



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  $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Emitter Voltage	$V_{CES}$		400	V
Gate-to-Emitter Voltage (DC)	$V_{GES}$		$\pm 6$	V
Gate-to-Emitter Voltage (Pulse)	$V_{GES}$	$PW \leq 1\text{ms}$	$\pm 8$	V
Collector Current (Pulse)	$I_{CP1}$	$C_M=150\mu\text{F}, V_{GE}=3\text{V}$	100	A
	$I_{CP2}$	$C_M=100\mu\text{F}, V_{GE}=3.3\text{V}$	130	A
	$I_{CP3}$	$C_M=100\mu\text{F}, V_{GE}=4\text{V}$	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 / $\mu\text{s}$
Channel Temperature	$T_{ch}$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-40 to +150	$^\circ\text{C}$

Marking : ZC

\* : 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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# TIG062E8

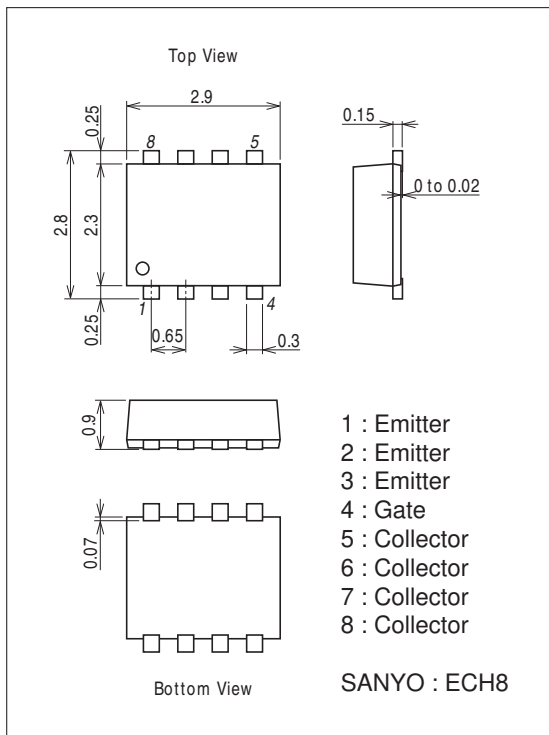
## Electrical Characteristics at Ta=25°C

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

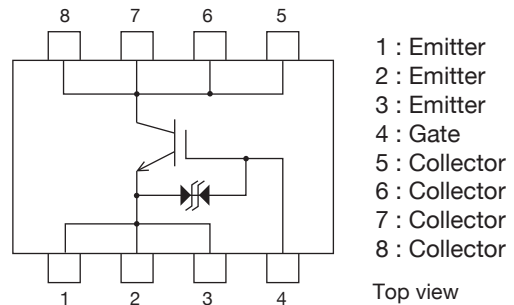
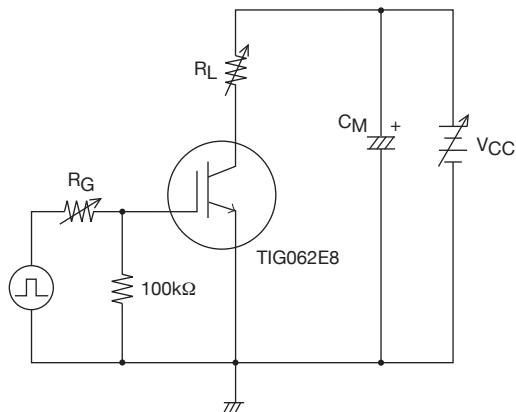
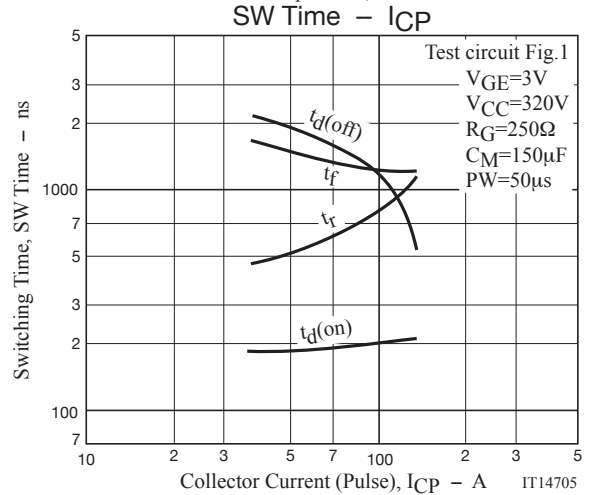
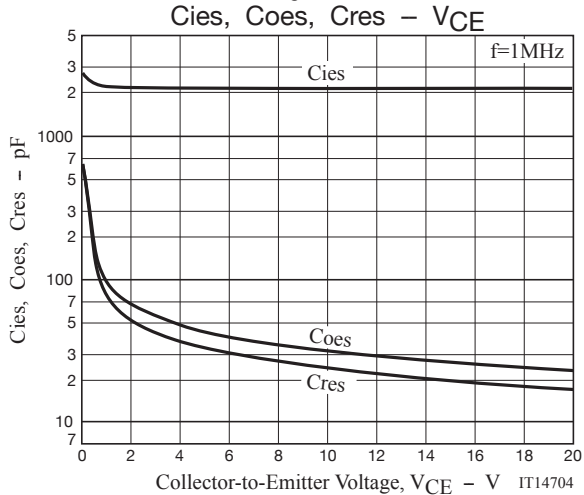
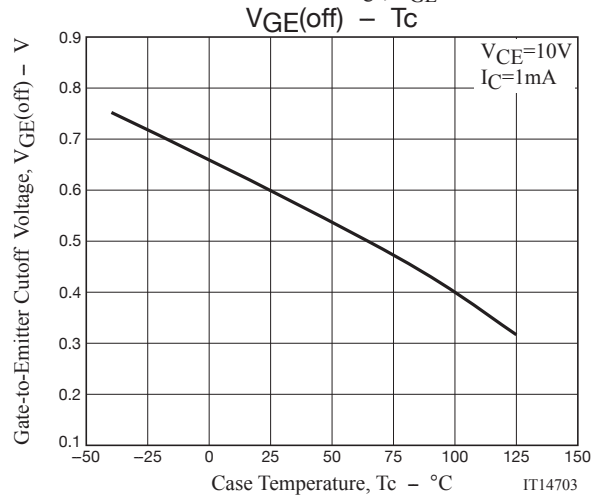
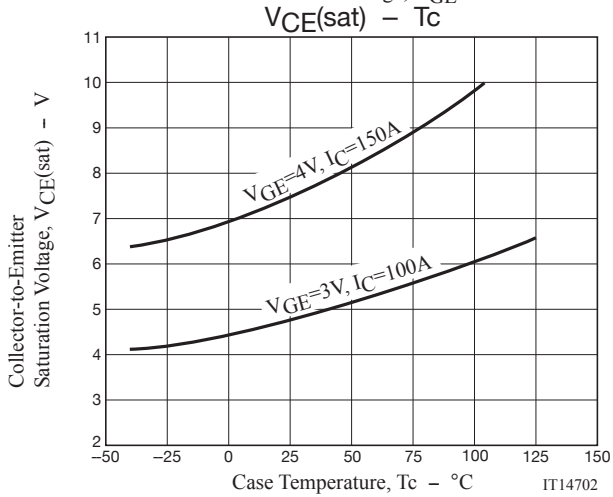
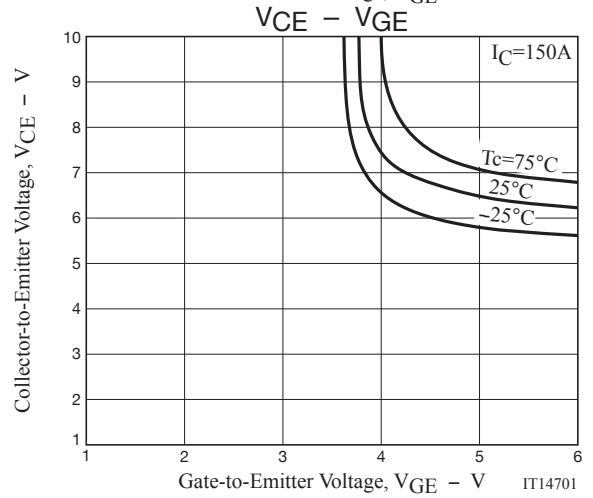
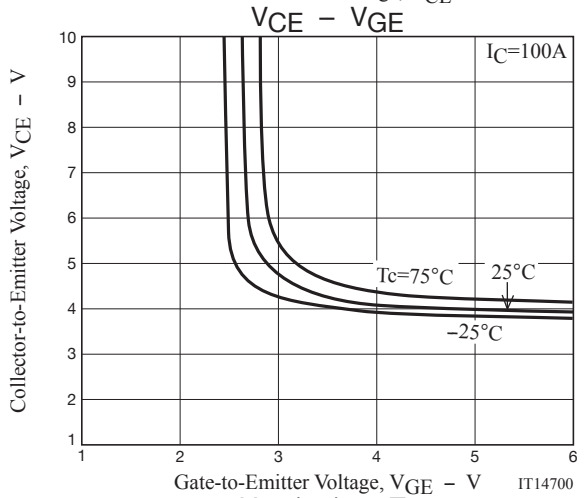
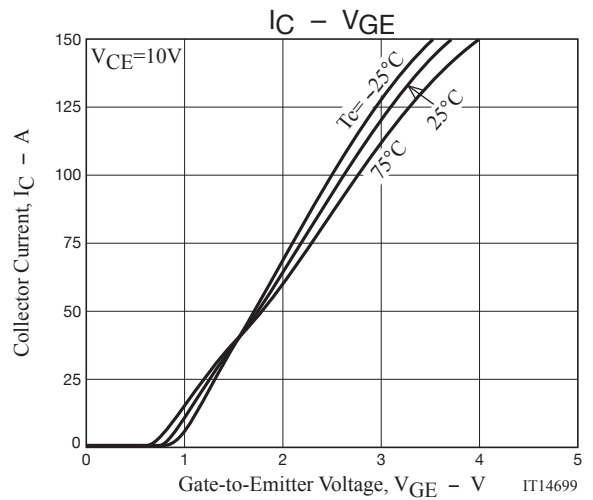
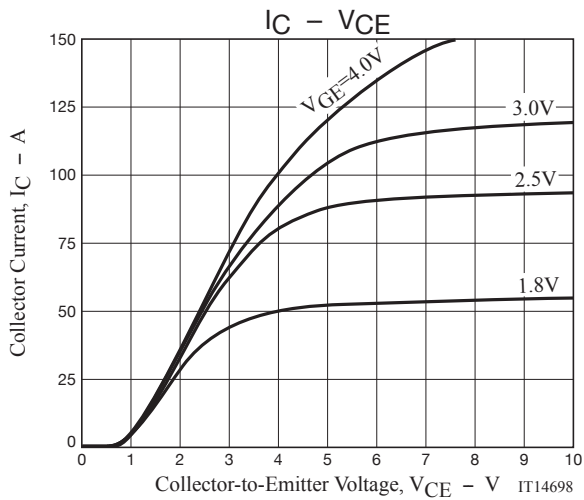


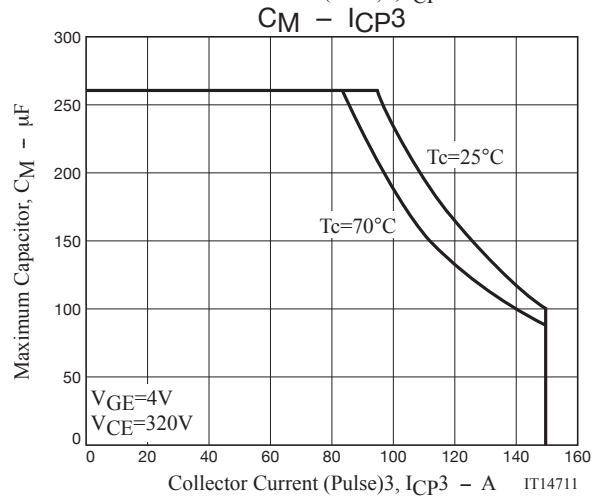
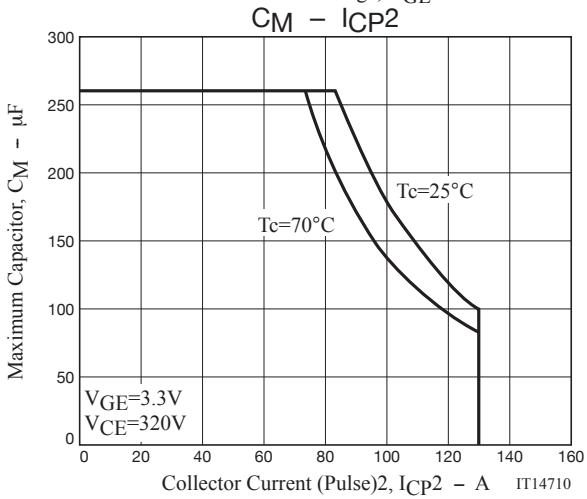
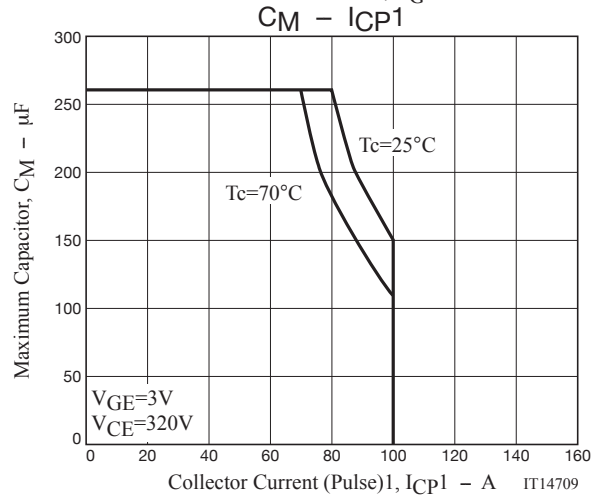
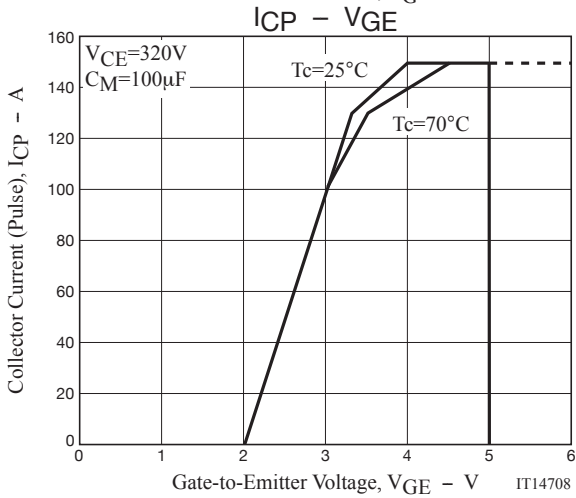
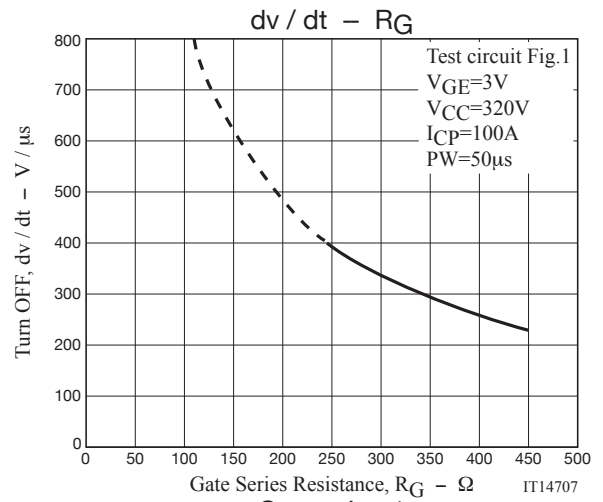
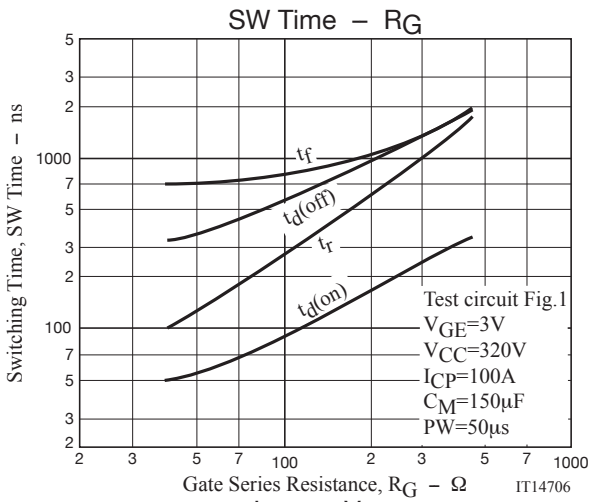
Fig.1 Large Current R Load Switching Circuit



Note1. Gate Series Resistance  $R_G \geq 250\Omega$  is recommended for protection purpose at the time of turn OFF. However, if  $dv/dt \leq 400V/\mu s$  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  $400V/\mu s$  to protect the device when it is turned off.





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

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