

# GT8G136

## Strobe Flash Applications

- Compact and Thin (TSSOP-8) package
- Enhancement-mode
- Peak collector current:  $I_C = 150\text{ A (max)}$   
 (@ $V_{GE}=3.0\text{V (min)}$ ,  $T_a=70^\circ\text{C (max)}$ )

## Absolute Maximum Ratings (Ta = 25°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	Pulse (Note 1)	$I_{CP}$	150
Collector power dissipation (t = 10 s)	(Note 2a)	$P_C (1)$	1.1
	(Note 2b)	$P_C (2)$	0.6
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.

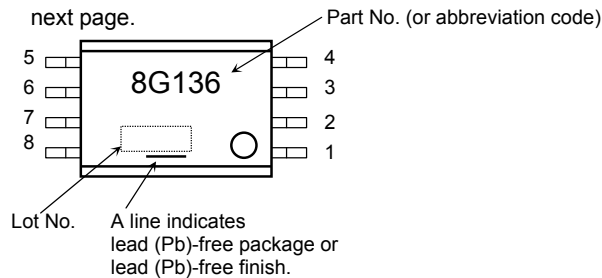
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

## Thermal Characteristics

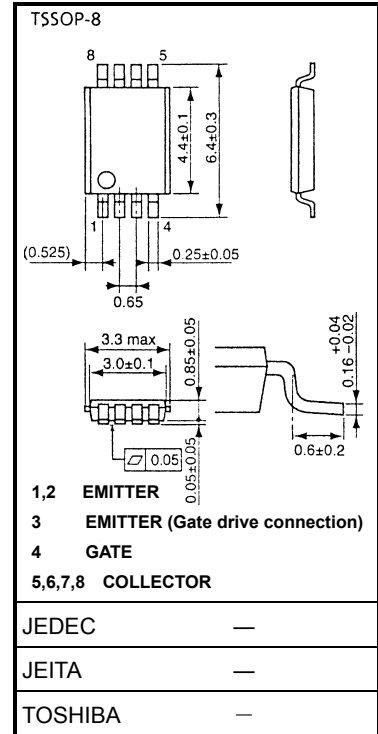
Characteristics	Symbol	Rating	Unit
Thermal resistance, junction to ambient (t = 10 s) (Note2a)	$R_{th(j-a)} (1)$	114	°C/W
Thermal resistance, junction to ambient (t = 10 s) (Note2b)	$R_{th(j-a)} (2)$	208	°C/W

## Marking (Note 3)

Note : For (Note 1) , (Note 2a) , (Note 2b) and (Note 3) , Please refer to the next page.

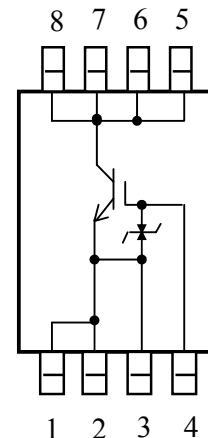


Unit: mm

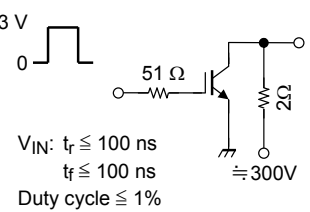


Weight: 0.035 g (typ.)

## Circuit Configuration



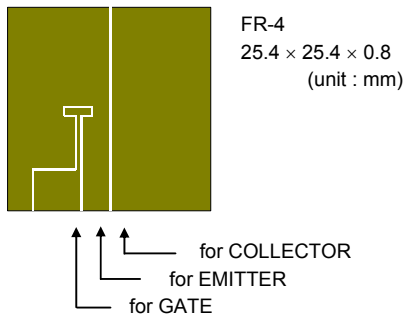
## Electrical Characteristics (Ta = 25°C)

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		$V_{GE(OFF)}$	$I_C = 1 \text{ mA}, V_{CE} = 5 \text{ V}$	0.65	1.0	1.35	V
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = 150 \text{ A}, V_{GE} = 3 \text{ V}$	—	3.5	—	V
Input capacitance		$C_{ies}$	$V_{CE} = 10 \text{ V}, V_{GE} = 0, f = 1 \text{ MHz}$	—	2500	—	pF
Switching time	Rise time	$t_r$		—	1.5	—	$\mu\text{s}$
	Turn-on time	$t_{on}$		—	1.7	—	
	Fall time	$t_f$		—	1.6	—	
	Turn-off time	$t_{off}$		—	1.9	—	

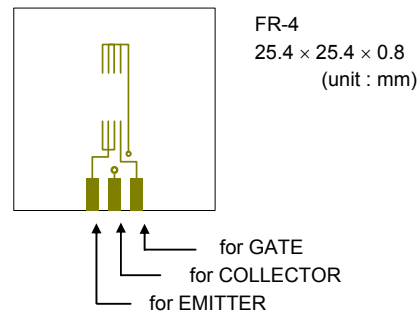
### Note

Note 1: Please use devices on condition that the junction temperature is below 150°C.  
 Repetitive rating: pulse width limited by maximum junction temperature.

Note 2a : Device mounted on a glass-epoxy board (a)

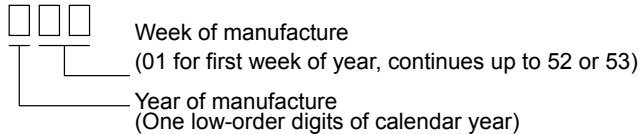


Note 2b : Device mounted on a glass-epoxy board (b)



Note 3: ○ on lower right of the marking indicates Pin 1.

※ Weekly code: (Three digits)



※ Pb-Free Finish (Only a coating lead terminal) :

It is marking about an underline to a week of manufacture mark.



**Caution on handling**

This device is MOS gate type. Therefore , please care of a protection from ESD in your handling .

**Caution in design**

You should be design dv/dt value under I<sub>cp</sub>=150A is below 400 V/μs when IGBT turn off under Ta=70°C .  
 You should be design to don't flow collector current through terminal number 3 .

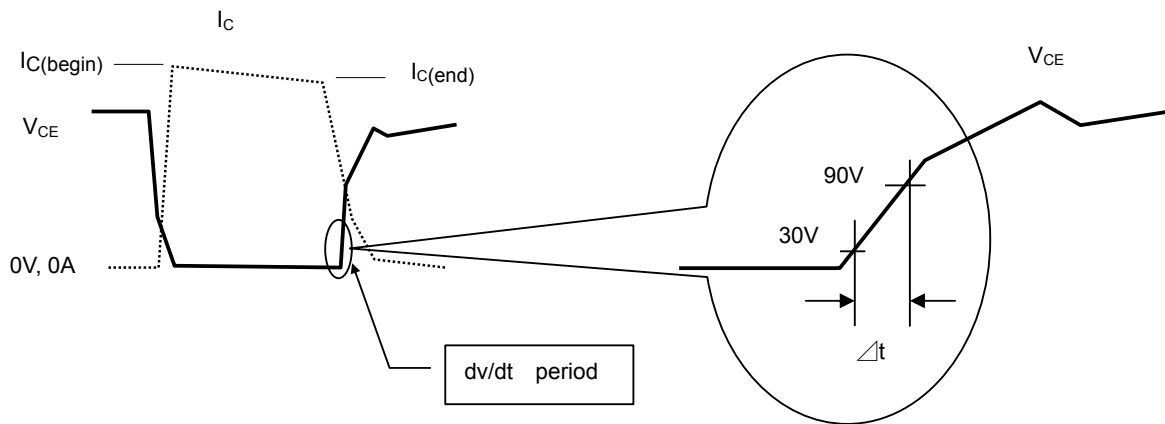
●definition of dv/dt

The slope of V<sub>CE</sub> from 30v to 90v (attached figure.1)

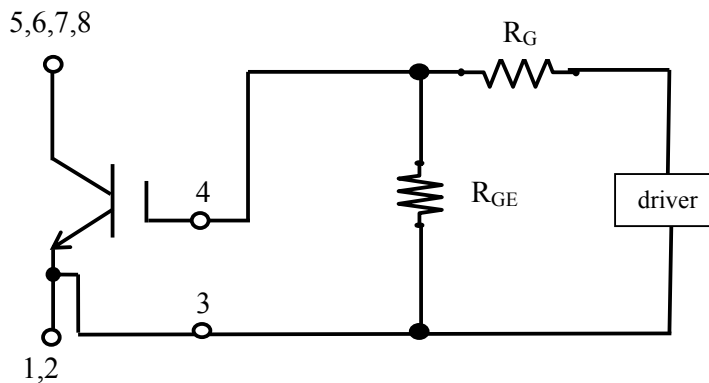
$$\begin{aligned} dv/dt &= (90V-30V) / (\Delta t) \\ &= 60V / \Delta t \end{aligned}$$

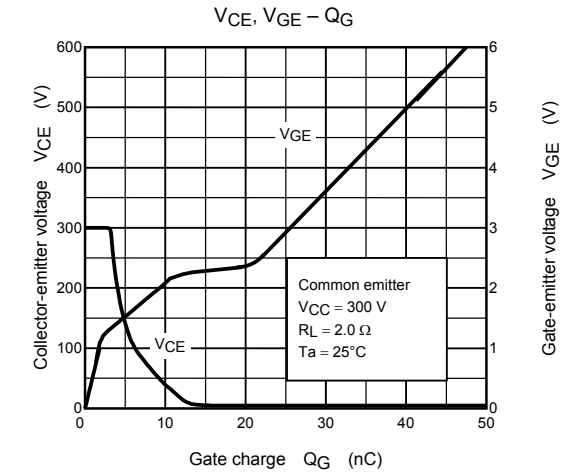
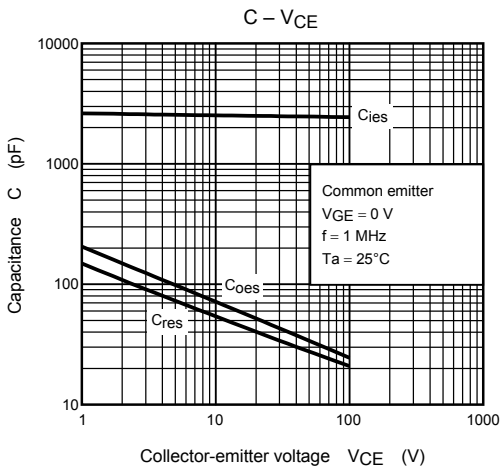
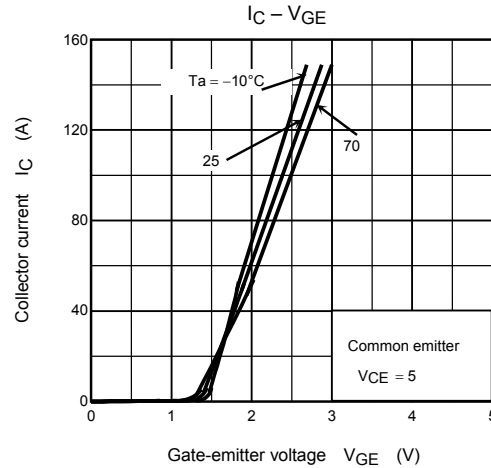
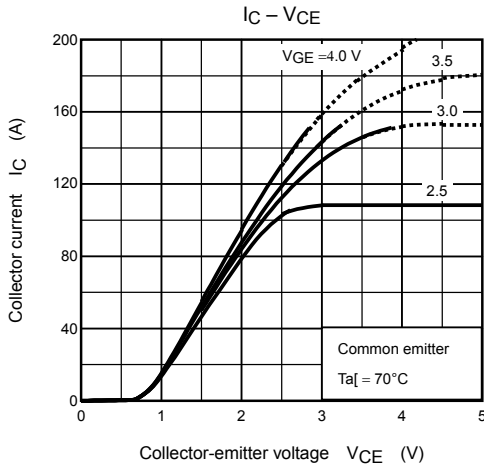
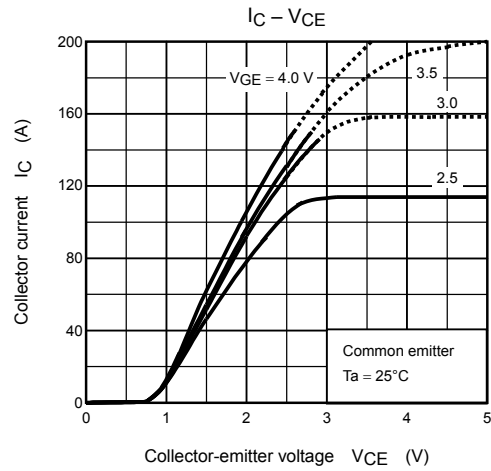
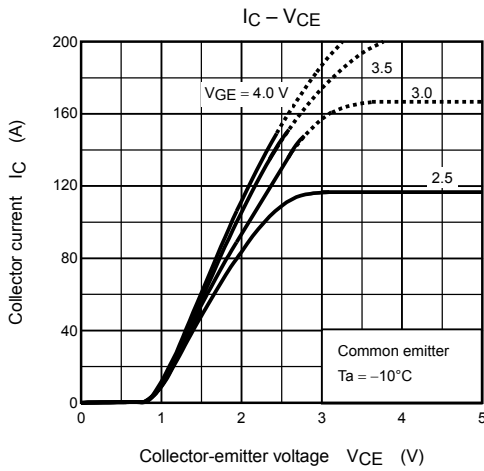
●waveform

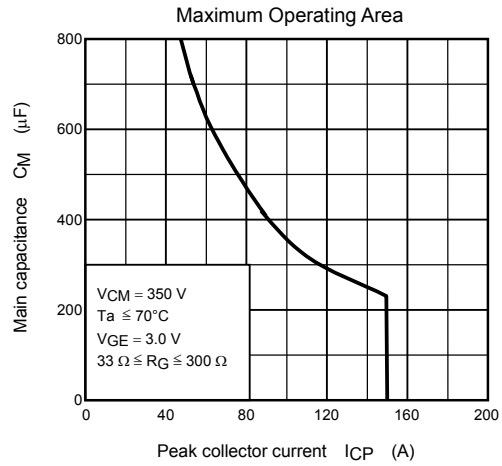
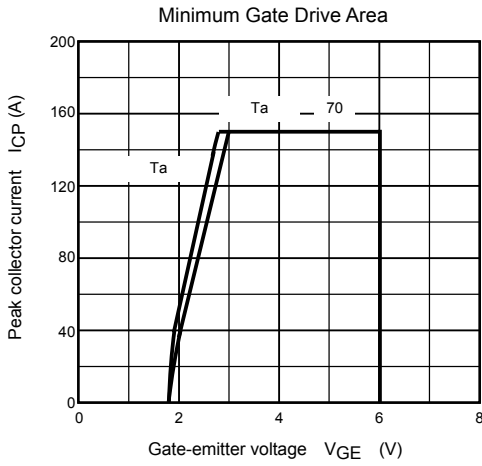
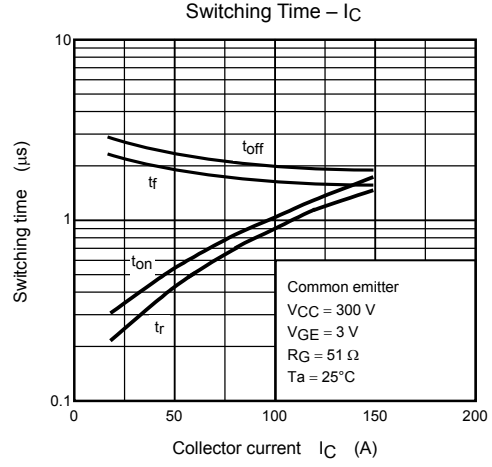
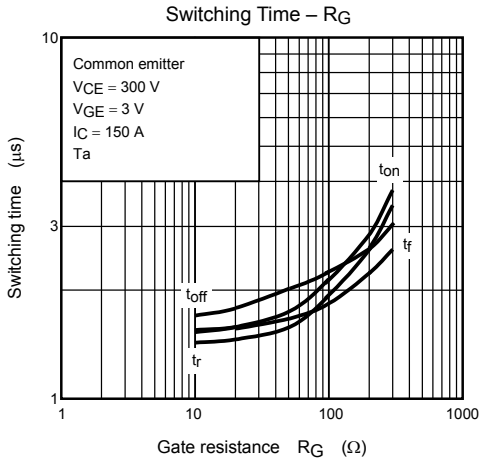
●waveform (expansion)



●Gate drive connection







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20070701-EN

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