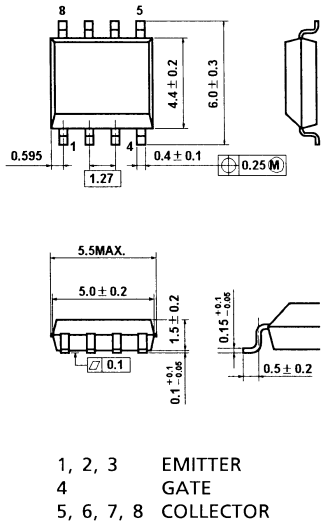
TOSHIBA Insulated Gate Bipolar Transistor Silicon N Channel IGBT

GT8G132

Strobe Flash Applications

- Supplied in compact and thin package requires only a small mounting area
- 5th generation (trench gate structure) IGBT
- Enhancement-mode
- 4-V gate drive voltage: V_{GE} = 4.0 V (min) (@I_C = 150 A)
- Peak collector current: I_C = 150 A (max)

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-6J1C

Weight: 0.080 g (typ.)

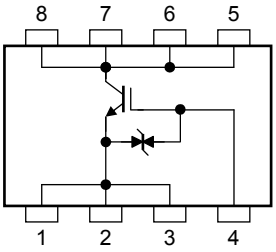
Absolute Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Collector-emitter voltage		V_{CES}	400	V
Gate-emitter voltage	DC	V_{GES}	±6	V
	Pulse	V_{GES}	±8	
Collector current	DC	I_C	8	A
	1 ms	I_{CP}	150	
Collector power dissipation	(Note 1)	P_C	1.1	W
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	−55~150	°C

Note 1: Drive operation: Mount on glass epoxy board [1 $inch^2$ × 1.5 t]

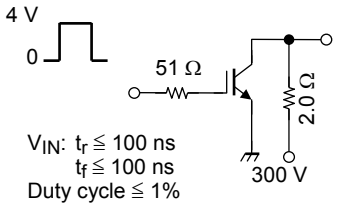
Note 2: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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).

Equivalent Circuit



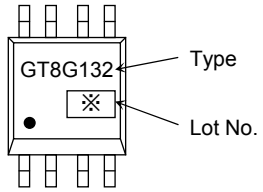
These devices are MOS type. Users should follow proper ESD handling procedures.
Operating condition of turn-off dv/dt should be lower than 400 V/μs.

Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		I_{GES}	V_{GE} = ±6 V, V_{CE} = 0	—	—	±10	μA
Collector cut-off current		I_{CES}	V_{CE} = 400 V, V_{GE} = 0	—	—	10	μA
Gate-emitter cut-off voltage		$V_{GE\ (OFF)}$	I_C = 1 mA, V_{CE} = 5 V	0.6	—	1.2	V
Collector-emitter saturation voltage		$V_{CE\ (sat)}$	I_C = 150 A, V_{GE} = 4 V	—	2.3	7.0	V
Input capacitance		C_{ies}	V_{CE} = 10 V, V_{GE} = 0, f = 1 MHz	—	2800	—	pF
Switching time	Rise time	t_r		—	1.0	—	μs
	Turn-on time	t_{on}		—	1.1	—	
	Fall time	t_f		—	1.6	—	
	Turn-off time	t_{off}		—	2.2	—	
Thermal resistance	(Note 2)	$R_{th\ (j\text{-}a)}$	—	—	—	114	°C/W

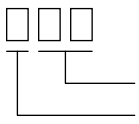
Note 2: Drive operation: Mount on glass epoxy board [1 $inch^2$ × 1.5 t]

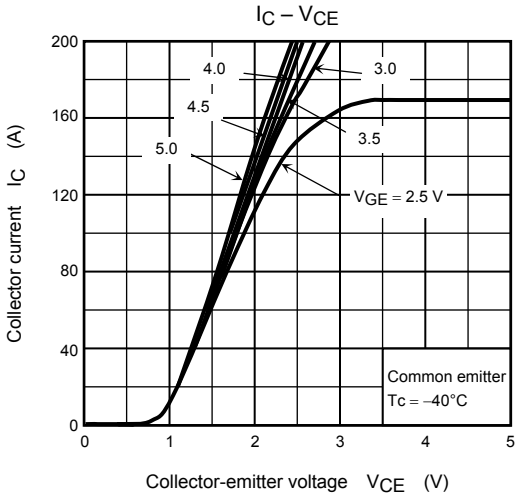
Marking

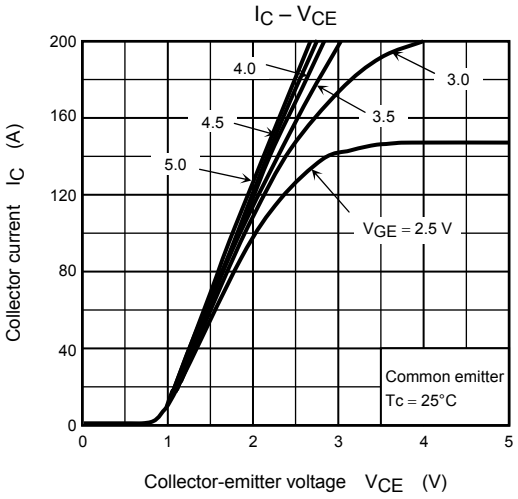


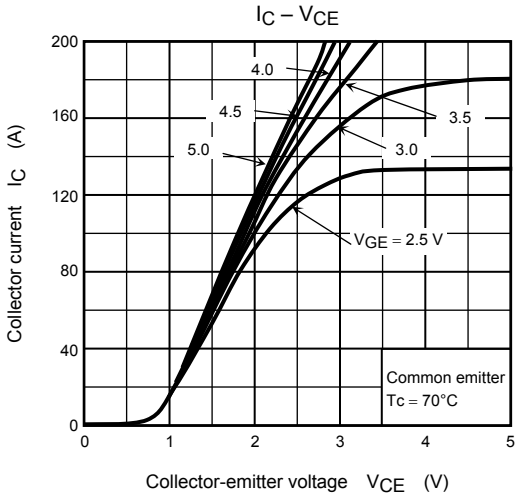
● on lower left of the marking indicates Pin 1.

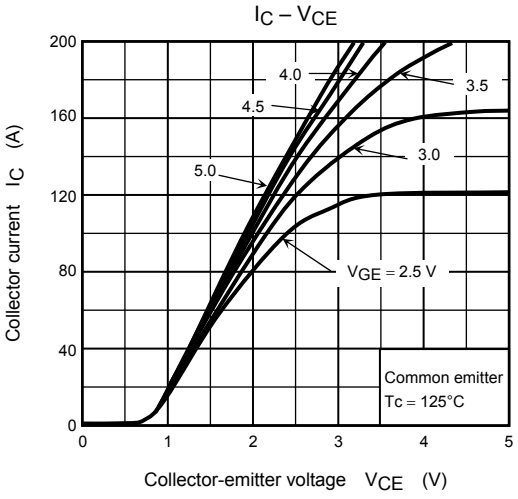
※ Weekly code: (Three digits)

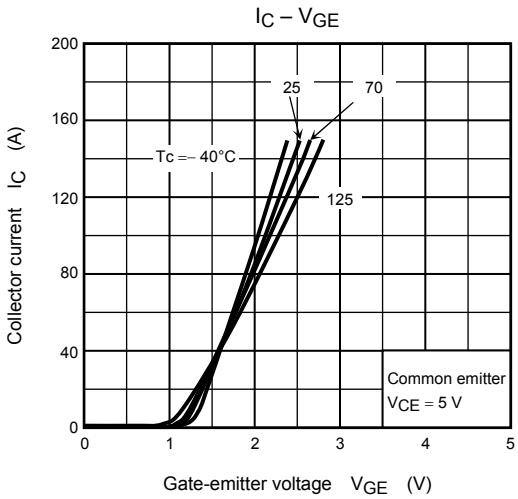


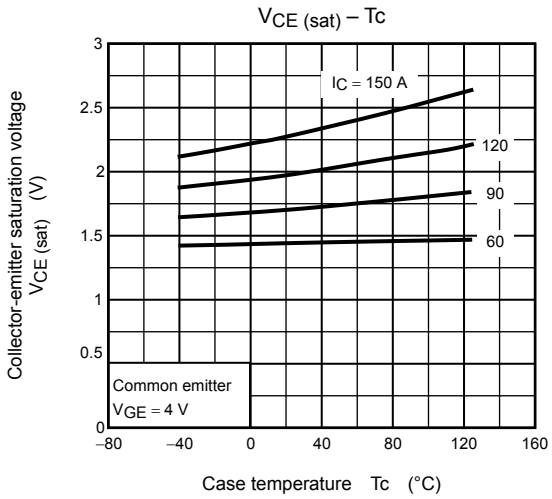

$I_C - V_{CE}$
Collector current I_C (A)
Collector-emitter voltage V_{CE} (V)
4.0
3.0
4.5
3.5
5.0
V_{GE} = 2.5 V
Common emitter
Tc = −40°C


$I_C - V_{CE}$
Collector current I_C (A)
Collector-emitter voltage V_{CE} (V)
4.0
3.0
4.5
3.5
5.0
V_{GE} = 2.5 V
Common emitter
Tc = 25°C

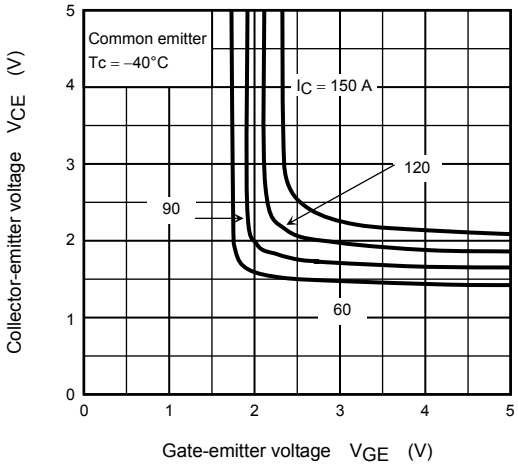

$I_C - V_{CE}$
Collector current I_C (A)
Collector-emitter voltage V_{CE} (V)
4.0
3.5
4.5
5.0
3.0
V_{GE} = 2.5 V
Common emitter
Tc = 70°C


$I_C - V_{CE}$
Collector current I_C (A)
Collector-emitter voltage V_{CE} (V)
4.0
3.5
4.5
5.0
3.0
V_{GE} = 2.5 V
Common emitter
Tc = 125°C

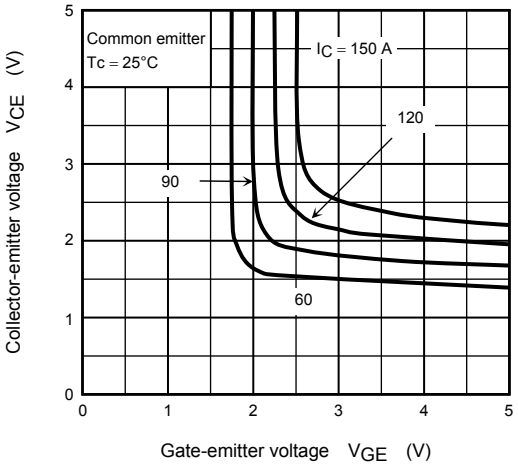

$I_C - V_{GE}$
Collector current I_C (A)
Gate-emitter voltage V_{GE} (V)
25
70
Tc = −40°C
125
Common emitter
V_{CE} = 5 V


$V_{CE\ (sat)} - Tc$
Collector-emitter saturation voltage $V_{CE\ (sat)}$ (V)
Case temperature Tc (°C)
I_C = 150 A
120
90
60
Common emitter
V_{GE} = 4 V

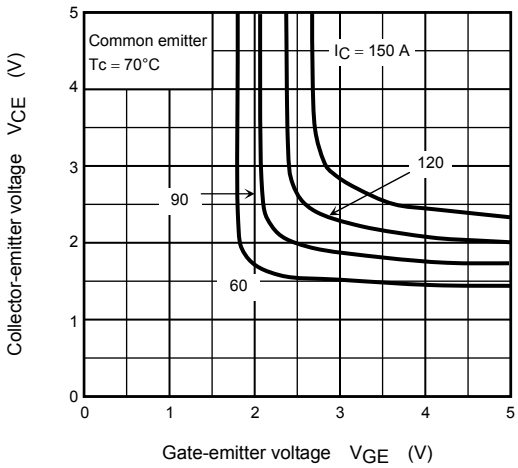
$V_{CE} - V_{GE}$



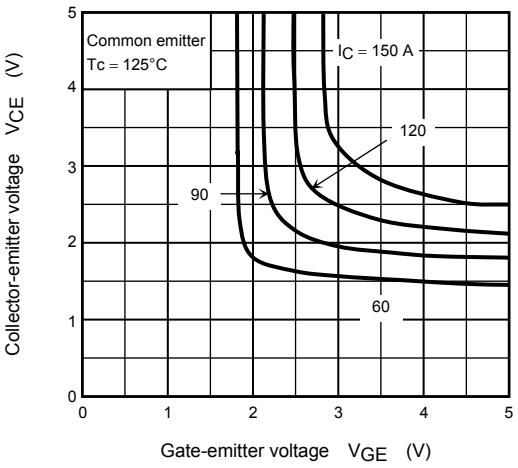
$V_{CE} - V_{GE}$



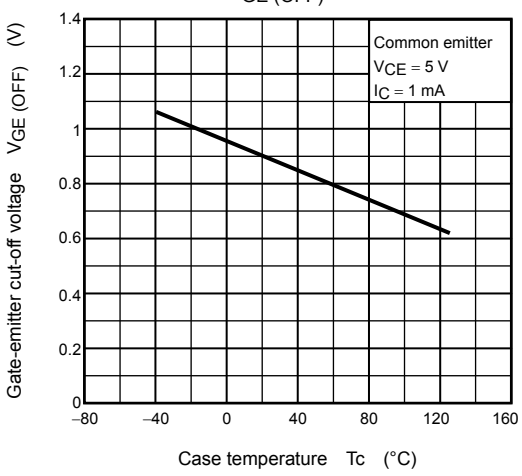
$V_{CE} - V_{GE}$



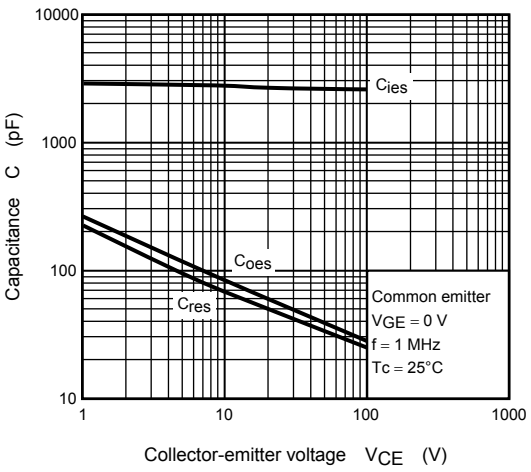
$V_{CE} - V_{GE}$



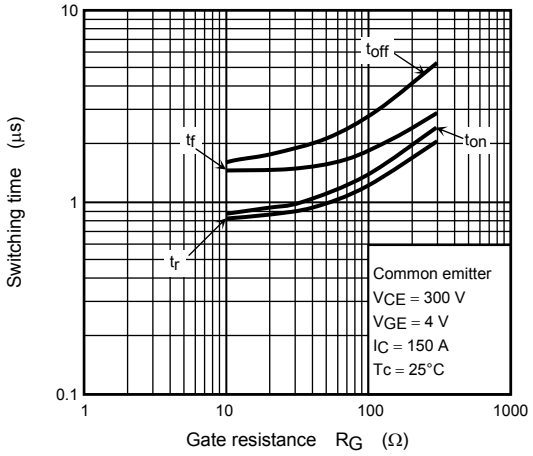
$V_{GE\ (OFF)} - Tc$



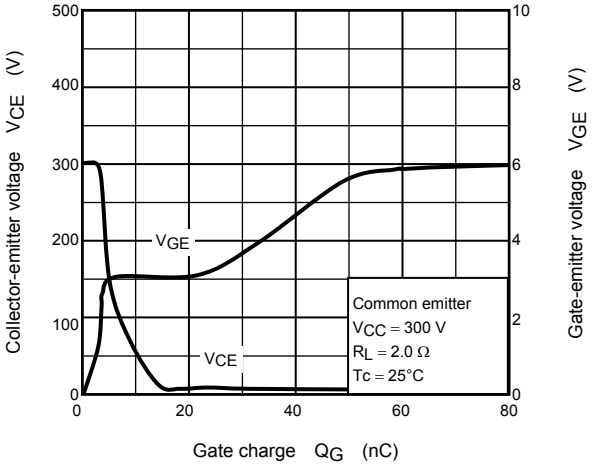
$C - V_{CE}$



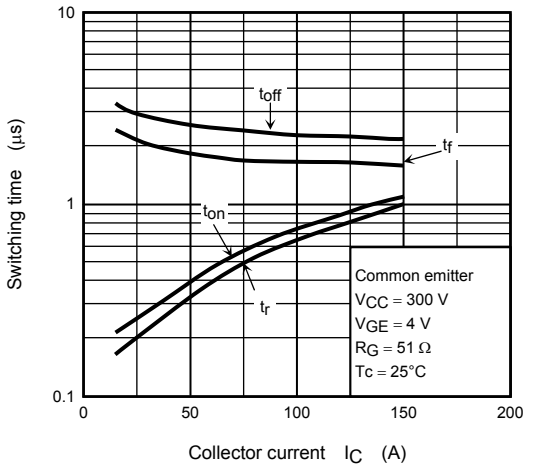
Switching Time – R_G



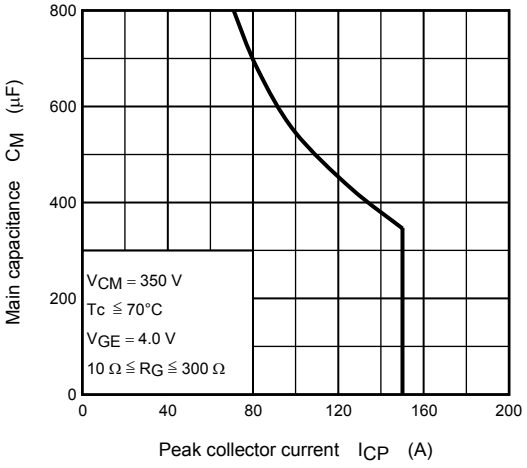
V_{CE}, V_{GE} – Q_G



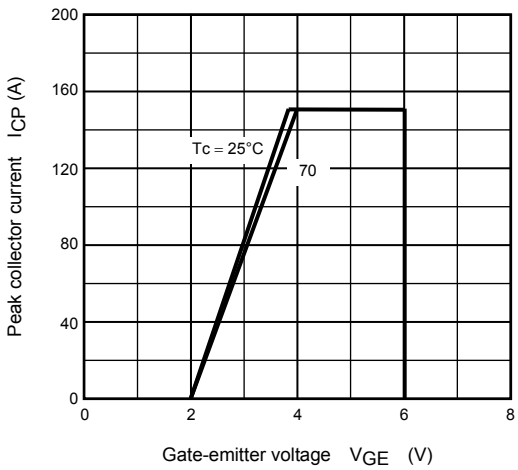
Switching Time – I_{CP}



Maximum Operating Area



Minimum Gate Drive Area



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20070701-EN

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