



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

TIG058E8

 — N-Channel IGBT
Light-Controlling Flash Applications

Features

- Low-saturation voltage.
- Low voltage drive (4V).
- Enhancement type.
- Built-in Gate-to-Emitter protection diode.
- Mounting Height 0.9mm, Mounting Area 8.12mm².
- dv / dt guarantee*.
- Halogen free compliance.

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Emitter Voltage	V_{CES}		400	V
Gate-to-Emitter Voltage (DC)	V_{GES}		± 6	V
Gate-to-Emitter Voltage (Pulse)	V_{GES}	$PW \leq 1\text{ms}$	± 8	V
Collector Current (Pulse)	I_{CP}	$C_M=150\mu\text{F}, V_{GE}=4\text{V}$	150	A
Maximum Collector-to-Emitter dv / dt	dV_{CE} / dt	$V_{CE} \leq 320\text{V}$, starting $T_{ch}=25^\circ\text{C}$	400	V / μs
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-40 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=2\text{mA}, V_{GE}=0\text{V}$	400			V
Collector-to-Emitter Cutoff Current	I_{CES}	$V_{CE}=320\text{V}, V_{GE}=0\text{V}$			10	μA
Gate-to-Emitter Leakage Current	I_{GES}	$V_{GE}=\pm 6\text{V}, V_{CE}=0\text{V}$			± 10	μA

Marking : ZB

Continued on next page.

* : Concerning dv / dt (slope of Collector Voltage at the time of Turn-OFF), $dv / dt > 400\text{V} / \mu\text{s}$ will be 100% screen-detected in the circuit shown as Fig. 1.

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TIG058E8

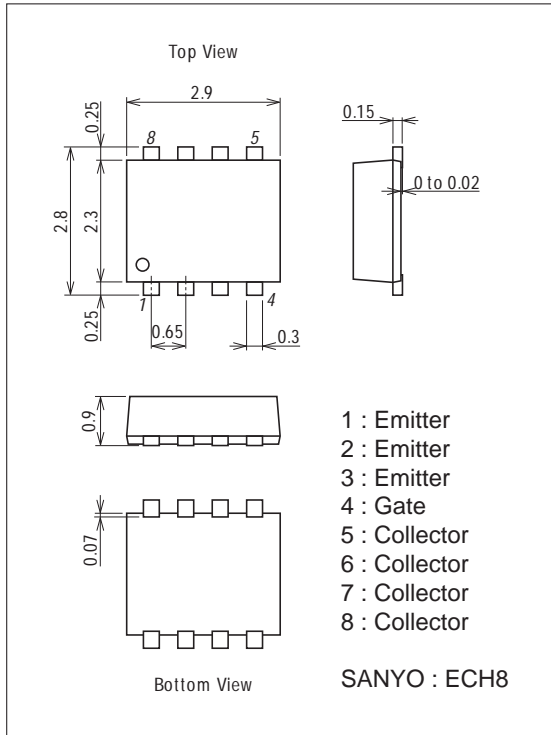
Continued from preceding page.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Emitter Threshold Voltage	$V_{GE(off)}$	$V_{CE}=10V, I_C=1mA$	0.4		0.9	V
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=100A, V_{GE}=4V$		4.0	5.6	V
Input Capacitance	C_{ies}	$V_{CE}=10V, f=1MHz$		2200		pF
Output Capacitance	C_{oes}	$V_{CE}=10V, f=1MHz$		32		pF
Reverse Transfer Capacitance	C_{res}	$V_{CE}=10V, f=1MHz$		24		pF

Package Dimensions

unit : mm (typ)

7011A-004



Electrical Connection

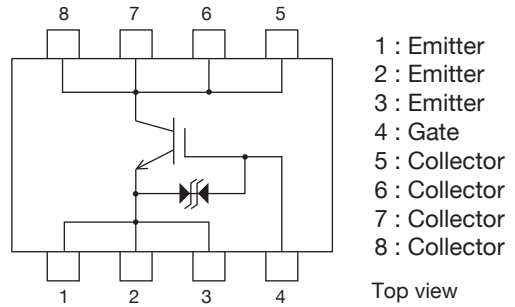
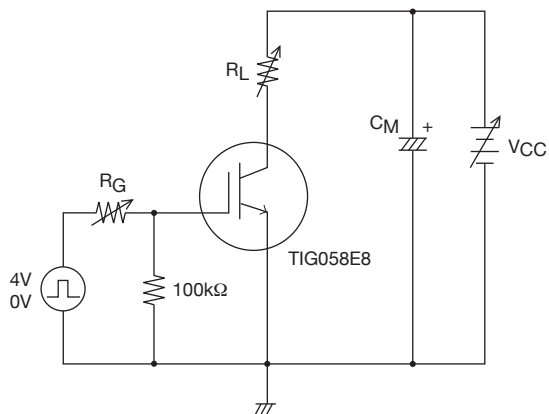
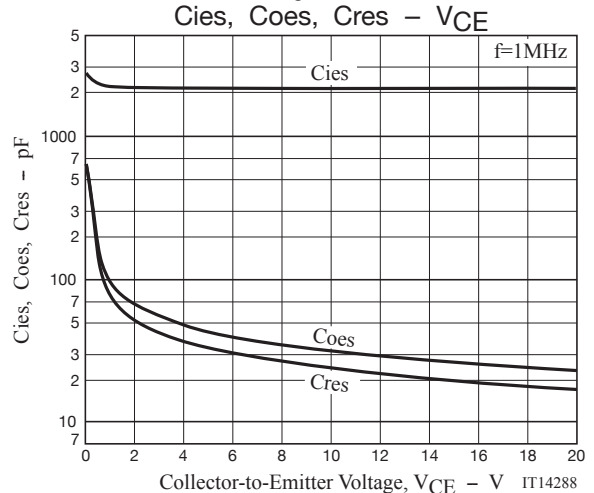
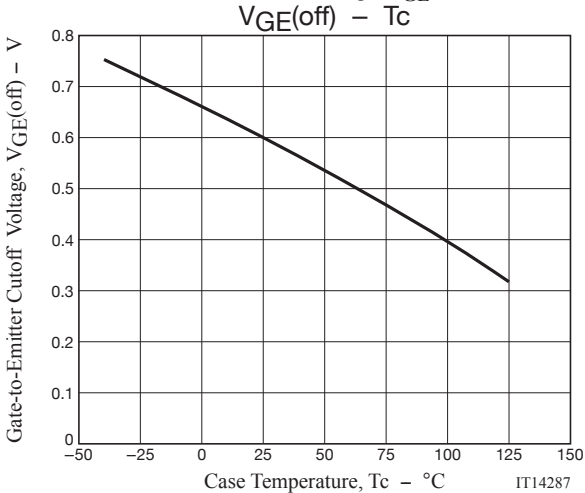
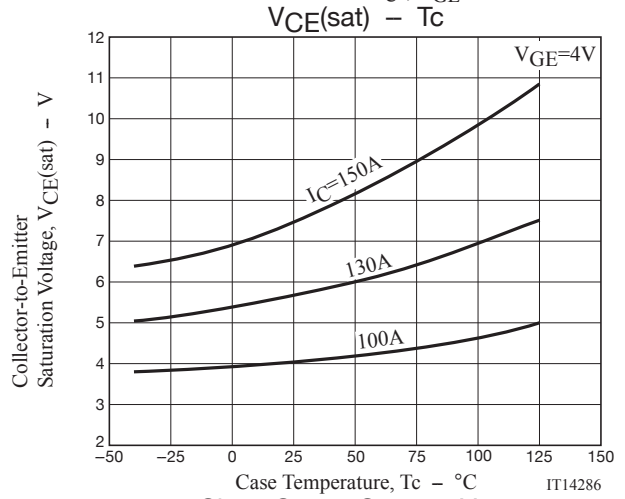
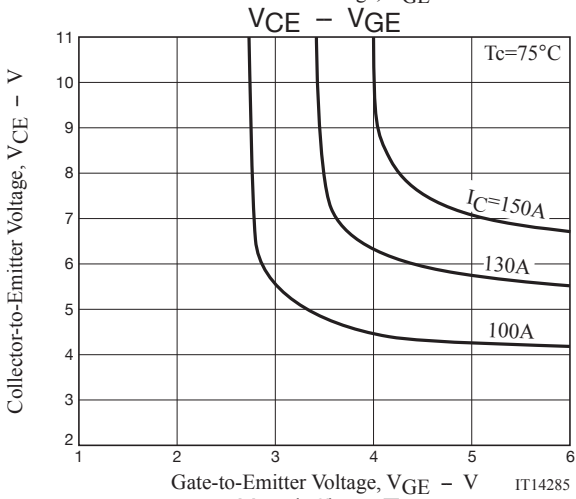
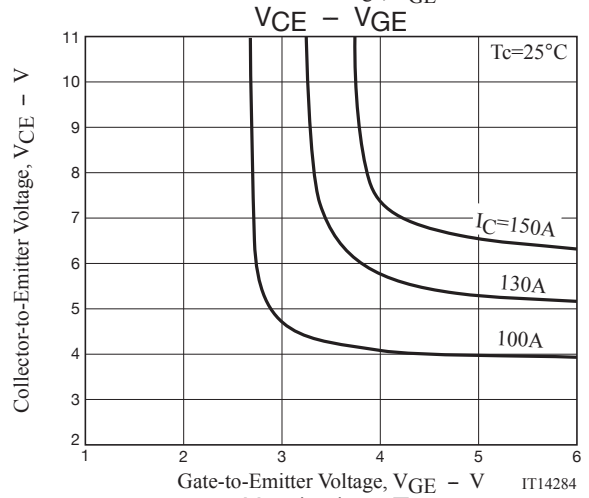
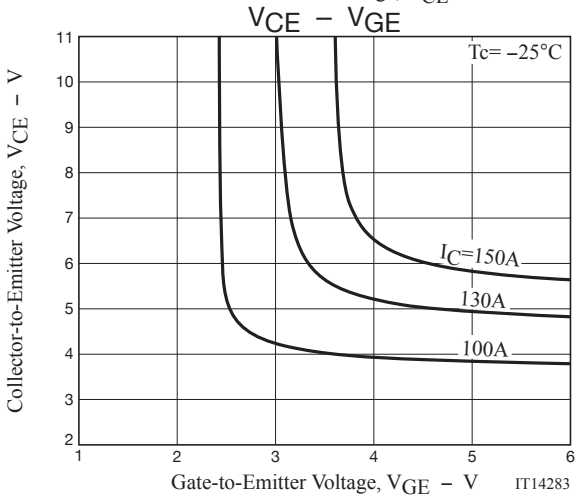
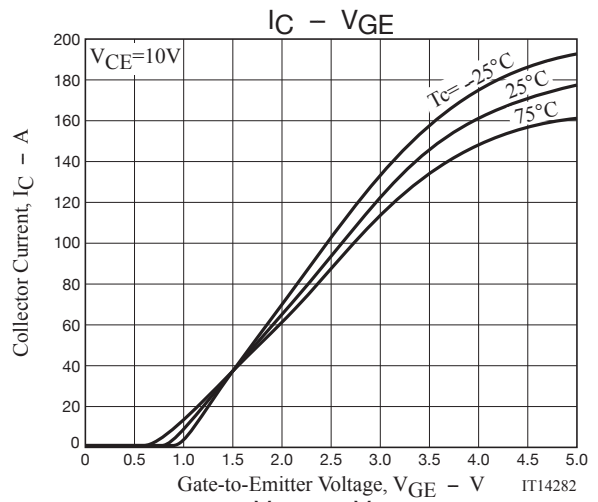
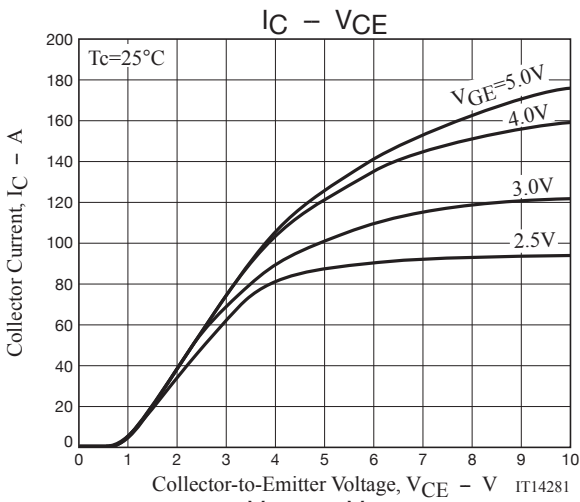


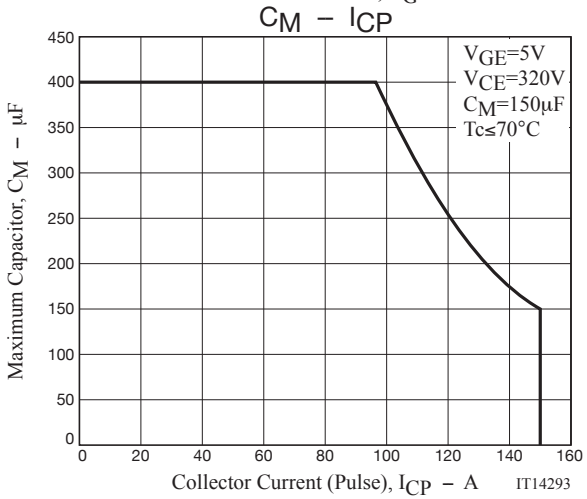
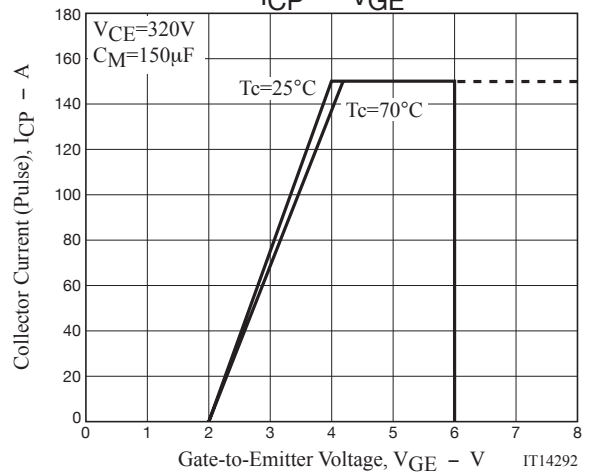
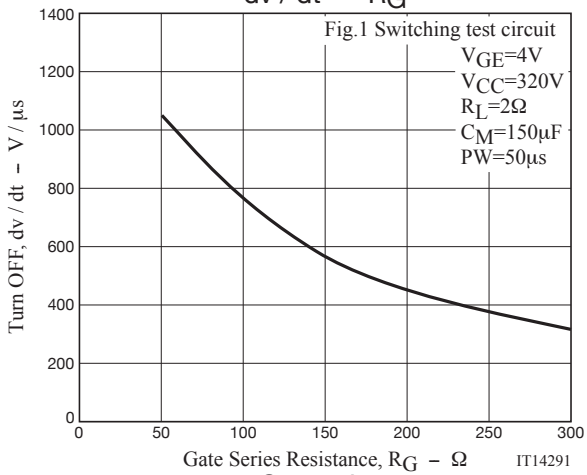
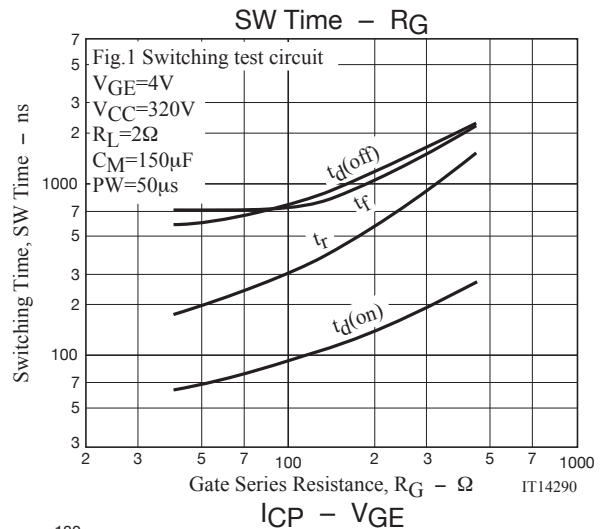
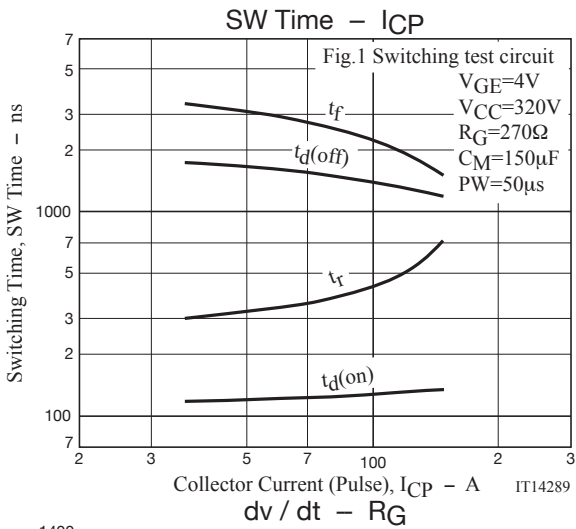
Fig.1 Large Current R Load Screening Circuit



Note1. Gate Series Resistance $R_G \geq 230\Omega$ is recommended for protection purpose at the time of turn OFF. However, if $dv/dt \leq 400V/\mu s$ is satisfied at customer's actual set evaluation, $R_G < 230\Omega$ can also be used.

Note2. The collector voltage gradient dv/dt must be smaller than $400V/\mu s$ to protect the device when it is turned off.





Note : TIG058E8 has protection diode between gate and emitter but handling it requires sufficient care to be taken.

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