



# SANYO Semiconductors

## DATA SHEET

An ON Semiconductor Company

# TIG062E8

— N-Channel IGBT  
Light-Controlling Flash Applications

### Features

- Low-saturation voltage.
- Low voltage drive (3V).
- Enhancement type.
- Built-in Gate-to-Emitter protection diode.
- Mounting Height 0.9mm, Mounting Area 8.12mm<sup>2</sup>.
- dv / dt guarantee\*.
- Halogen free compliance.

### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Emitter Voltage	V <sub>CES</sub>		400	V
Gate-to-Emitter Voltage (DC)	V <sub>GES</sub>		±6	V
Gate-to-Emitter Voltage (Pulse)	V <sub>GES</sub>	PW≤1ms	±8	V
Collector Current (Pulse)	I <sub>CP1</sub>	C <sub>M</sub> =150μF, V <sub>GE</sub> =3V	100	A
	I <sub>CP2</sub>	C <sub>M</sub> =100μF, V <sub>GE</sub> =3.3V	130	A
	I <sub>CP3</sub>	C <sub>M</sub> =100μF, V <sub>GE</sub> =4V	150	A
Maximum Collector-to-Emitter dv / dt	dV <sub>CE</sub> / dt	V <sub>CE</sub> ≤320V, starting T <sub>ch</sub> =25°C	400	V / μs
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-40 to +150	°C

Marking : ZC

\* : Concerning dv / dt (slope of Collector Voltage at the time of Turn-OFF), dv / dt &gt; 400V / μs will be 100% screen-detected in the circuit shown as Fig. 1.

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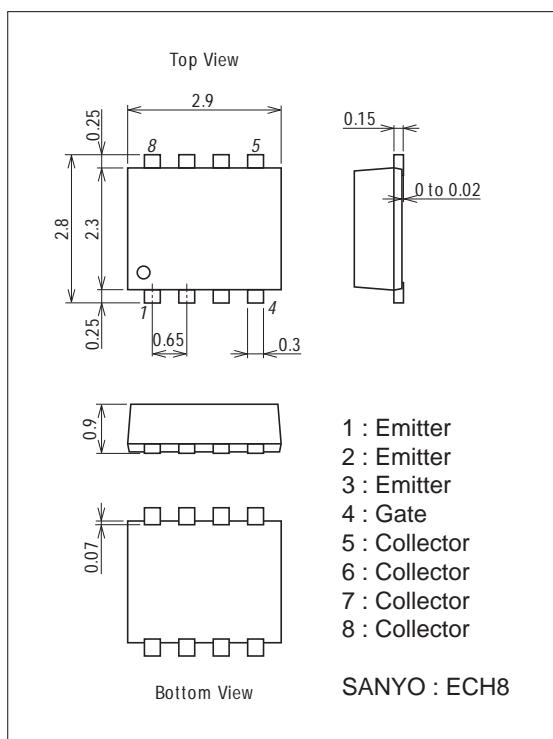
Electrical Characteristics at  $T_a=25^\circ\text{C}$ 

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Breakdown Voltage	$V(\text{BR})_{\text{CES}}$	$I_C=2\text{mA}, V_{GE}=0\text{V}$	400			V
Collector-to-Emitter Cutoff Current	$I_{\text{CES}}$	$V_{CE}=320\text{V}, V_{GE}=0\text{V}$			10	$\mu\text{A}$
Gate-to-Emitter Leakage Current	$I_{\text{GES}}$	$V_{GE}=\pm 6\text{V}, V_{CE}=0\text{V}$			$\pm 10$	$\mu\text{A}$
Gate-to-Emitter Threshold Voltage	$V_{GE(\text{off})}$	$V_{CE}=10\text{V}, I_C=1\text{mA}$	0.4		0.9	V
Collector-to-Emitter Saturation Voltage	$V_{CE(\text{sat})}$	$I_C=100\text{A}, V_{GE}=3\text{V}$		5	8	V
Input Capacitance	$C_{\text{ies}}$	$V_{CE}=10\text{V}, f=1\text{MHz}$		2400		pF
Output Capacitance	$C_{\text{oes}}$	$V_{CE}=10\text{V}, f=1\text{MHz}$		32		pF
Reverse Transfer Capacitance	$C_{\text{res}}$	$V_{CE}=10\text{V}, f=1\text{MHz}$		24		pF

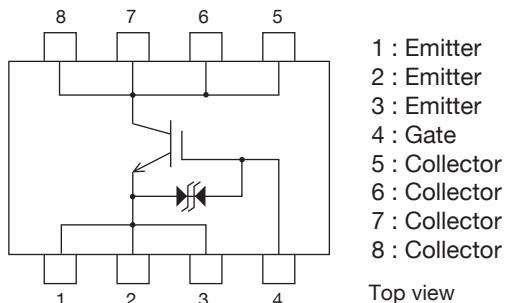
## Package Dimensions

unit : mm (typ)

7011A-004



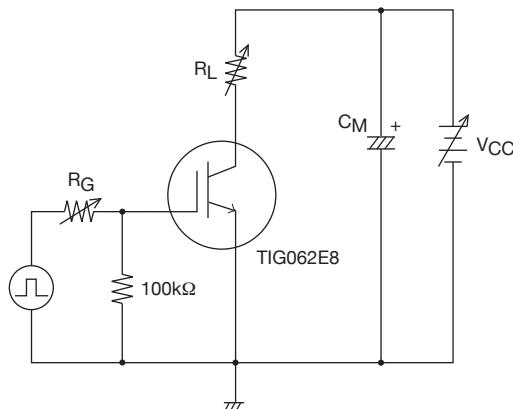
## Electrical Connection



- 1 : Emitter
- 2 : Emitter
- 3 : Emitter
- 4 : Gate
- 5 : Collector
- 6 : Collector
- 7 : Collector
- 8 : Collector

Top view

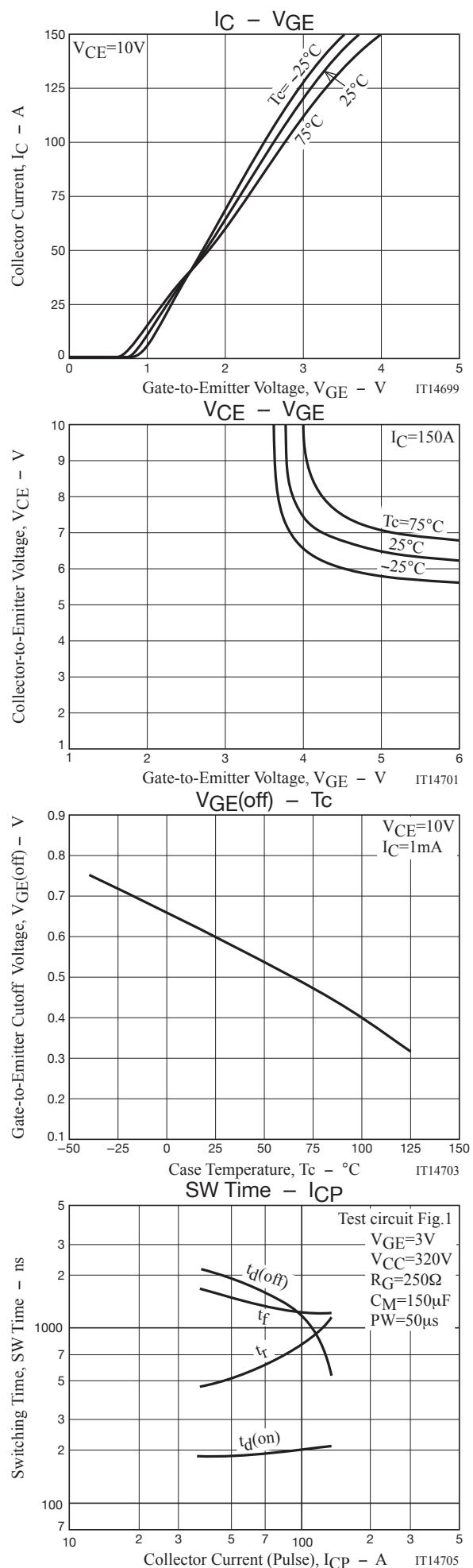
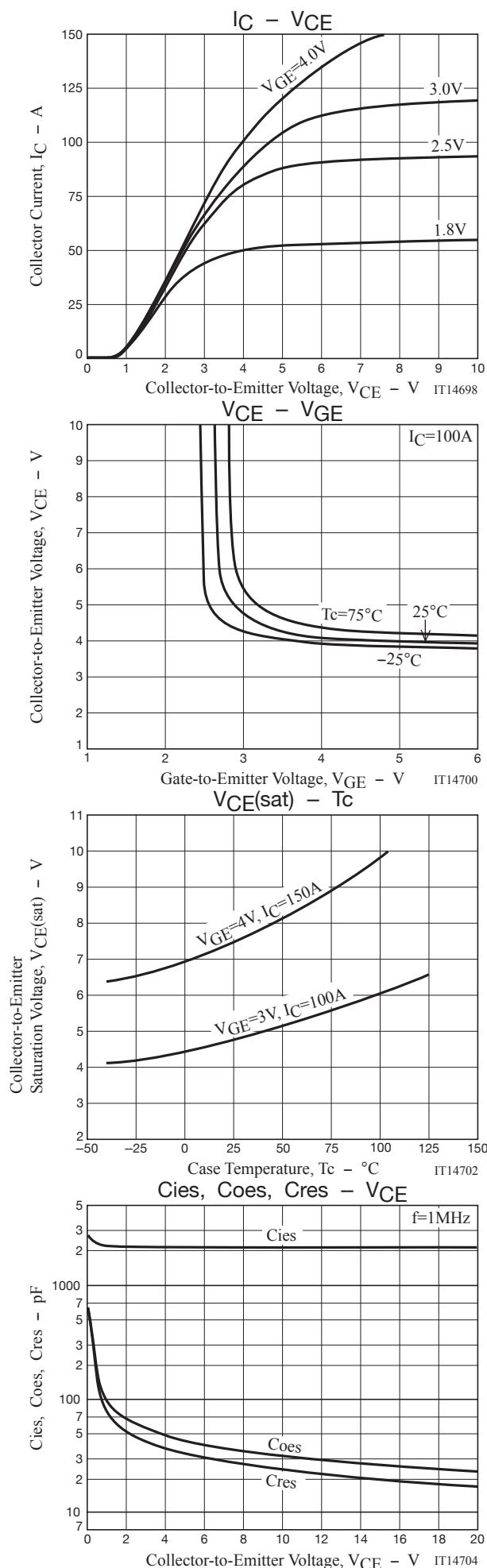
Fig.1 Large Current R Load Switching Circuit



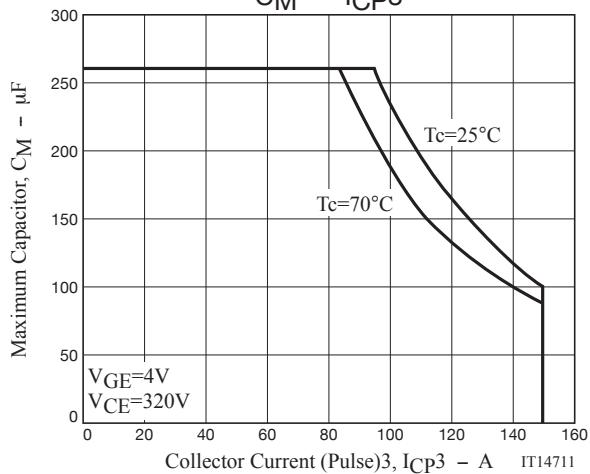
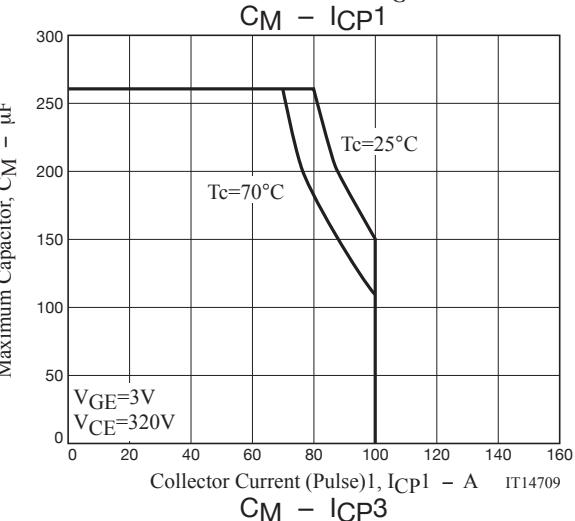
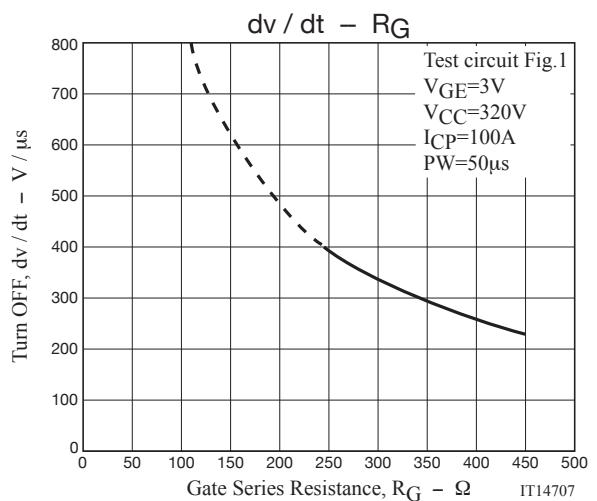
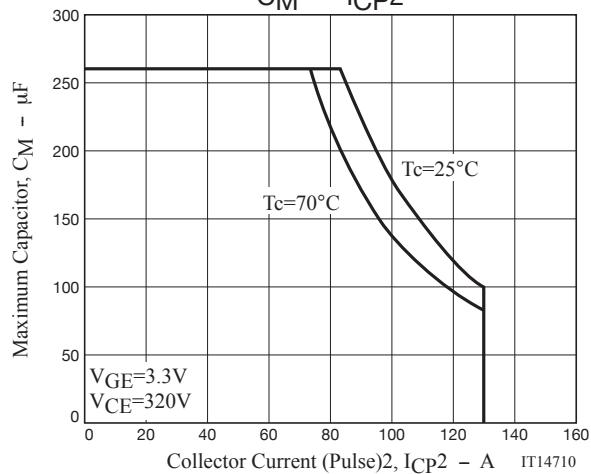
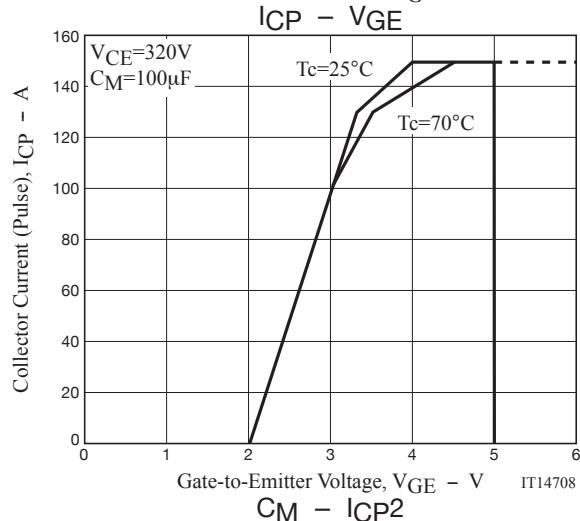
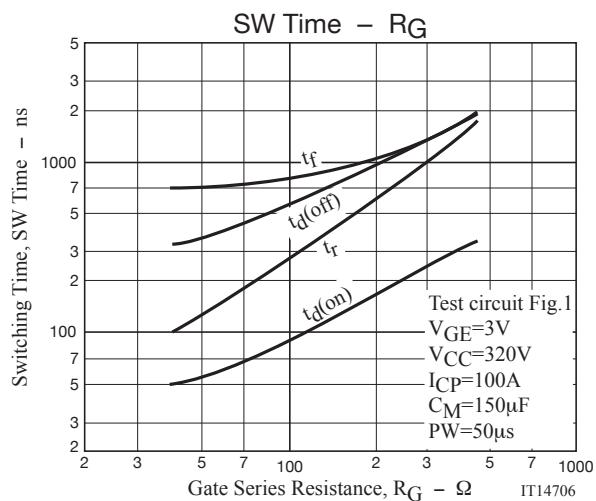
Note1. Gate Series Resistance  $R_G \geq 250\Omega$  is recommended for protection purpose at the time of turn OFF. However, if  $dv / dt \leq 400\text{V} / \mu\text{s}$  is satisfied at customer's actual set evaluation,  $R_G < 250\Omega$  can also be used.

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

# TIG062E8



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Note : TIG062E8 has protection diode between gate and emitter but handling it requires sufficient care to be taken.

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