Ordering number : ENA1602

SANYO

SANYO Semiconductors
DATA SHEET

An ON Semiconductor Company

TIG064E8 — N-Channel IGBT Light-Controlling Flash Applications

Features

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

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Emitter Voltage	V_{CES}		400	V
Gate-to-Emitter Voltage (DC)	V_{GES}		±4	V
Gate-to-Emitter Voltage (Pulse)	V_{GES}	PW≤1ms	±5	V
Collector Current (Pulse)	I_{CP}	V_{GE}=2.5V, C_M=100μF	150	A
Maximum Collector-to-Emitter dv / dt	dV_{CE} / dt	V_{CE}≤320V, starting Tch=25°C	400	V / μs
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-40 to +150	°C

Marking : ZD

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

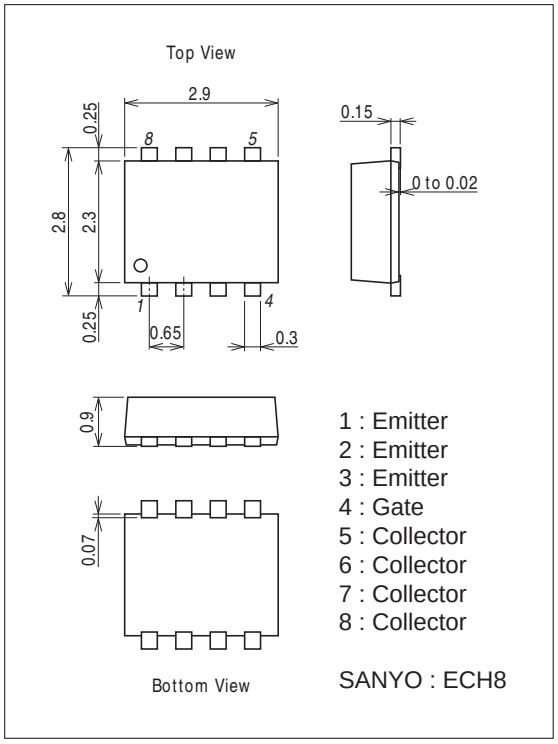
Electrical Characteristics at Ta=25°C

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	μA
Gate-to-Emitter Leakage Current	I_{GES}	V_{GE}=±4V, V_{CE}=0V			±10	μA
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}=2.5V		4.2	7	V
Input Capacitance	Cies	V_{CE}=10V, f=1MHz		3100		pF
Output Capacitance	Coes	V_{CE}=10V, f=1MHz		30		pF
Reverse Transfer Capacitance	Cres	V_{CE}=10V, f=1MHz		23		pF

Package Dimensions

unit : mm (typ)

7011A-004



Electrical Connection

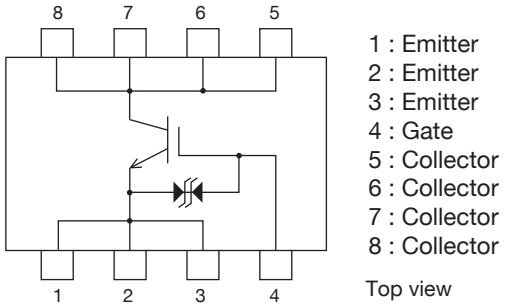
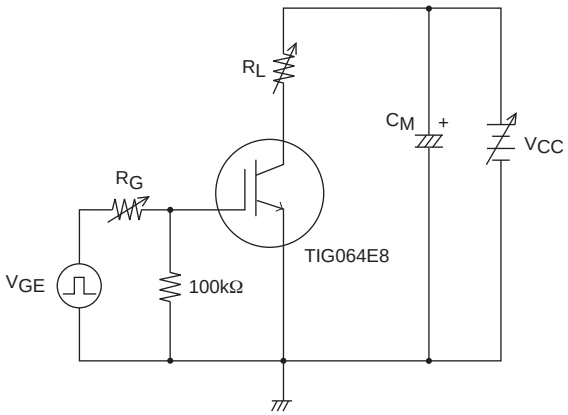
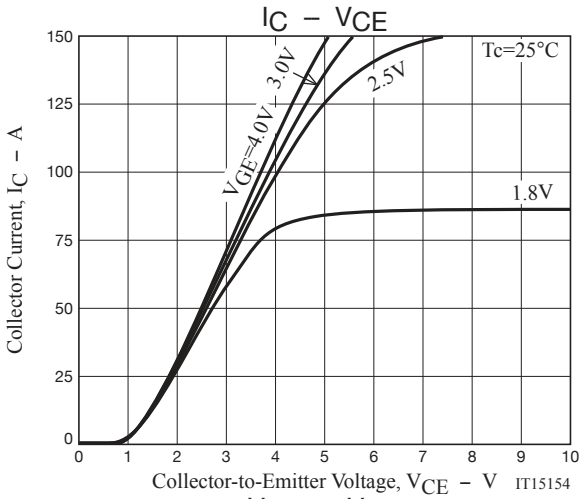


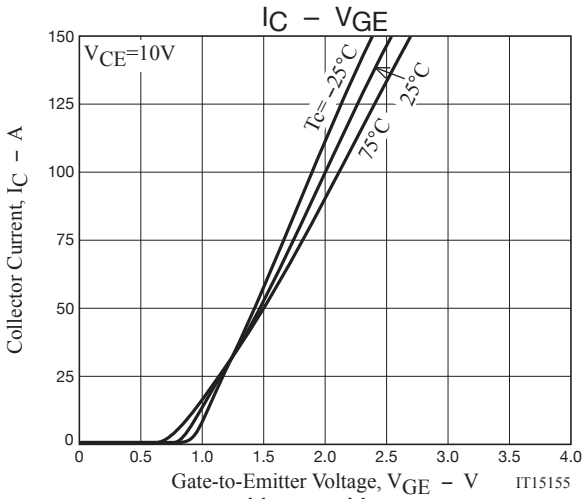
Fig.1 Large Current R Load Switching Circuit

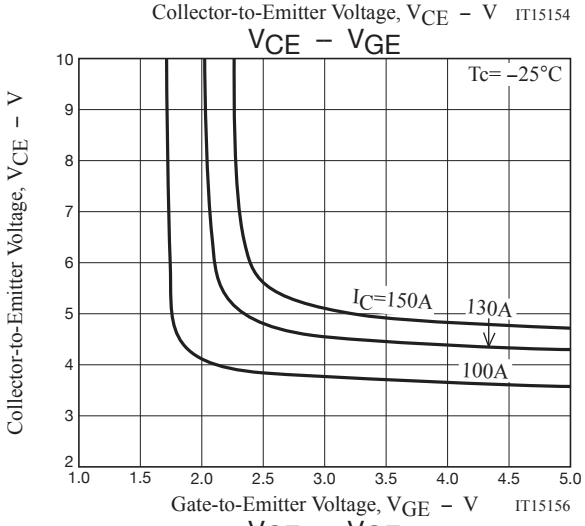


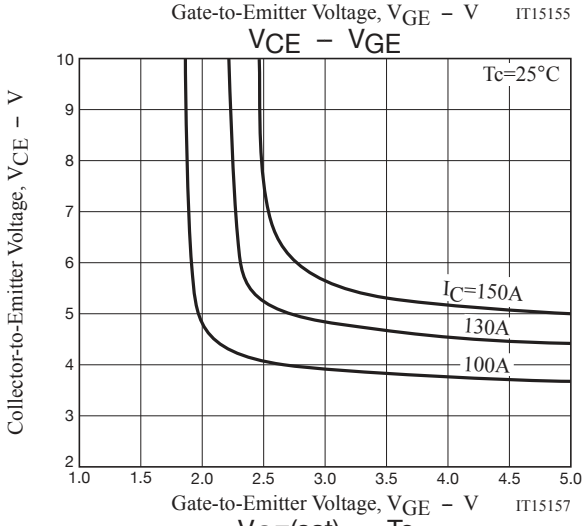
Note1. Gate Series Resistance $R_G \geq 160\Omega$ is recommended for protection purpose at the time of turn OFF. However, if dv / dt ≤ 400V / μs is satisfied at customer's actual set evaluation, $R_G < 160\Omega$ can also be used.

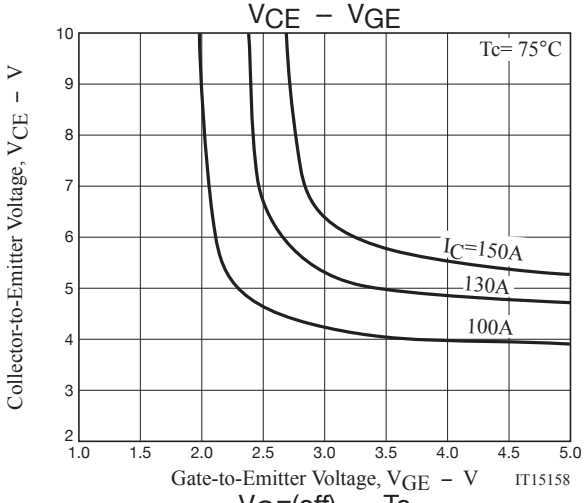
Note2. The collector voltage gradient dv / dt must be smaller than 400V / μs to protect the device when it is turned off.

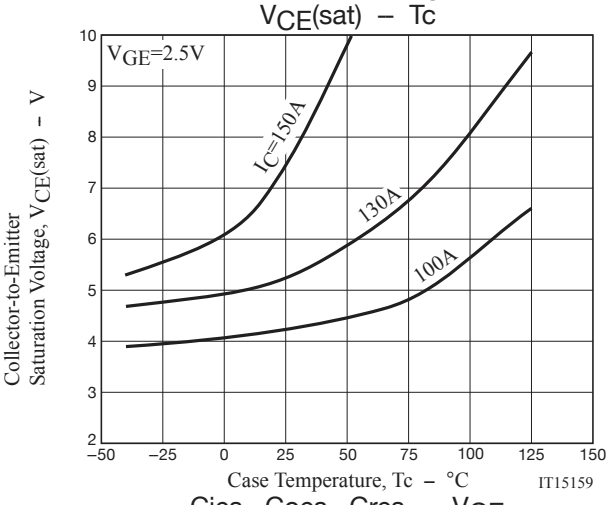

IC – VCE
Tc=25°C
VGE=4.0V
3.0V
2.5V
1.8V
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT15154

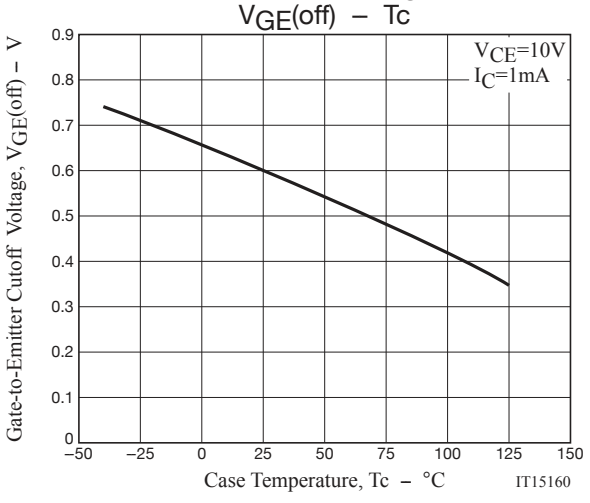

IC – VGE
VCE=10V
Tc=–25°C
75°C
25°C
Collector Current, IC – A
Gate-to-Emitter Voltage, VGE – V
IT15155

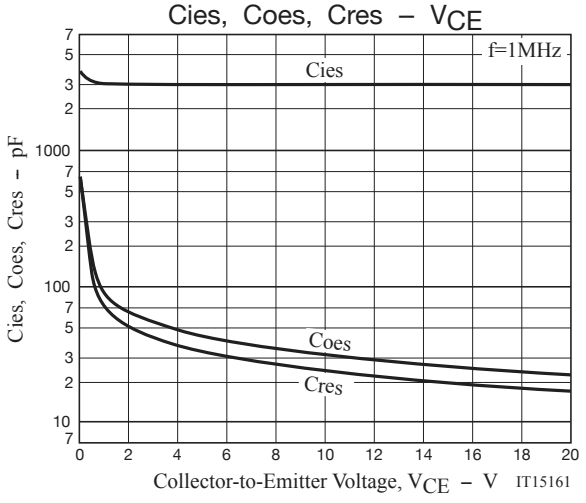

VCE – VGE
Tc=–25°C
IC=150A
130A
100A
Collector-to-Emitter Voltage, VCE – V
Gate-to-Emitter Voltage, VGE – V
IT15156


VCE – VGE
Tc=25°C
IC=150A
130A
100A
Collector-to-Emitter Voltage, VCE – V
Gate-to-Emitter Voltage, VGE – V
IT15157

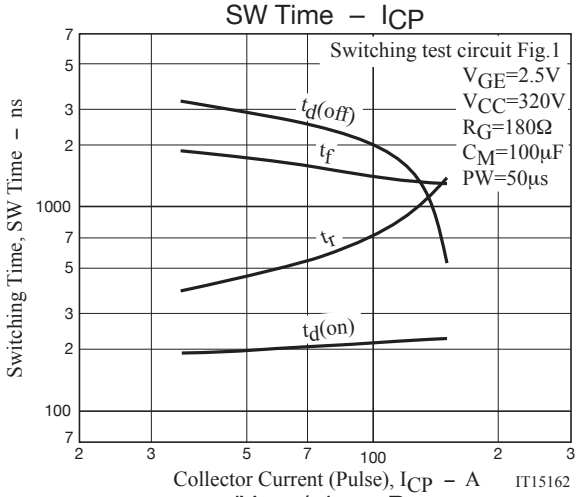

VCE – VGE
Tc= 75°C
IC=150A
130A
100A
Collector-to-Emitter Voltage, VCE – V
Gate-to-Emitter Voltage, VGE – V
IT15158


VCE(sat) – Tc
VGE=2.5V
IC=150A
130A
100A
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Case Temperature, Tc – °C
IT15159

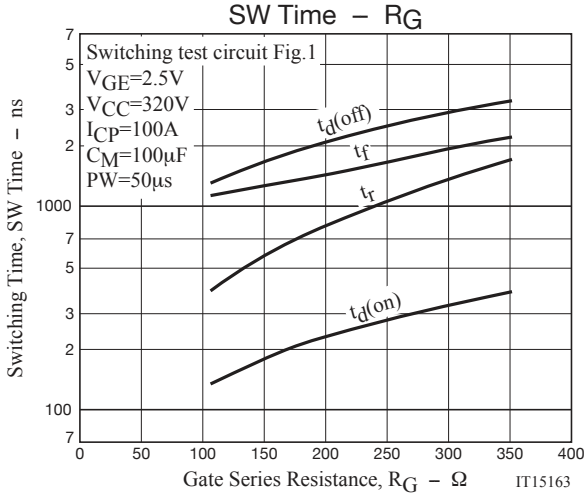

VGE(off) – Tc
VCE=10V
IC=1mA
Gate-to-Emitter Cutoff Voltage, VGE(off) – V
Case Temperature, Tc – °C
IT15160


Cies, Coes, Cres – VCE
f=1MHz
Cies
Coes
Cres
Cies, Coes, Cres – pF
Collector-to-Emitter Voltage, VCE – V
IT15161

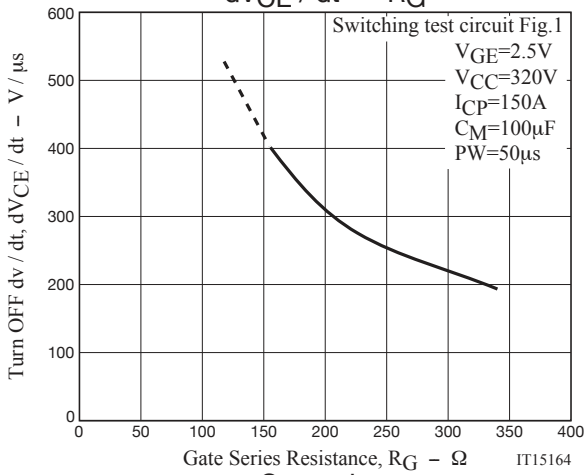
SW Time – I_{CP}



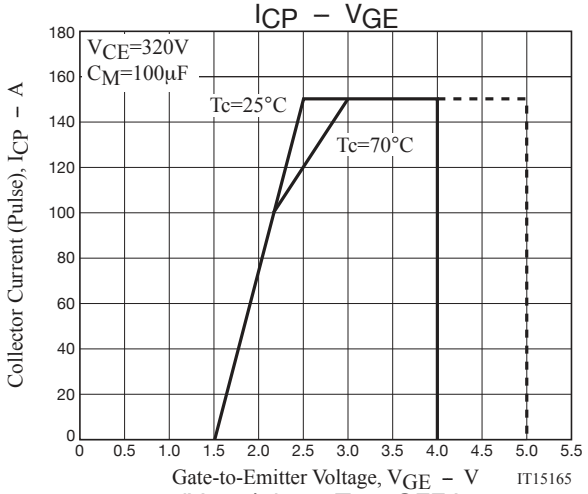
SW Time – R_G



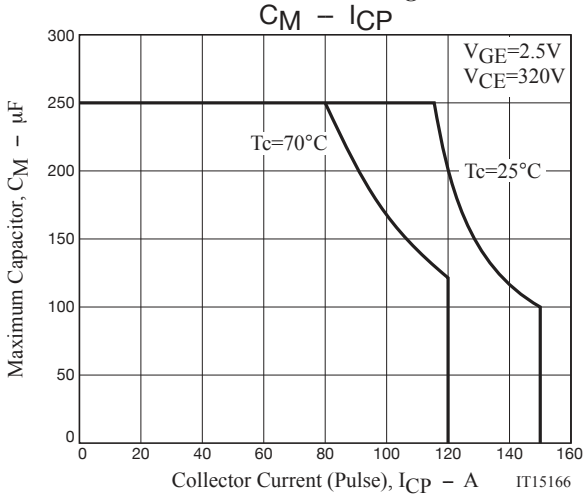
dV_{CE} / dt – R_G



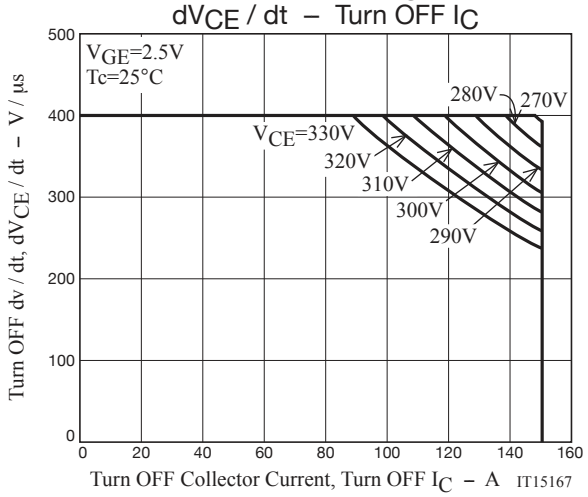
I_{CP} – V_{GE}



C_M – I_{CP}



dV_{CE} / dt – Turn OFF I_C



Note : TIG064E8 has protection diode between gate and emitter but handling it requires sufficient care to be taken.

This catalog provides information as of November, 2009. Specifications and information herein are subject to change without notice.