

Preliminary

TOSHIBA Insulated Gate Bipolar Transistor
Silicon N Channel IGBT

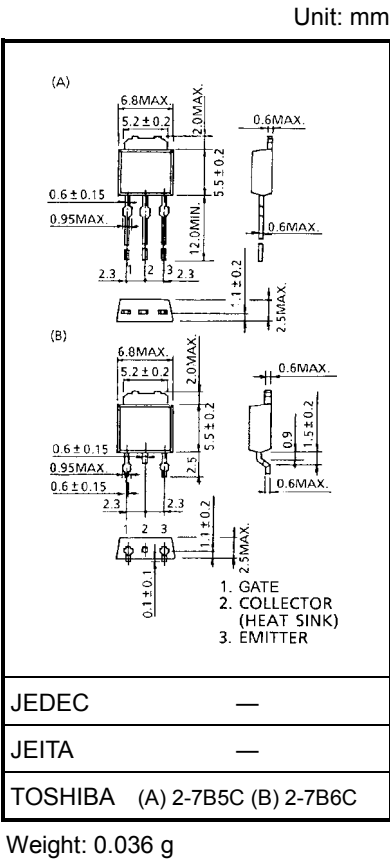
GT5G102

Strobe Flash Applications

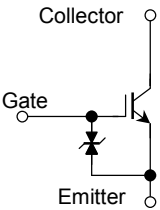
- 3rd Generation
- High input impedance
- Low saturation voltage
: $V_{CE(sat)} = 8\text{ V (max)}$ ($I_C = 130\text{ A}$)
- Enhancement-mode
- 12 V gate drive

Maximum Ratings (Ta = 25°C)

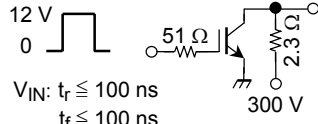
Characteristics		Symbol	Rating	Unit
Collector-emitter voltage		V_{CES}	400	V
Gate-emitter voltage		V_{GES}	± 20	V
Collector current	DC	I_C	5	A
	1 ms	I_{CP}	130	A
Collector power dissipation	Ta = 25°C	P_C	1.3	W
	Tc = 25°C	P_C	20	W
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-55~150	°C



Equivalent Circuit



Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Gate leakage current		I_{GES}	$V_{GE} = 20\text{ V}, V_{CE} = 0$	—	—	10	μA
Collector cut-off current		I_{CES}	$V_{CE} = 400\text{ V}, V_{GE} = 0$	—	—	10	μA
Gate-emitter cut-off voltage		$V_{GE}(\text{OFF})$	$I_C = 1\text{ mA}, V_{CE} = 5\text{ V}$	2	—	5	V
Collector-emitter saturation voltage		$V_{CE}(\text{sat})$	$I_C = 130\text{ A}, V_{GE} = 12\text{ V (pulsed)}$	—	5	8	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	 12 V 0 $51\ \Omega$ $2\ \Omega$ 300 V $V_{IN}: t_r \leq 100\text{ ns}$ $t_f \leq 100\text{ ns}$ Duty cycle $\leq 1\%$	—	0.7	—	μs
	Turn-on time	t_{on}		—	0.9	—	
	Fall time	t_f		—	1.7	—	
	Turn-off time	t_{off}		—	2.0	—	
Thermal resistance		$R_{th(j-c)}$	—	—	—	6.25	$^{\circ}\text{C/W}$

This transistor is an electrostatic sensitive device. Please handle with caution.

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