

GT15M321

HIGH POWER SWITCHING APPLICATIONS

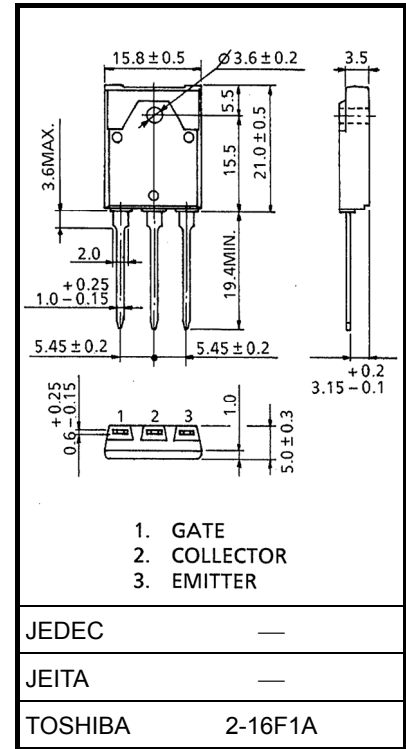
- Fourth-generation IGBT
- FRD included between emitter and collector
- Enhancement mode type
- High speed : $t_f = 0.20 \mu\text{s}$ (TYP.) ($I_C = 15 \text{ A}$)
- Low saturation voltage : $V_{CE(sat)} = 1.8\text{V}$ (TYP.) ($I_C = 15\text{A}$)

ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		V_{CES}	900	V
Gate-Emitter Voltage		V_{GES}	± 25	V
Collector Current	DC	I_C	15	A
	1ms	I_{CP}	30	
Emitter-Collector Forward Current	DC	I_F	15	A
	1ms	I_{FM}	120	
Collector Power Dissipation (Tc = 25°C)		P_C	55	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-55~150	°C

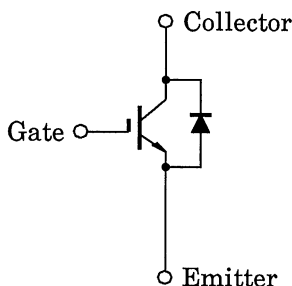
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

Unit: mm

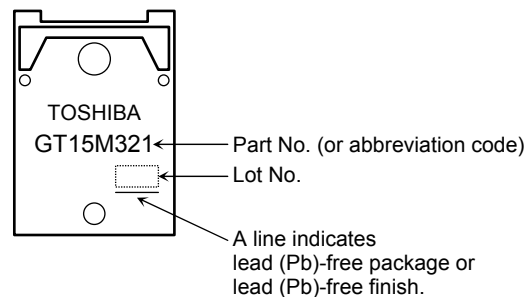


Weight: 5.8 g (typ.)

EQUIVALENT CIRCUIT

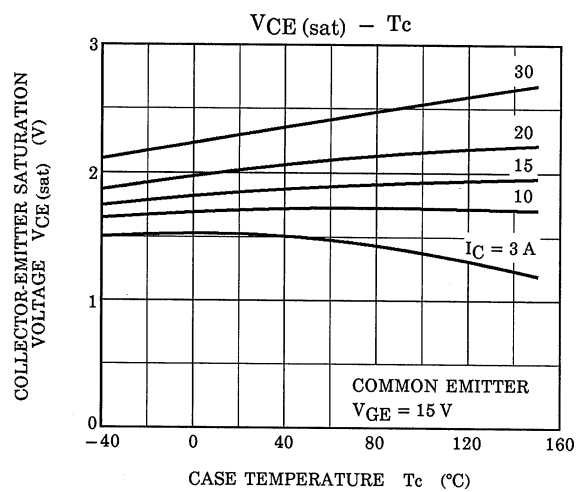
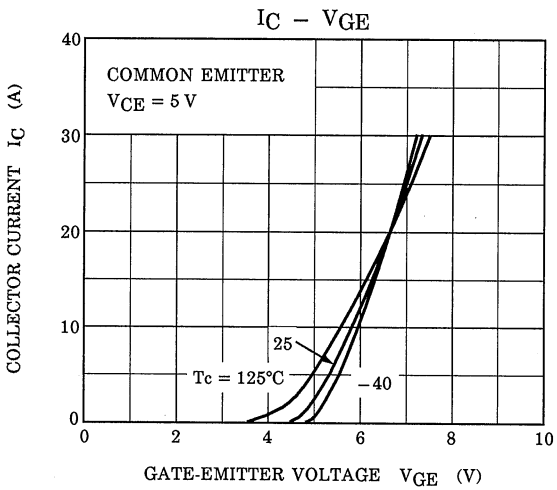
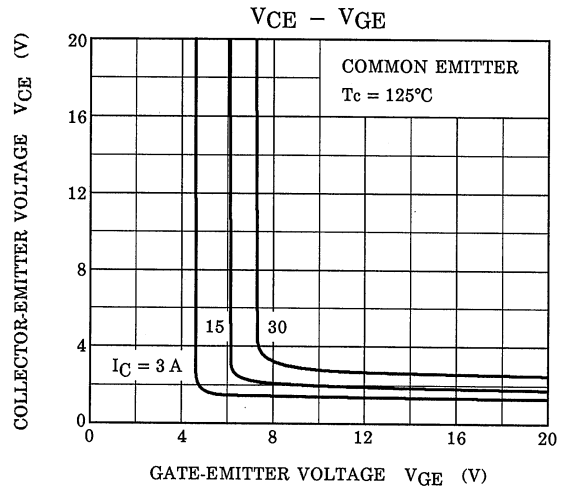
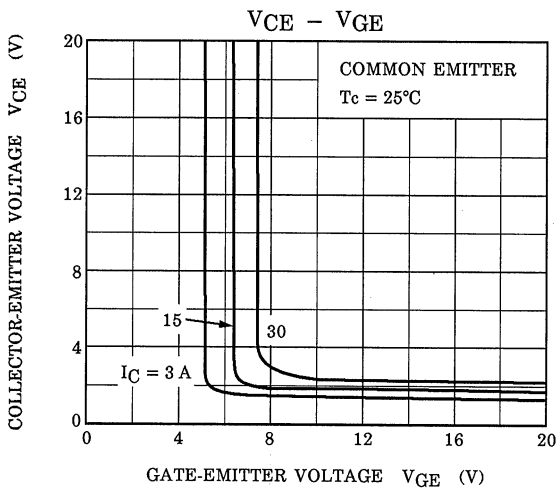
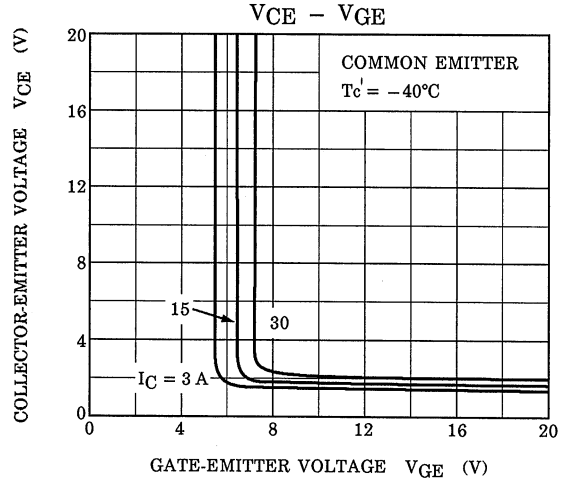
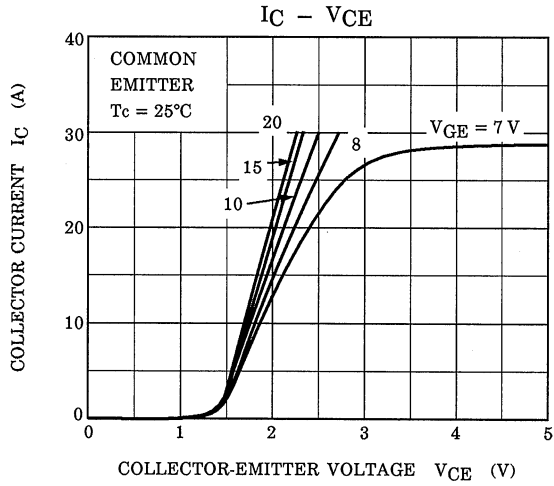


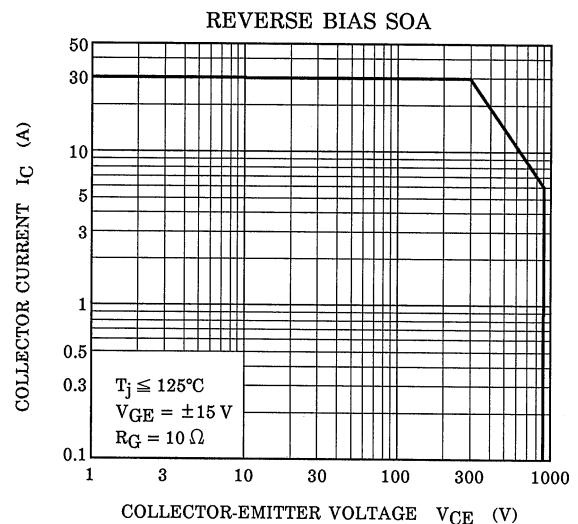
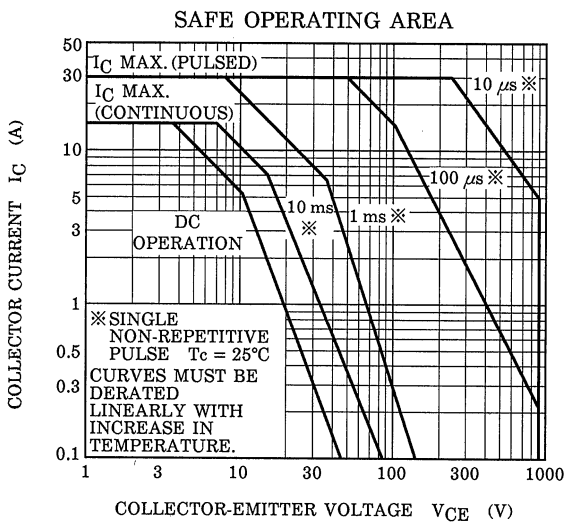
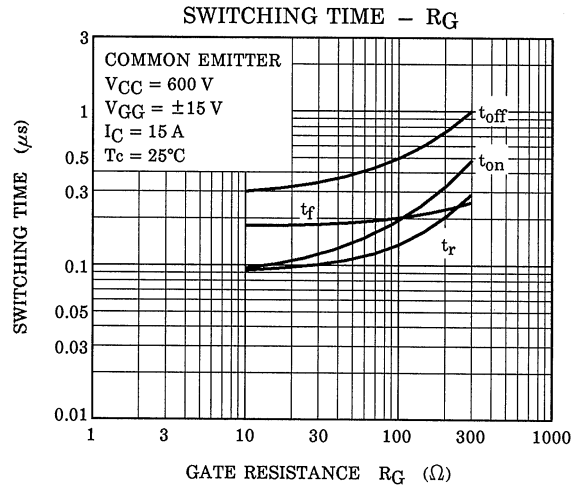
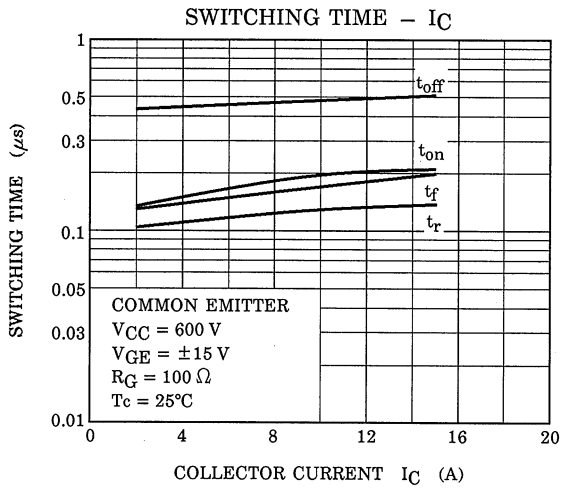
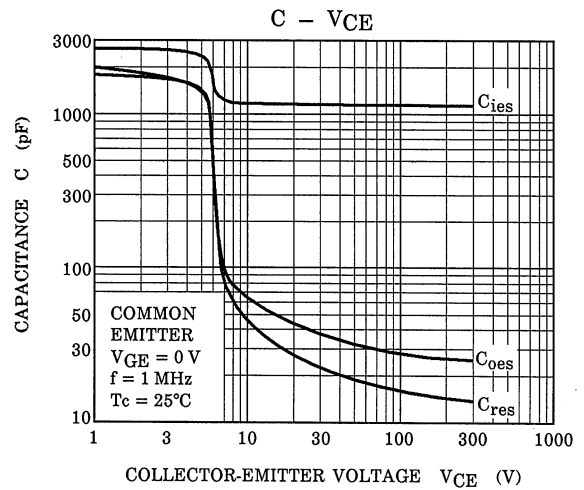
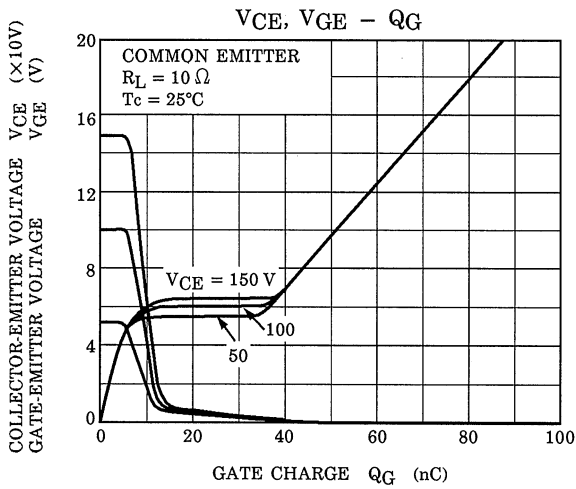
MARKING

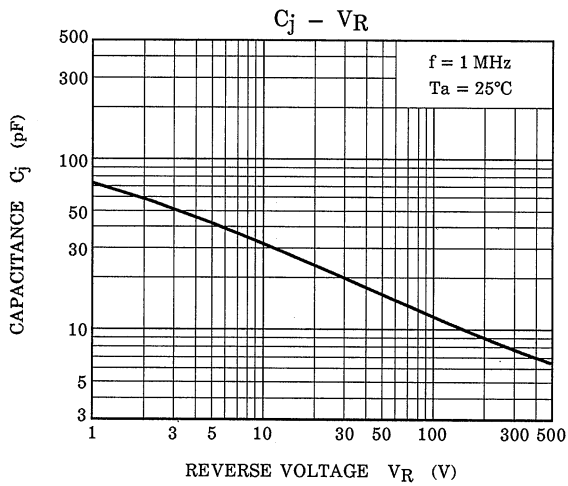
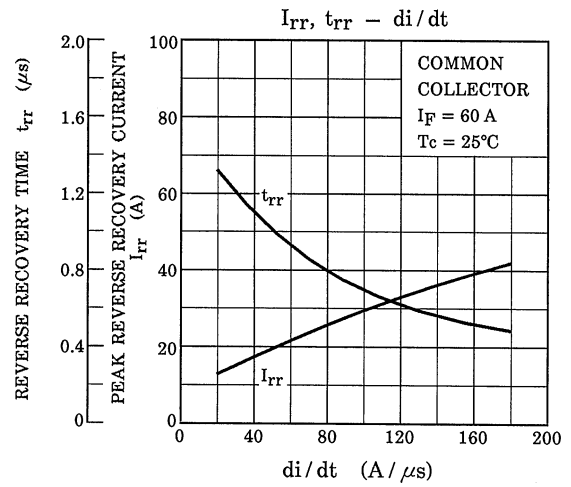
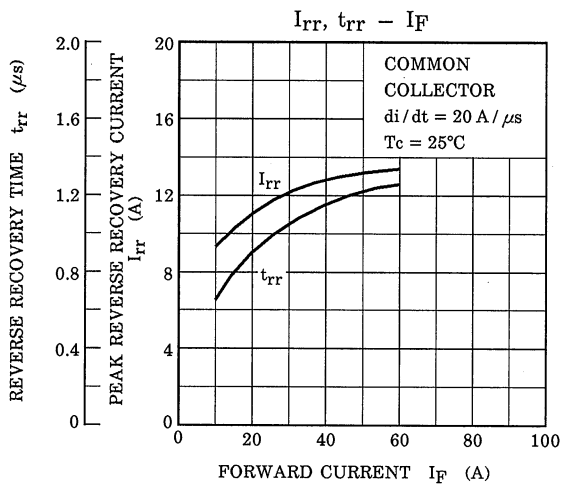
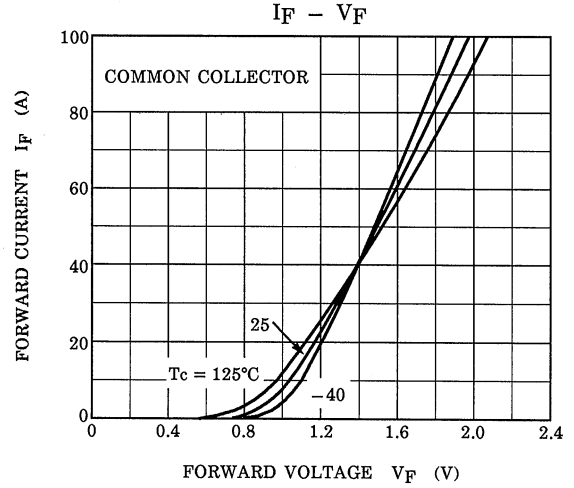
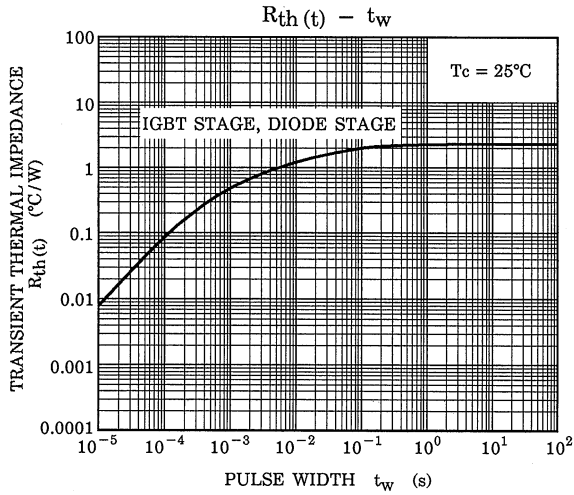


ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Gate Leakage Current		I_{GES}	$V_{GE} = \pm 25 \text{ V}, V_{CE} = 0$	—	—	± 500	nA
Collector Cut-off Current		I_{CES}	$V_{CE} = 900 \text{ V}, V_{GE} = 0$	—	—	1.0	mA
Gate-Emitter Cut-off Voltage		$V_{GE}(\text{OFF})$	$I_C = 15 \text{ mA}, V_{CE} = 5 \text{ V}$	3.0	—	6.0	V
Collector-Emitter Saturation Voltage		$V_{CE}(\text{sat})$	$I_C = 15 \text{ A}, V_{GE} = 15 \text{ V}$	—	1.8	2.5	V
Input Capacitance		C_{ies}	$V_{CE} = 10 \text{ V}, V_{GE} = 0, f = 1 \text{ MHz}$	—	1200	—	pF
Switching Time	Rise Time	t_r		—	0.20	—	μs
	Turn-on Time	t_{on}		—	0.30	—	
	Fall Time	t_f		—	0.20	0.40	
	Turn-off Time	t_{off}		—	0.50	—	
Emitter-Collector Forward Voltage		V_F	$I_{EC} = 15 \text{ A}, V_{GE} = 0$	—	1.5	2.0	V
Reverse Recovery Time		t_{rr}	$I_F = 15 \text{ A}, V_{GE} = 0$ $di/dt = -20 \text{ A}/\mu\text{s}$	—	0.7	2.5	μs
Thermal Resistance		$R_{th(j-c)}$	IGBT	—	—	2.27	$^{\circ}\text{C}/\text{W}$
Thermal Resistance		$R_{th(j-c)}$	Diode	—	—	2.27	$^{\circ}\text{C}/\text{W}$







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20070701-EN

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