

# GT5G131

## Strobe Flash Applications

- 3-V gate drive voltage:  $V_{GE} = 3.0 \text{ V (min)}$  (@ $I_C = 130 \text{ A}$ )
- Supplied in compact and thin package requires only a small mounting area
- 5th generation (trench gate structure) IGBT
- Enhancement-mode
- Peak collector current:  $I_C = 130 \text{ A (max)}$

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

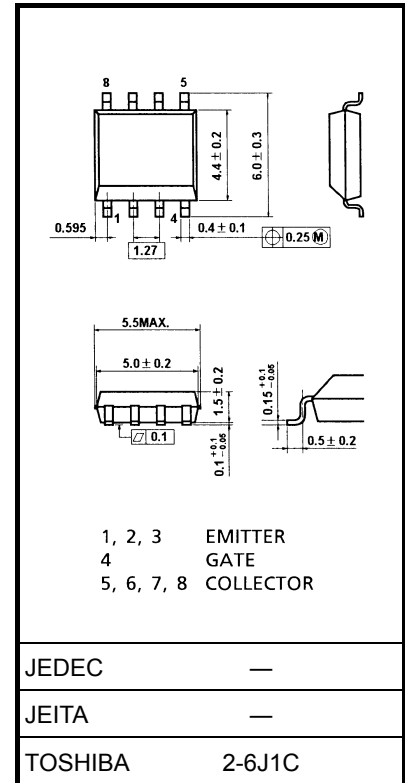
Characteristics	Symbol	Rating	Unit
Collector-emitter voltage	$V_{CES}$	400	V
Gate-emitter voltage	DC	$V_{GES}$	$\pm 6$
	Pulse	$V_{GES}$	$\pm 8$
Collector current	DC	$I_C$	5
	1 ms	$I_{CP}$	130
Collector power dissipation (Note 1)	$P_C$	1.1	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55~150	$^\circ\text{C}$

Note 1: Drive operation: Mount on glass epoxy board [1 inch<sup>2</sup> × 1.5 t]

Note 2: 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.

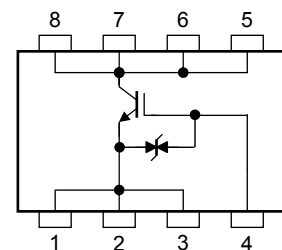
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Unit: mm



Weight: 0.080 g (typ.)

## Equivalent Circuit



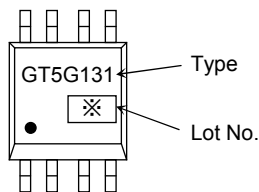
These devices are MOS type. Users should follow proper ESD handling procedures. Operating condition of turn-off  $dv/dt$  should be lower than 400 V/ $\mu\text{s}$ .

## Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		$I_{GES}$	$V_{GE} = \pm 6\text{ V}, V_{CE} = 0$	—	—	$\pm 10$	$\mu\text{A}$
Collector cut-off current		$I_{CES}$	$V_{CE} = 400\text{ V}, V_{GE} = 0$	—	—	10	$\mu\text{A}$
Gate-emitter cut-off voltage		$V_{GE(\text{OFF})}$	$I_C = 1\text{ mA}, V_{CE} = 5\text{ V}$	0.5	—	1.0	V
Collector-emitter saturation voltage		$V_{CE(\text{sat})}$	$I_C = 130\text{ A}, V_{GE} = 3\text{ V}$	—	2.2	7.0	V
Input capacitance		$C_{ies}$	$V_{CE} = 10\text{ V}, V_{GE} = 0, f = 1\text{ MHz}$	—	2800	—	pF
Switching time	Rise time	$t_r$	<p> <math>V_{IN}: t_r \leq 100\text{ ns}</math>  <math>t_f \leq 100\text{ ns}</math>                      Duty cycle <math>\leq 1\%</math> </p>	—	1.3	—	$\mu\text{s}$
	Turn-on time	$t_{on}$		—	1.4	—	
	Fall time	$t_f$		—	1.5	—	
	Turn-off time	$t_{off}$		—	1.8	—	
Thermal resistance (Note 2)		$R_{th(j-a)}$	—	—	—	114	$^{\circ}\text{C/W}$

Note 2: Drive operation: Mount on glass epoxy board [1 inch<sup>2</sup> × 1.5 t]

## Marking



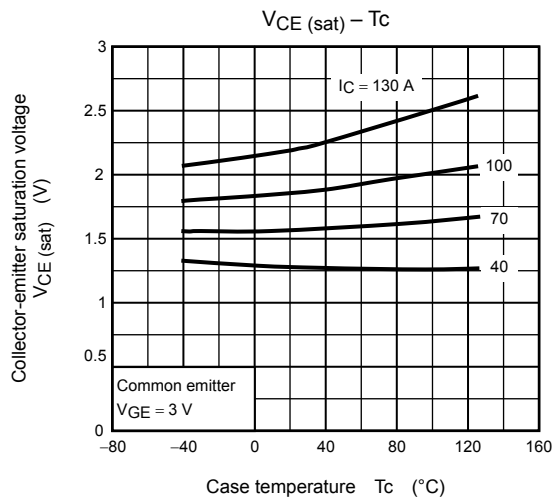
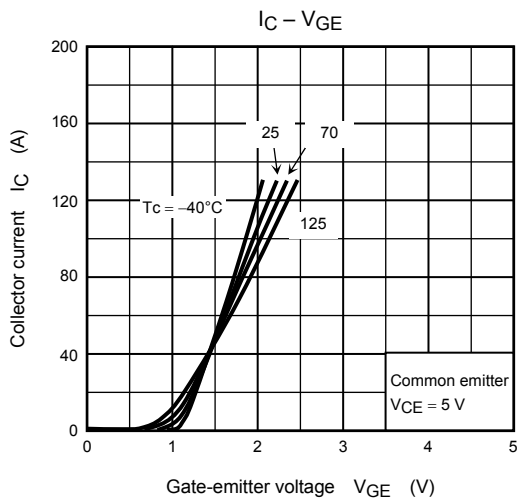
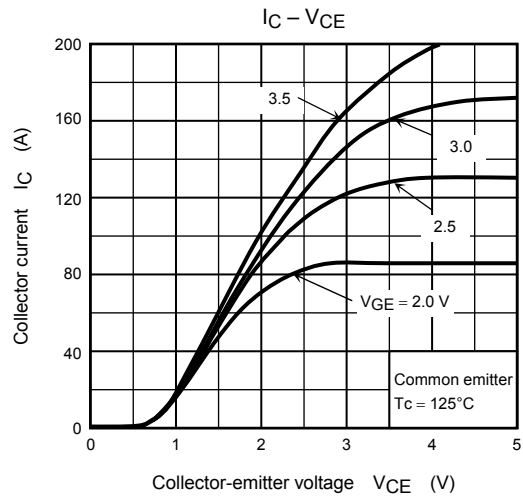
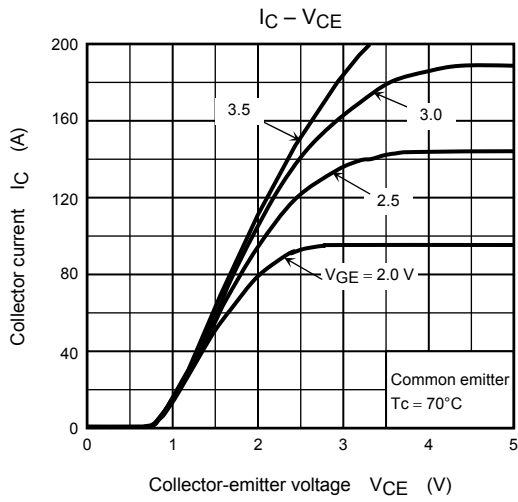
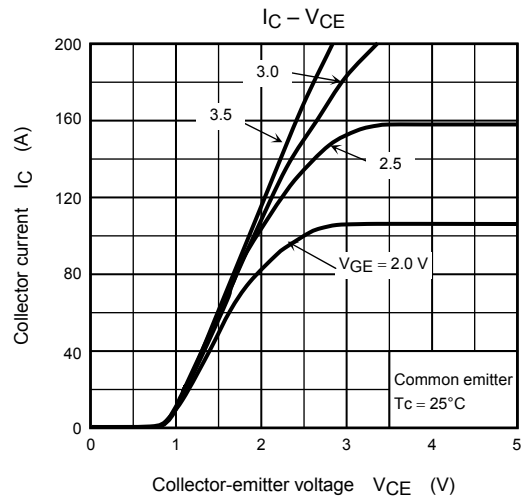
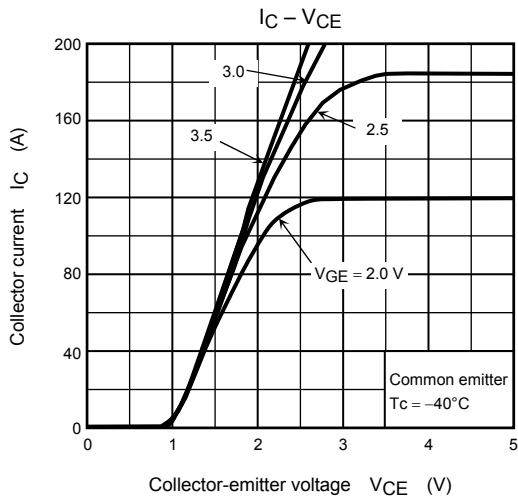
● on lower left of the marking indicates Pin 1.

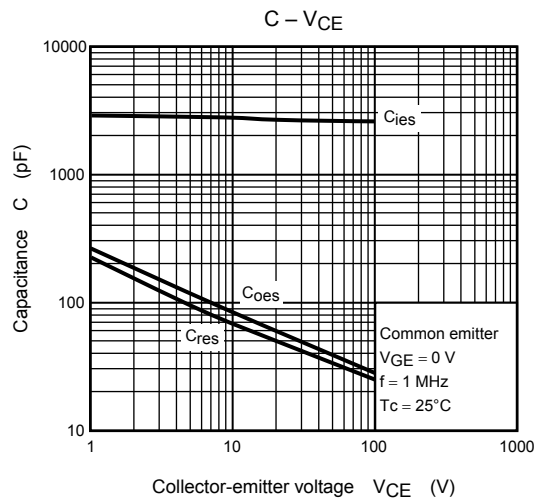
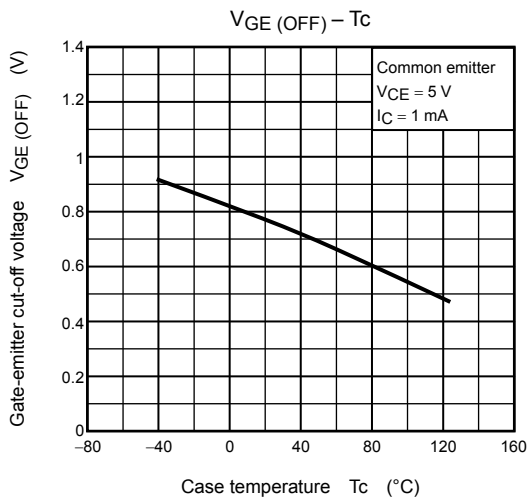
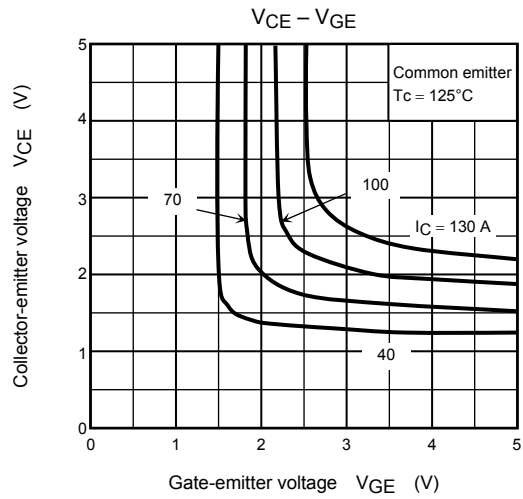
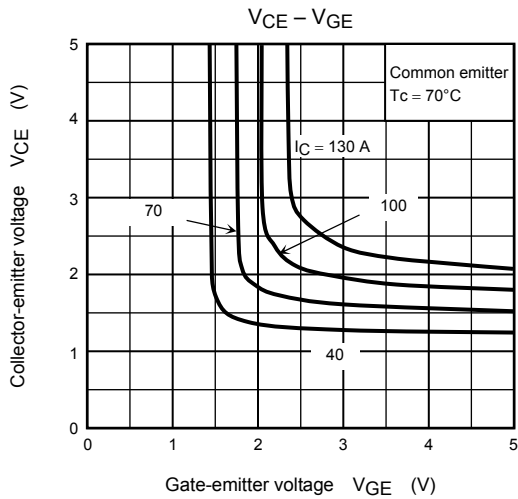
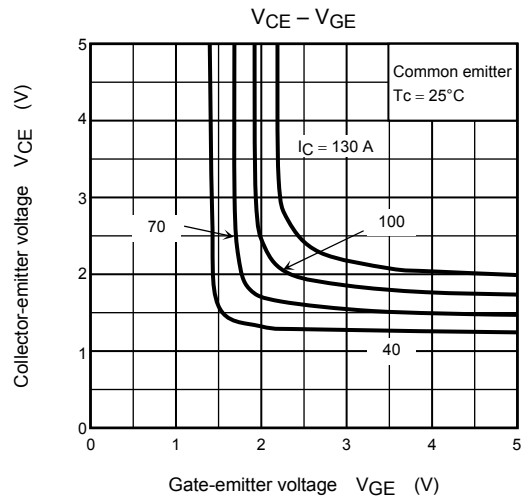
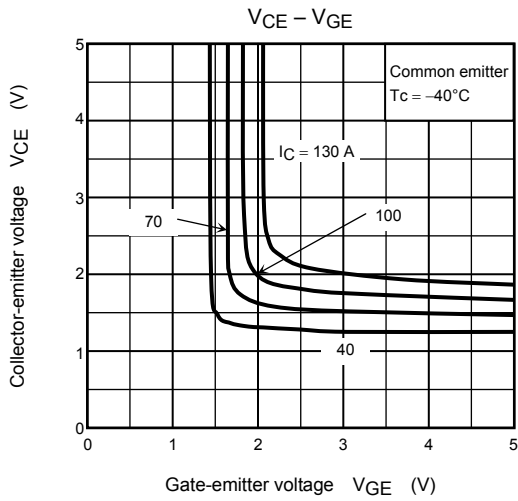
※ Weekly code: (Three digits)

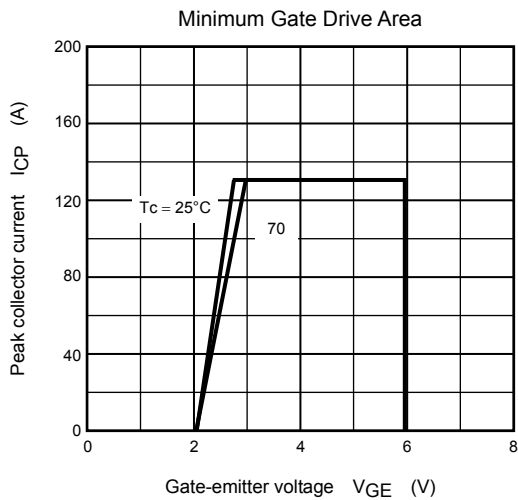
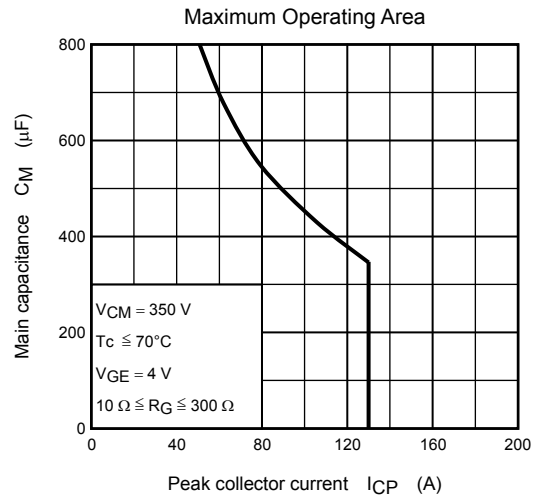
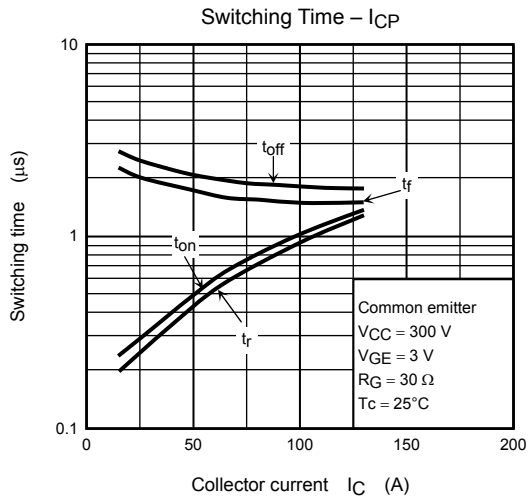
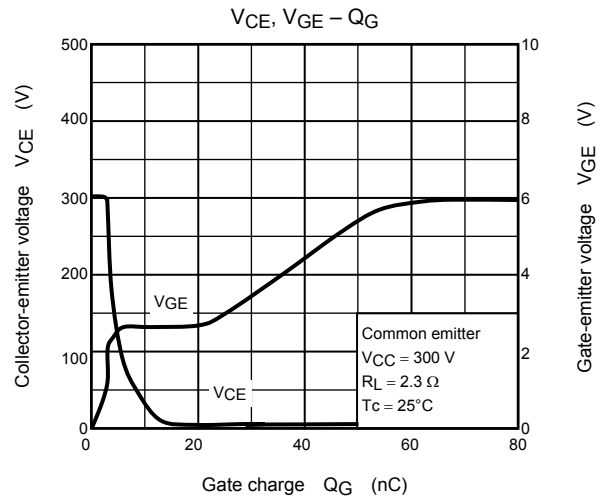
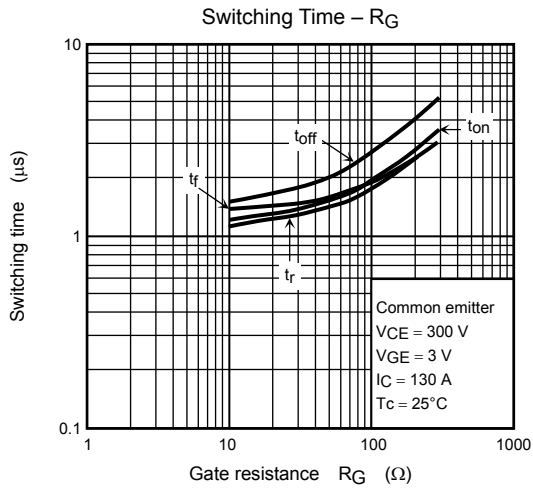


Week of manufacture (01 for first week of year, continues up to 52 or 53)

Year of manufacture (One low-order digits of calendar year)







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20070701-EN

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