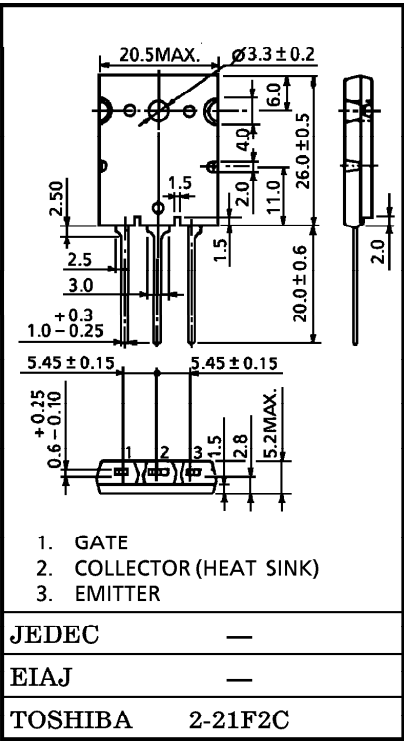
HIGH POWER SWITCHING APPLICATIONS

Unit in mm

- The 3rd Generation
- FRD Included Between Emitter and Collector
- Enhancement-Mode
- High Speed IGBT : $t_f=0.22\mu s$ (TYP.)
FRD : $t_{rr}=0.7\mu s$ (TYP.)
- Low Saturation Voltage : $V_{CE(sat)}=3.3V$ (MAX.)

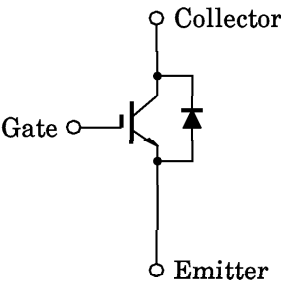
MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTICS		SYMBOL	RATINGS	UNIT
Collector-Emitter Voltage		V_{CES}	900	V
Gate-Emitter Voltage		V_{GES}	± 25	V
Collector Current	DC	I_C	60	A
	1ms	I_{CP}	120	
Emitter-Collector Foward Current	DC	I_{ECF}	15	A
	1ms	I_{ECFP}	120	
Collector Power Dissipation (Tc= 25°C)		P_C	200	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-55~150	°C
Screw Torque		—	0.8	N·m



Weight : 9.75g

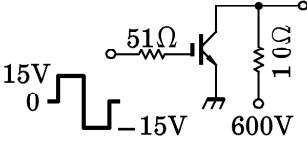
EQUIVALENT CIRCUIT



961001FAA1

- TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GES}	$V_{GE} = \pm 25V, V_{CE} = 0$	—	—	± 500	nA
Collector Cut-off Current		I_{CES}	$V_{CE} = 900V, V_{GE} = 0$	—	—	1.0	mA
Gate-Emitter Cut-off Voltage		$V_{GE} (OFF)$	$I_C = 60mA, V_{CE} = 5V$	3.0	—	6.0	V
Collector-Emitter Saturation Voltage		$V_{CE} (sat) (1)$	$I_C = 10A, V_{GE} = 15V$	—	1.6	2.4	V
Collector-Emitter Saturation Voltage		$V_{CE} (sat) (2)$	$I_C = 60A, V_{GE} = 15V$	—	2.2	3.3	V
Input Capacitance		C_{ies}	$V_{CE} = 30V, V_{GE} = 0$ $f = 1MHz$	—	4400	—	pF
Switching Time	Rise Time	t_r		—	0.25	0.60	μs
	Turn-on Time	t_{on}		—	0.35	0.80	
	Fall Time	t_f		—	0.22	0.37	
	Turn-off Time	t_{off}		—	0.50	1.00	
Emitter-Collector Forward Voltage		V_{ECF}	$I_{ECF} = 15A, V_{GE} = 0$	—	1.5	2.0	V
Reverse Recovery Time		t_{rr}	$I_{ECF} = 15A, V_{GE} = 0$ $di/dt = -20A/\mu s$	—	0.7	2.5	μs
Thermal Resistance		$R_{th(j-c)}$	IGBT	—	—	0.625	$^{\circ}C/W$
Thermal Resistance		$R_{th(j-c)}$	Diode	—	—	4.0	$^{\circ}C/W$

