

GT40G121

Fourth-Generation IGBT
Current Resonance Inverter Switching Applications

- Enhancement mode type
- High speed: $t_f = 0.30 \mu s$ (typ.) ($I_C = 60 A$)
- Low saturation voltage: $V_{CE(sat)} = 1.8 V$ (typ.) ($I_C = 60 A$)

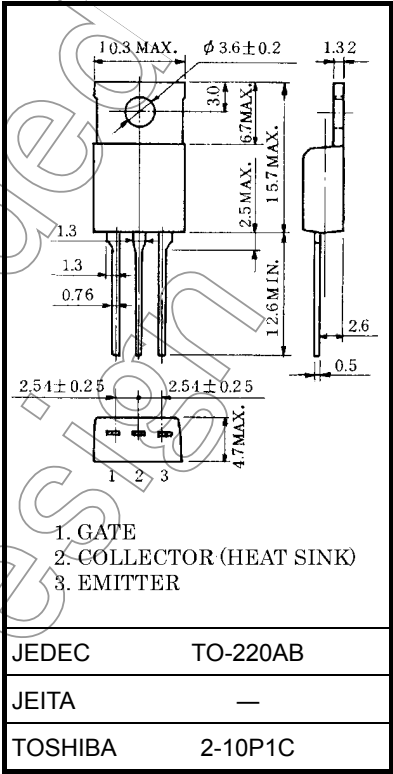
Absolute Maximum Ratings ($T_a = 25^{\circ}C$)

Characteristics		Symbol	Rating	Unit
Collector-emitter voltage		V_{CES}	400	V
Gate-emitter voltage		V_{GES}	± 25	V
Collector current	DC	I_C	40	A
	1 ms	I_{CP}	100	
Collector power dissipation ($T_c = 25^{\circ}C$)		P_C	100	W
Junction temperature		T_j	150	$^{\circ}C$
Storage temperature range		T_{stg}	-55~150	$^{\circ}C$

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.

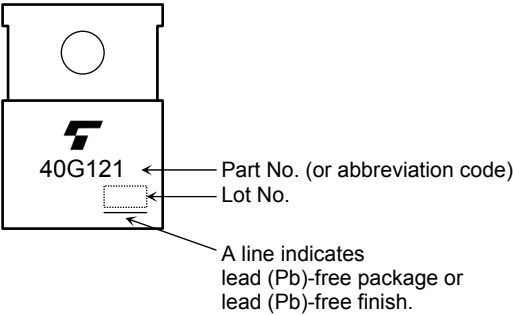
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Unit: mm

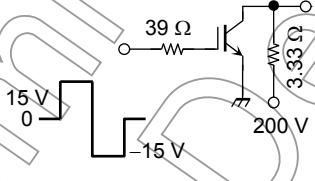


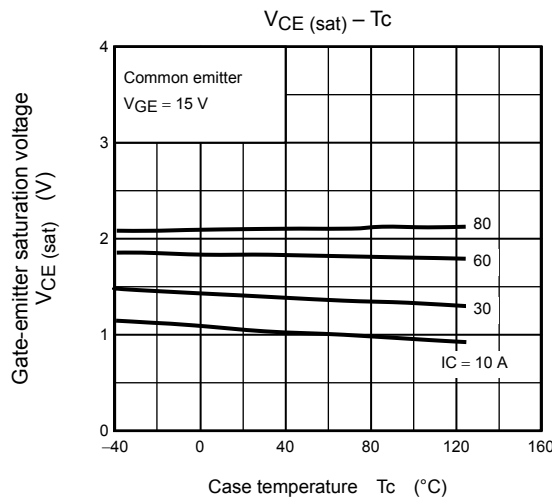
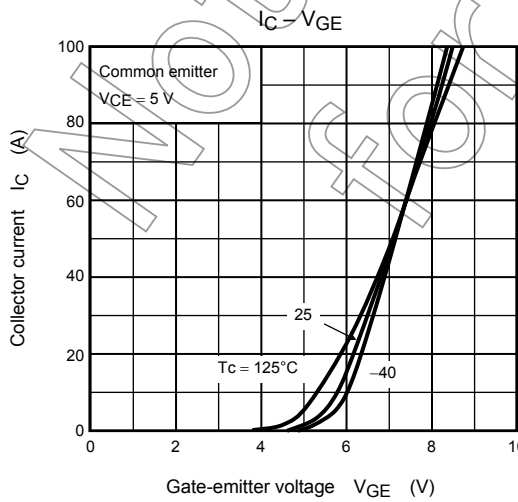
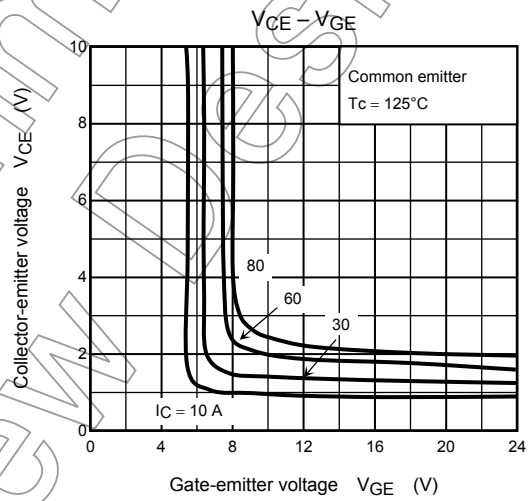
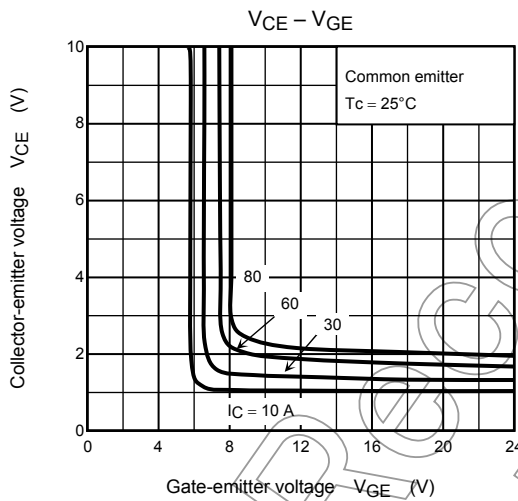
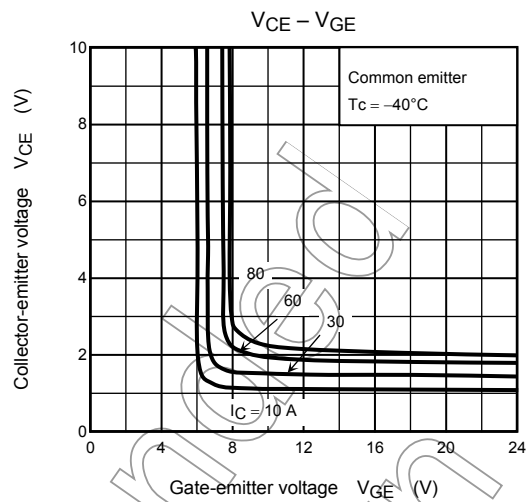
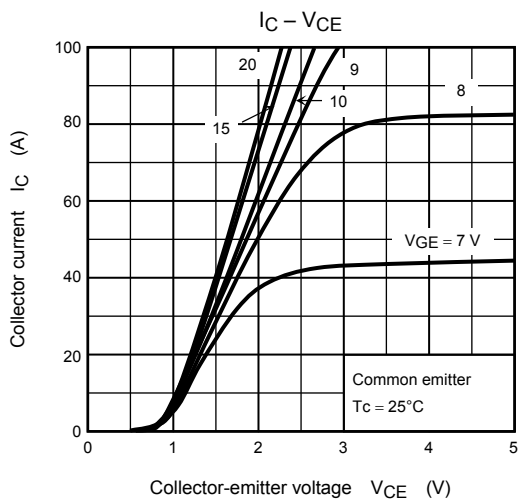
Weight: 2 g (typ.)

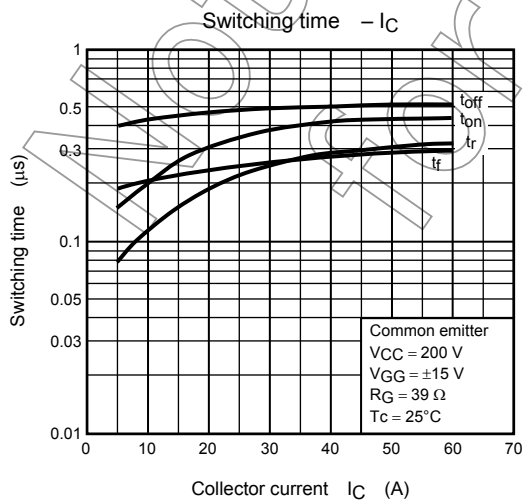
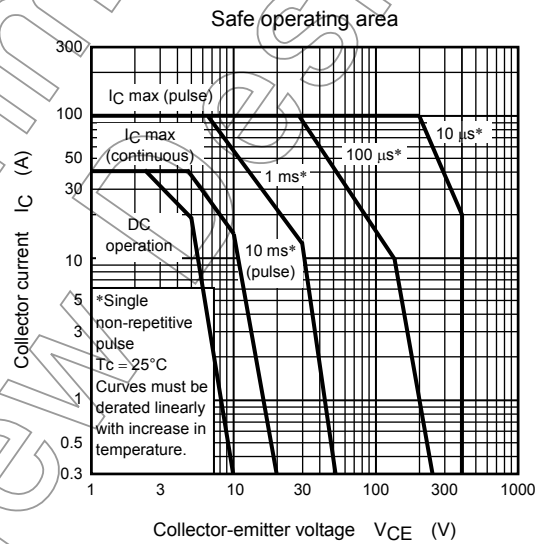
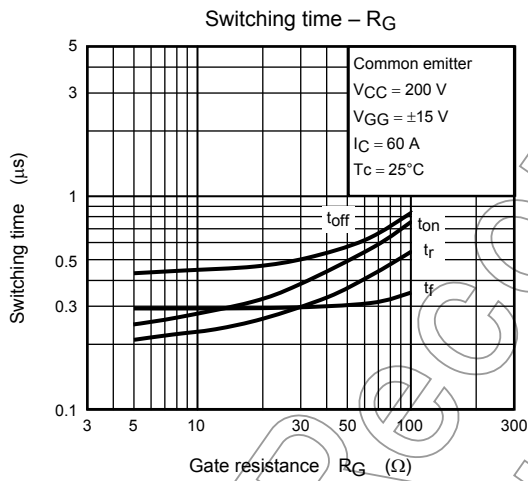
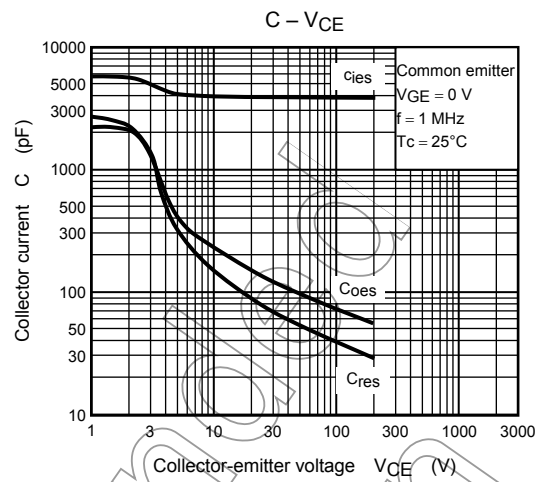
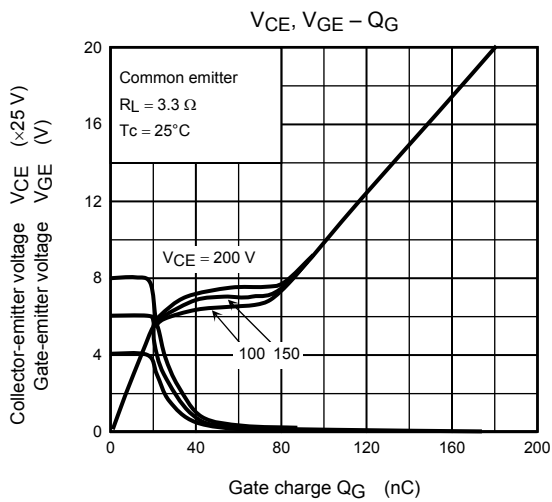
Marking

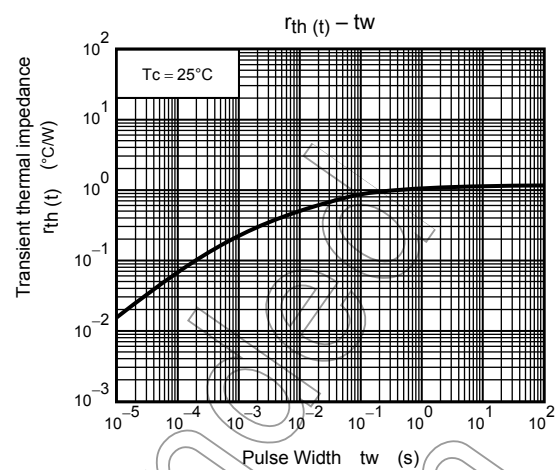
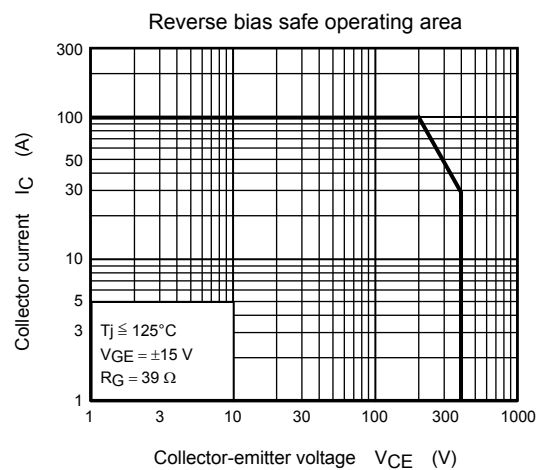


Electrical Characteristics (Ta = 25°C)

Characteristics		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}	$V_{CE} = 400\text{ V}, V_{GE} = 0$	—	—	1.0	mA
Gate-emitter cut-off voltage		$V_{GE}(\text{OFF})$	$I_C = 60\text{ mA}, V_{CE} = 5\text{ V}$	3.0	—	6.0	V
Collector-emitter saturation voltage		$V_{CE}(\text{sat})$	$I_C = 60\text{ A}, V_{GE} = 15\text{ V}$	—	1.8	2.5	V
Input capacitance		C_{ies}	$V_{CE} = 10\text{ V}, V_{GE} = 0, f = 1\text{ MHz}$	—	3900	—	pF
Switching time	Rise time	t_r		—	0.33	—	μs
	Turn-on time	t_{on}		—	0.43	—	
	Fall time	t_f		—	0.30	0.40	
	Turn-off time	t_{off}		—	0.54	—	
Thermal resistance		$R_{th(j-c)}$	—	—	—	1.25	$^{\circ}\text{C/W}$







Not Recommended for New Design

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20070701-EN

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