



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## TIG066SS — N-Channel IGBT Light-Controlling Flash Applications

### Features

- Low-saturation voltage
- Enhancement type
- High speed switching
- 4.0V drive
- Built-in Gate-to-Emitter protection diode

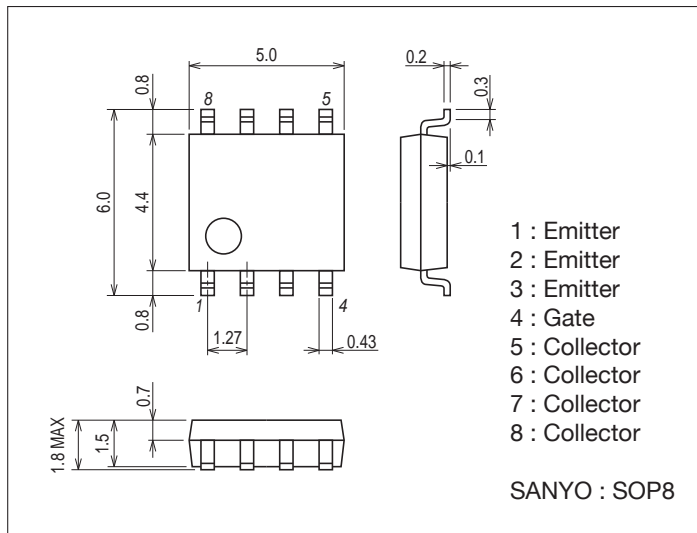
### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Emitter Voltage (DC)	V <sub>CES</sub>		400	V
Collector-to-Emitter Voltage (Pulse)	V <sub>CESP</sub>	PW≤1ms	450	V
Gate-to-Emitter Voltage (DC)	V <sub>GES</sub>		±6	V
Gate-to-Emitter Voltage (Pulse)	V <sub>GESP</sub>	PW≤1ms	±8	V
Collector Current (Pulse)	I <sub>CP</sub>	C <sub>M</sub> =600μF	150	A
Maximum Collector-to-Emitter dv / dt	dv / dt	V <sub>CE</sub> ≤320V, starting T <sub>ch</sub> =25°C	1500	V / μs
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-40 to +150	°C

### Package Dimensions

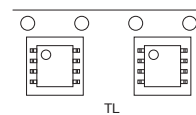
unit : mm (typ)  
7005A-008



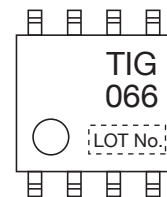
### Product & Package Information

- Package : SOP8
- JEITA, JEDEC : SC-87, SOT96
- Minimum Packing Quantity : 1000 pcs./reel

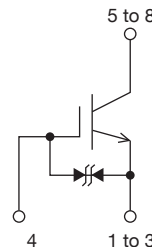
### Packing Type: TL



### Marking



### Electrical Connection

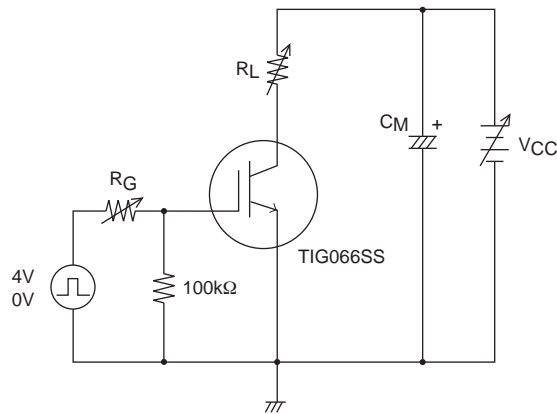


# TIG066SS

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

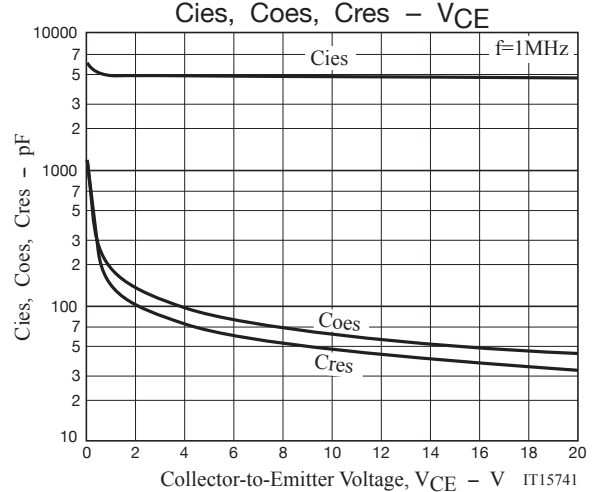
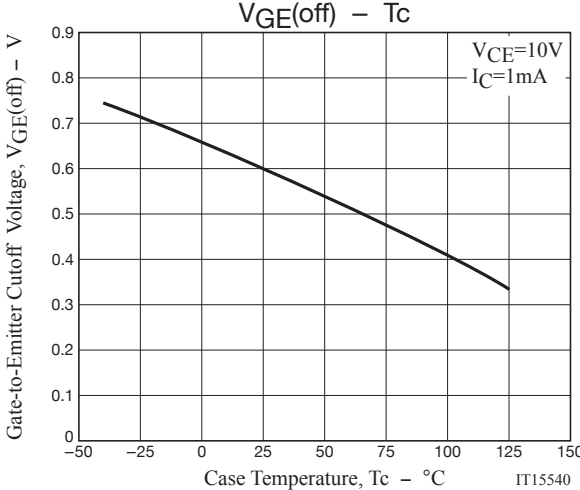
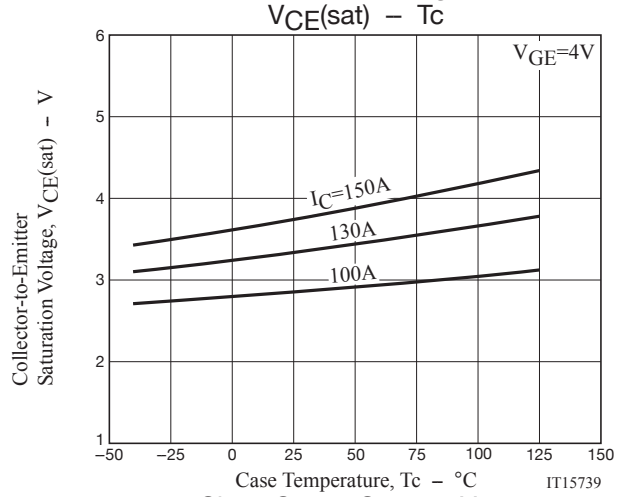
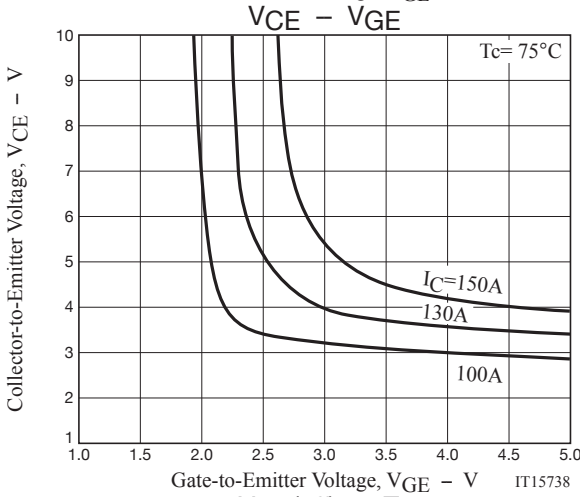
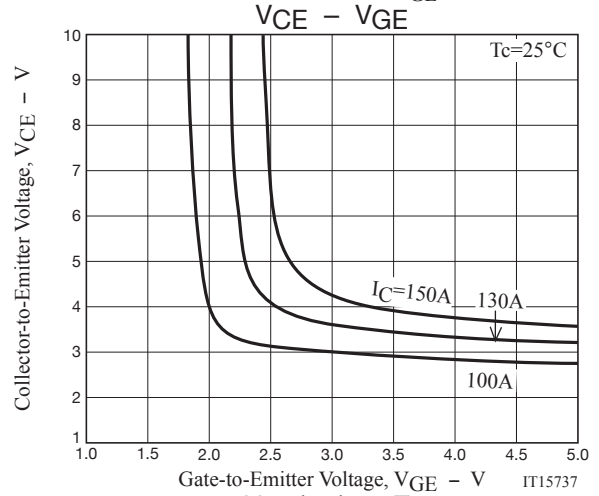
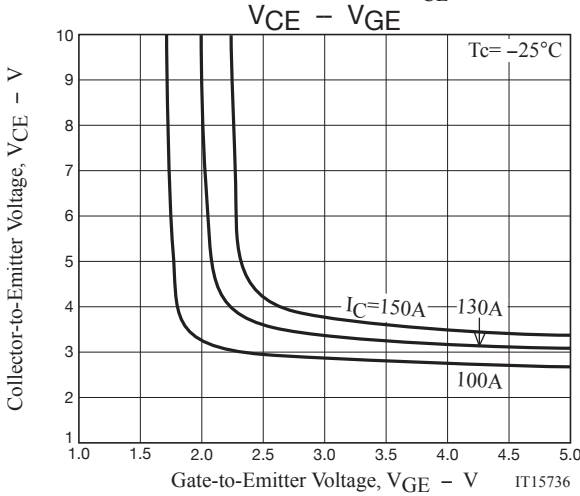
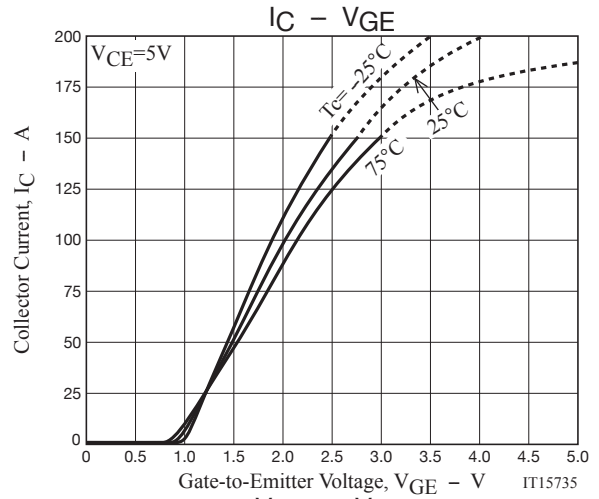
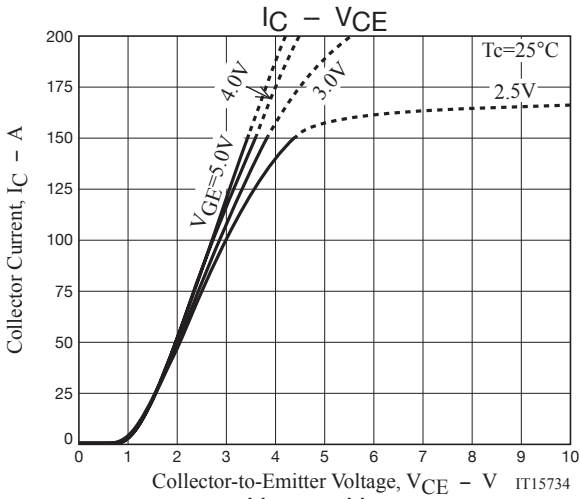
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=2\text{mA}, V_{GE}=0\text{V}$	400			V
Collector-to-Emitter Cutoff Current	$I_{CES}$	$V_{CE}=320\text{V}, V_{GE}=0\text{V}$			10	$\mu\text{A}$
Gate-to-Emitter Leakage Current	$I_{GES}$	$V_{GE}=\pm 6\text{V}, V_{CE}=0\text{V}$			$\pm 10$	$\mu\text{A}$
Gate-to-Emitter Threshold Voltage	$V_{GE(off)}$	$V_{CE}=10\text{V}, I_C=1\text{mA}$	0.4		1.0	V
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=150\text{A}, V_{GE}=4\text{V}$		3.8	5	V
Input Capacitance	$C_{ies}$	$V_{CE}=10\text{V}, f=1\text{MHz}$		5100		pF
Output Capacitance	$C_{oes}$	$V_{CE}=10\text{V}, f=1\text{MHz}$		59		pF
Reverse Transfer Capacitance	$C_{res}$	$V_{CE}=10\text{V}, f=1\text{MHz}$		43		pF
Fall Time	$t_f$	$I_C=150\text{A}, V_{CC}=320\text{V}, \text{Resistor load } V_{GE}=4\text{V}, R_G=36\Omega$		270		ns

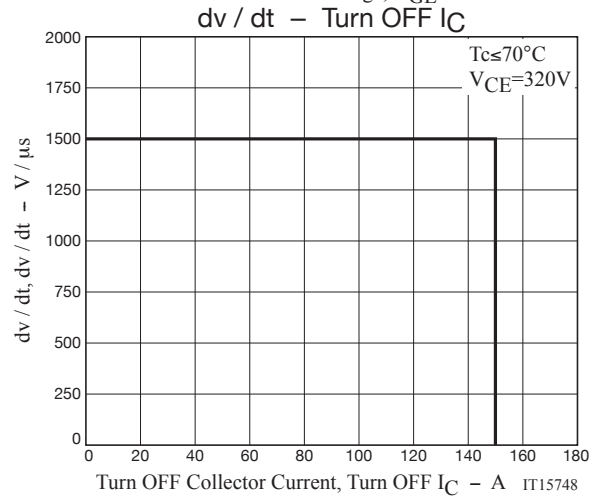
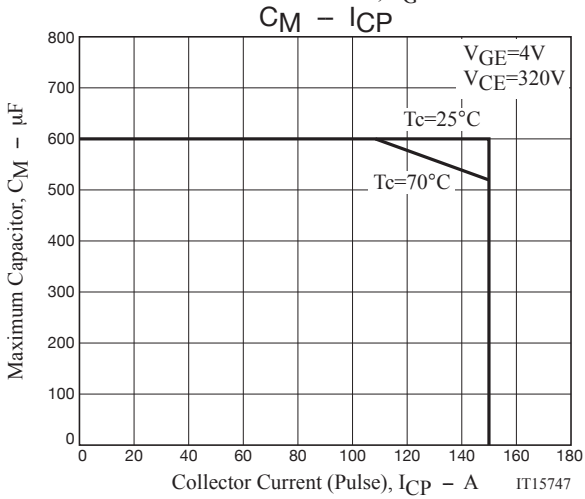
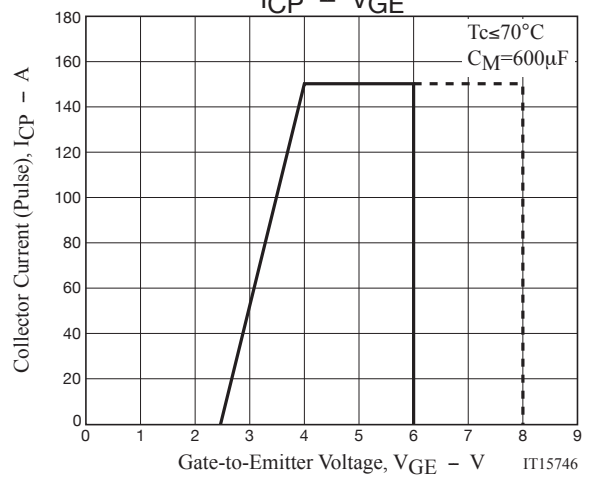
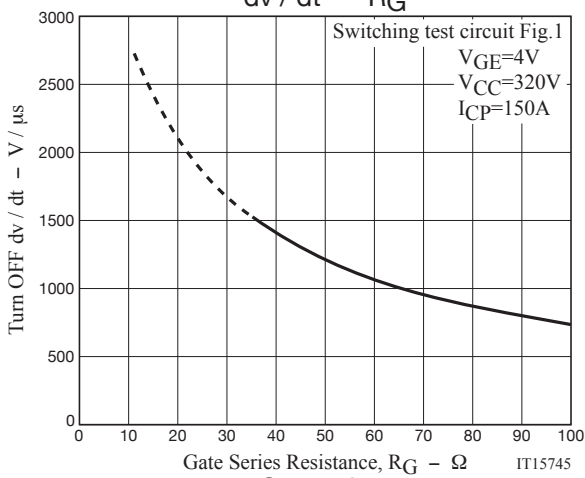
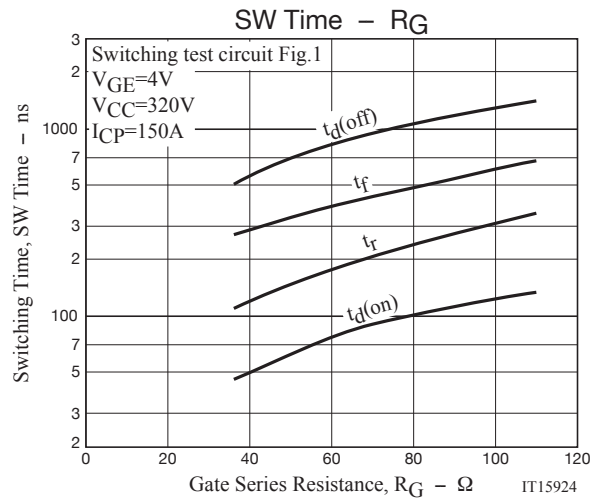
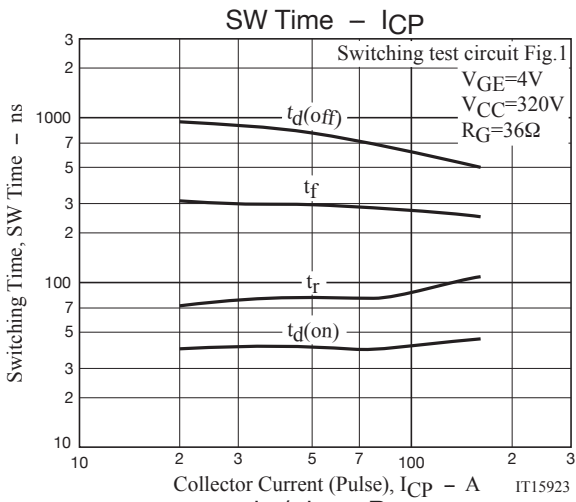
Fig1 Large Current R Load Switching Circuit



Note1. Gate Series Resistance  $R_G \geq 36\Omega$  is recommended for protection purpose at the time of turn OFF. However, if  $dv/dt \leq 1500\text{V}/\mu\text{s}$  is satisfied at customer's actual set evaluation,  $R_G < 36\Omega$  can also be used.

Note2. The collector voltage gradient  $dv/dt$  must be smaller than  $1500\text{V}/\mu\text{s}$  to protect the device when it is turned off.

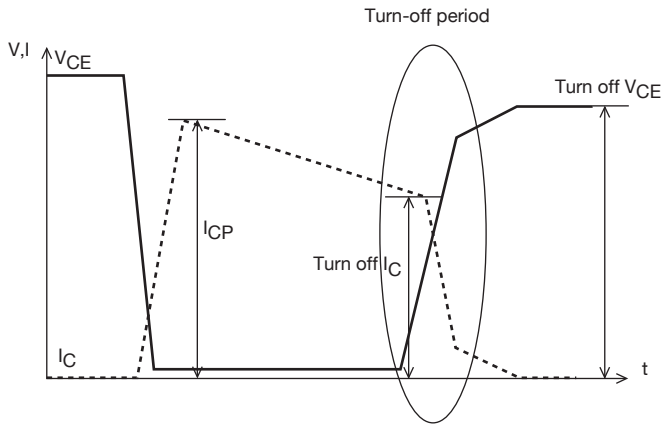




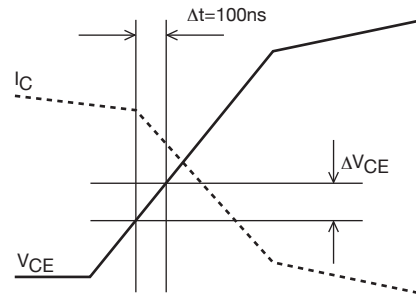
**Definition of dv/dt**

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**

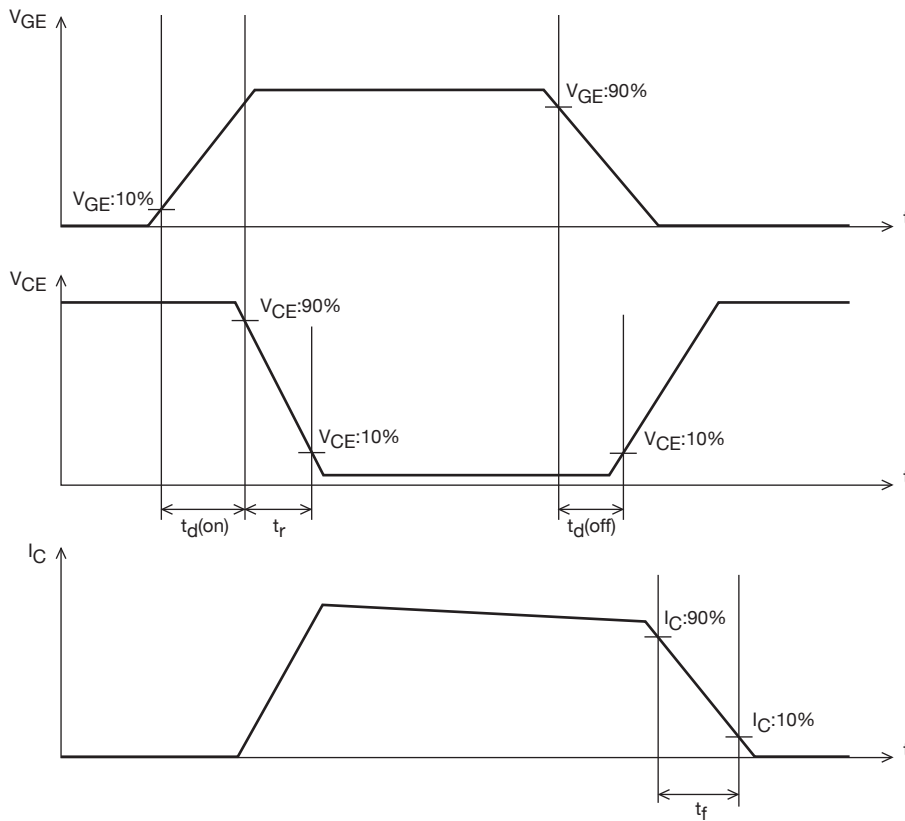


**Enlarged picture of turn-off period**



IT15323

**Definition of Switching Time**



IT15324

Note : TIG066SS has protection diode between gate and emitter but handling it requires sufficient care to be taken.

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