



# TIG065E8 — N-Channel IGBT

## Light-Controlling Flash Applications

### Features

- Low-saturation voltage
- Enhancement type
- Mounting Height 0.9mm, Mounting Area 8.12mm<sup>2</sup>
- Halogen free compliance
- Low voltage drive (2.5V)
- Built-in Gate-to-Emitter protection diode
- dv / dt guarantee\*

### Specifications

Absolute Maximum Ratings at Ta=25°C

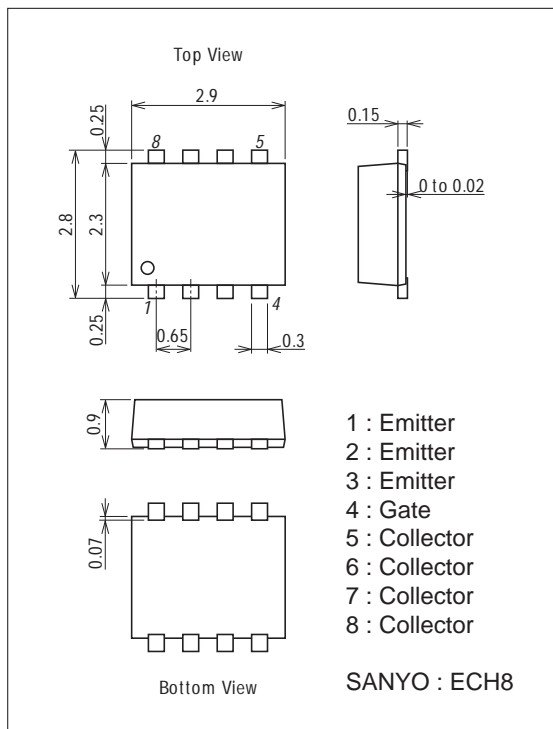
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Emitter Voltage	V <sub>CES</sub>		400	V
Gate-to-Emitter Voltage (DC)	V <sub>GES</sub>		±4	V
Gate-to-Emitter Voltage (Pulse)	V <sub>GES</sub>	PW≤1ms	±5	V
Collector Current (Pulse)	I <sub>CP</sub>	V <sub>GE</sub> =2.5V, C <sub>M</sub> =100μF	150	A
Maximum Collector-to-Emitter dv / dt	dv / dt	V <sub>CE</sub> ≤320V, starting Tch=25°C	400	V / μs
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-40 to +150	°C

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

### Package Dimensions

unit : mm (typ)

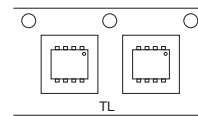
7011A-004



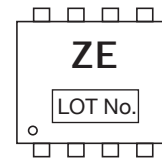
### Product & Package Information

- Package : ECH8
- JEITA, JEDEC : -
- Minimum Packing Quantity : 3000 pcs./reel

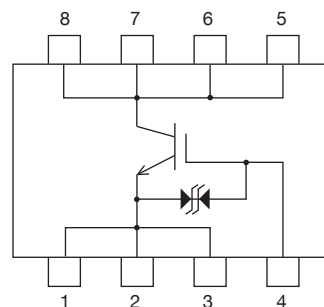
### Packing Type: TL



### Marking



### Electrical Connection

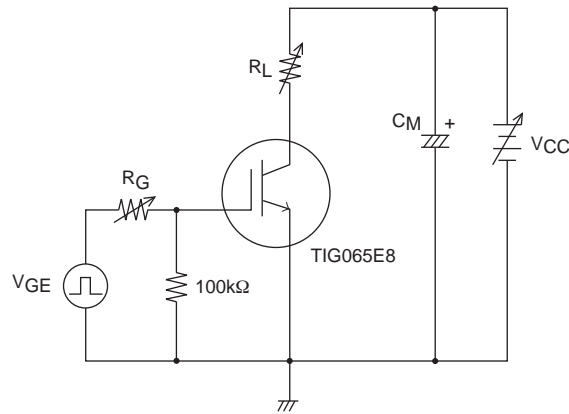


# TIG065E8

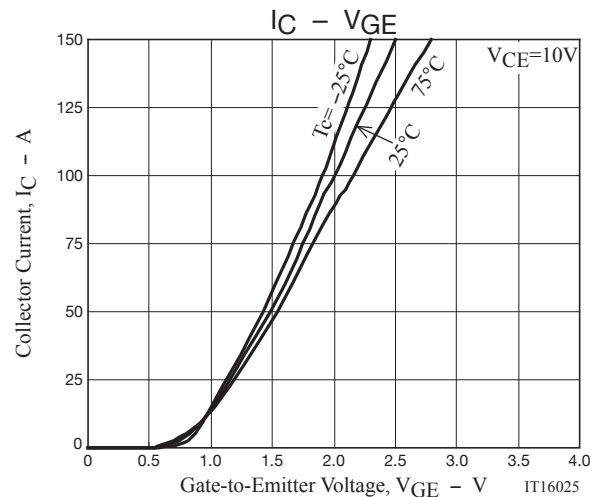
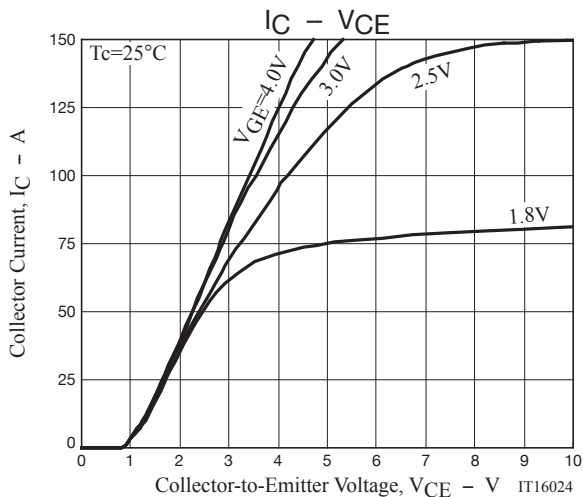
## Electrical Characteristics at $T_a=25^\circ\text{C}$

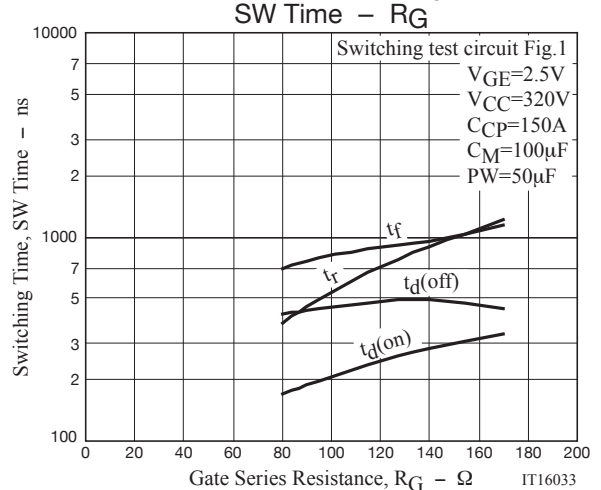
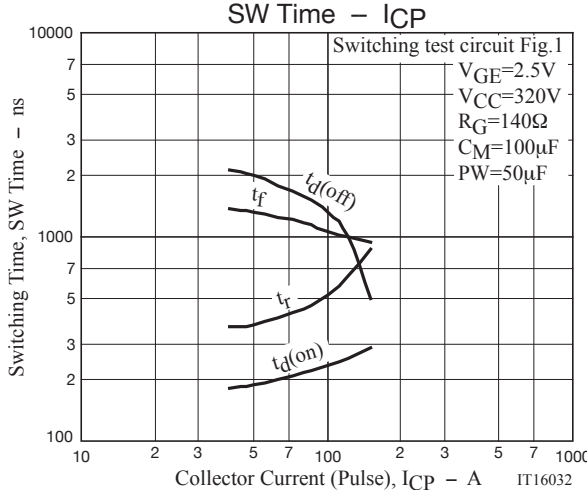
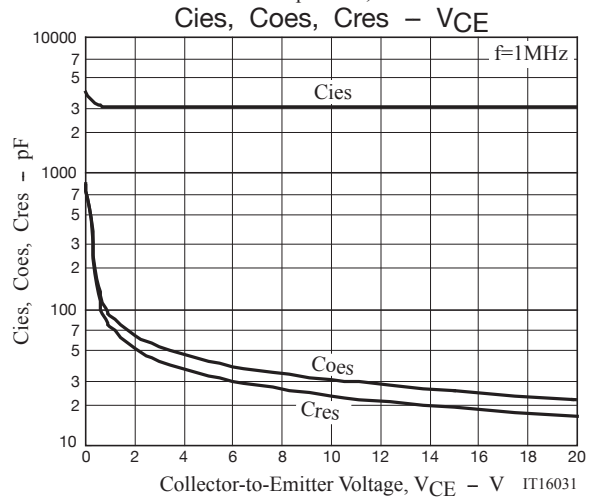
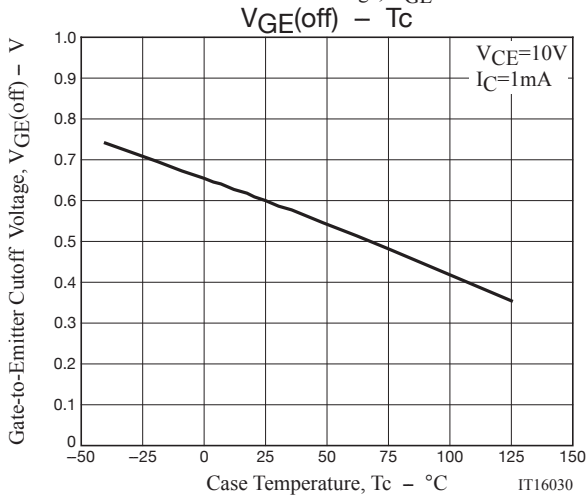
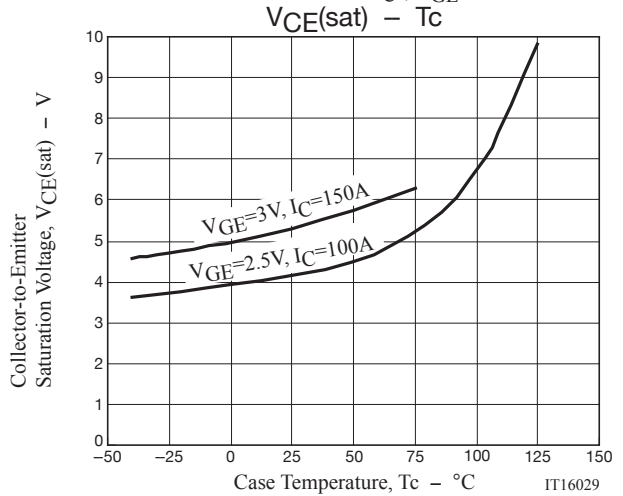
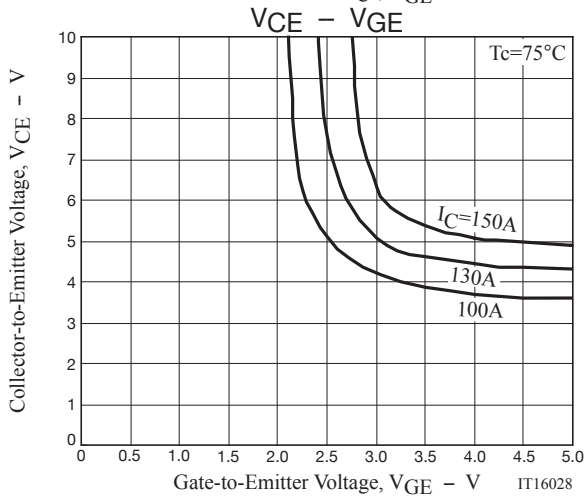
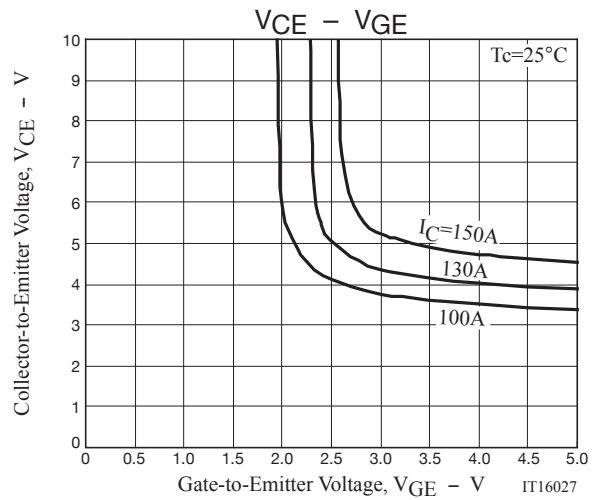
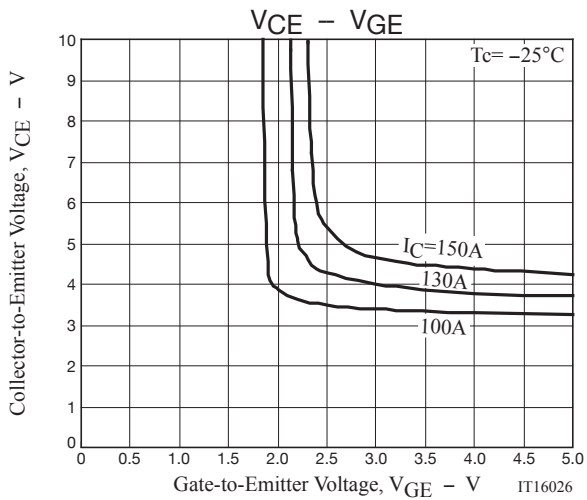
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=2\text{mA}, V_{GE}=0\text{V}$	400			V
Collector-to-Emitter Cutoff Current	$I_{CES}$	$V_{CE}=320\text{V}, V_{GE}=0\text{V}$			10	$\mu\text{A}$
Gate-to-Emitter Leakage Current	$I_{GES}$	$V_{GE}=\pm 4\text{V}, V_{CE}=0\text{V}$			$\pm 10$	$\mu\text{A}$
Gate-to-Emitter Threshold Voltage	$V_{GE(off)}$	$V_{CE}=10\text{V}, I_C=1\text{mA}$	0.4		0.9	V
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=100\text{A}, V_{GE}=2.5\text{V}$		4.2	7	V
Input Capacitance	$C_{ies}$	$V_{CE}=10\text{V}, f=1\text{MHz}$		3100		pF
Output Capacitance	$C_{oes}$	$V_{CE}=10\text{V}, f=1\text{MHz}$		30		pF
Reverse Transfer Capacitance	$C_{res}$	$V_{CE}=10\text{V}, f=1\text{MHz}$		23		pF

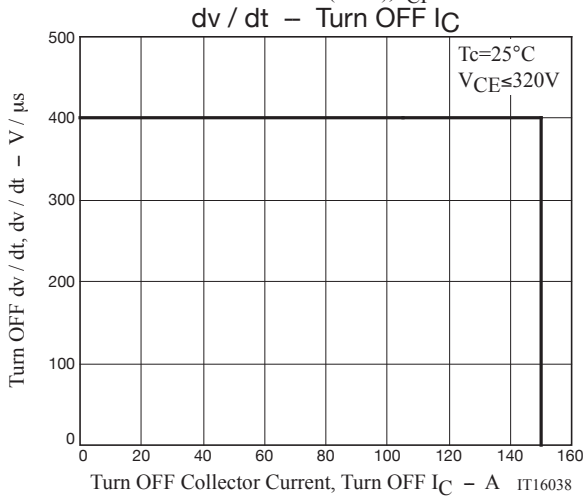
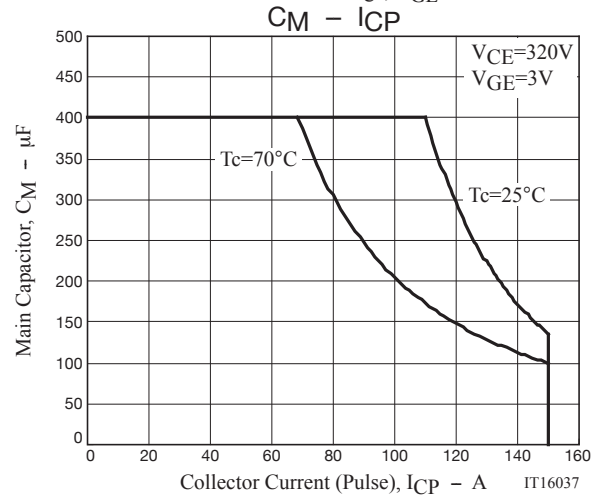
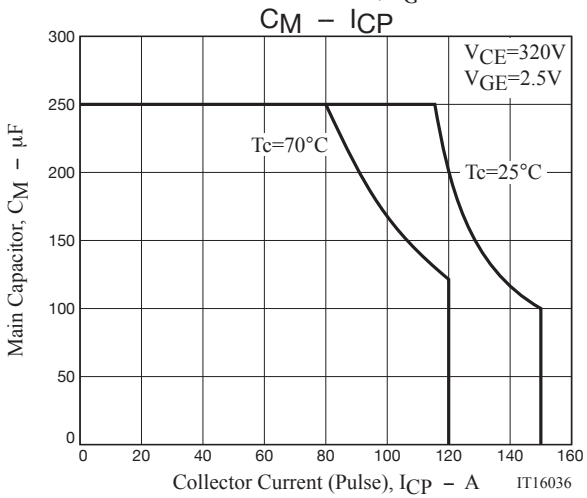
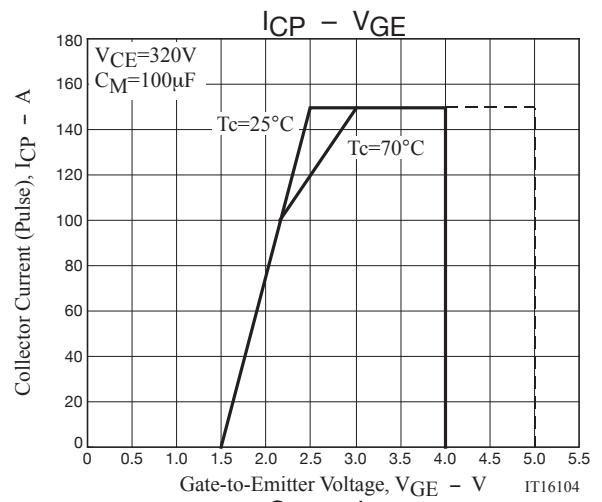
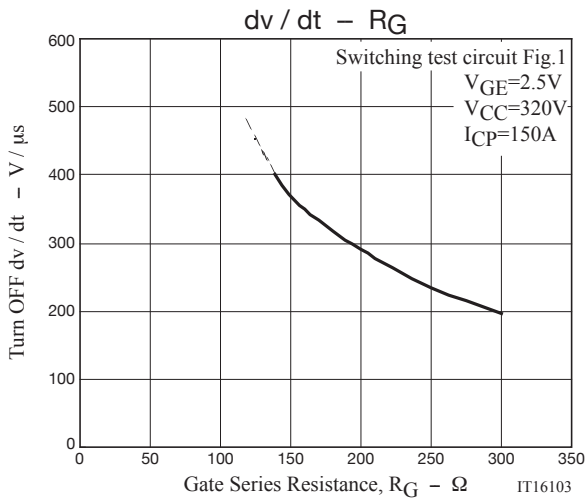
Fig.1 Large Current R Load Switching Circuit



Note1. The collector voltage gradient  $dv/dt$  must be smaller than  $400\text{V}/\mu\text{s}$  to protect the device of gate-series resistance  $R_G$  when it is turned off.





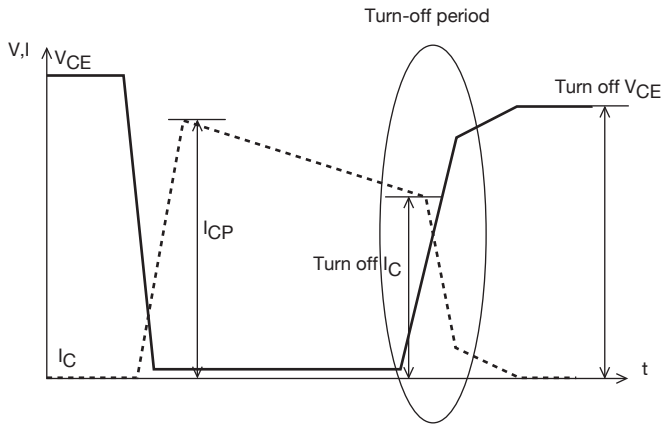


**Definition of dv/dt**

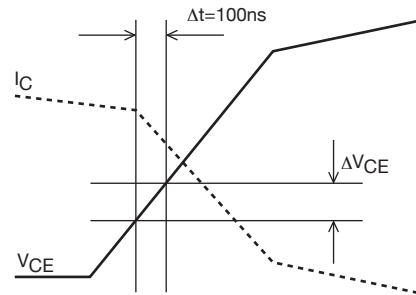
dv/dt is defined as the maximum slope of the below V<sub>CE</sub> curve during turn-off period.

$$dv/dt = \Delta V_{CE} / \Delta t = \Delta V_{CE} / 100ns$$

**Overall waveform**

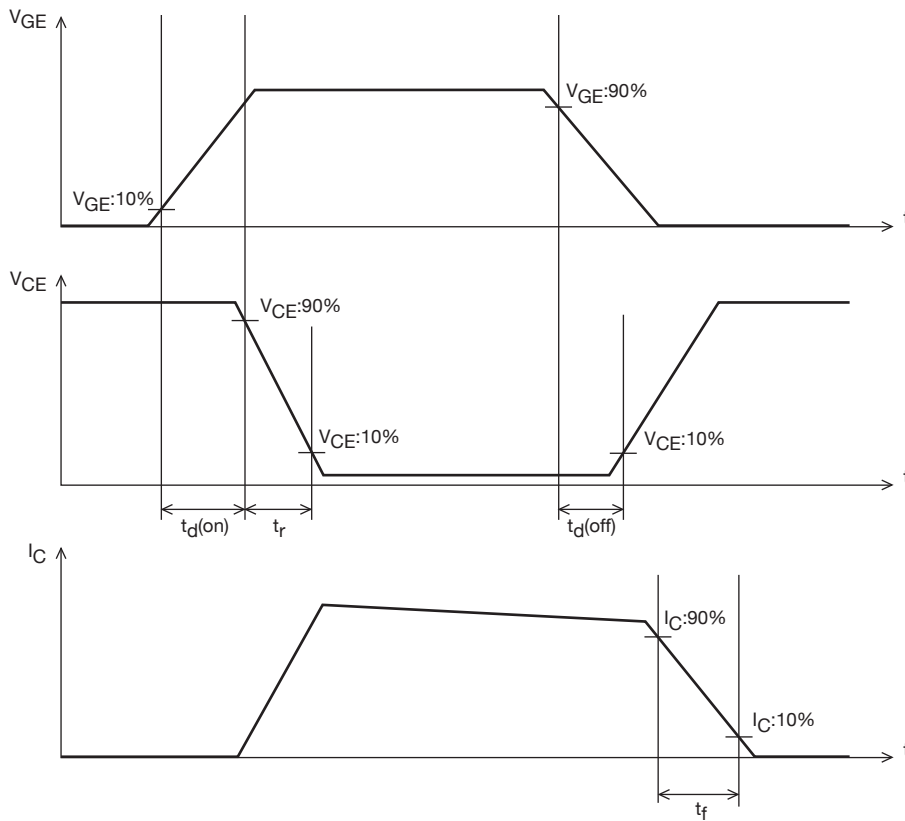


**Enlarged picture of turn-off period**



IT15323

**Definition of Switching Time**



IT15324

Note : TIG065E8 has protection diode between gate and emitter but handling it requires sufficient care to be taken.

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