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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

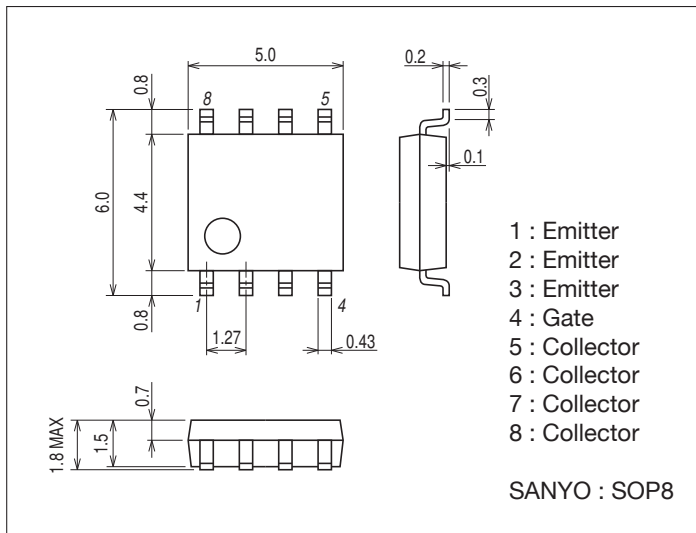
Specifications

Absolute Maximum Ratings at Ta=25°C

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

Package Dimensions

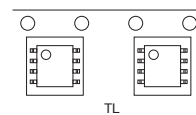
unit : mm (typ)
7005A-008



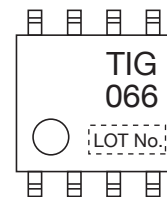
Product & Package Information

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

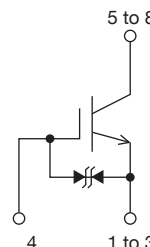
Packing Type: TL



Marking



Electrical Connection

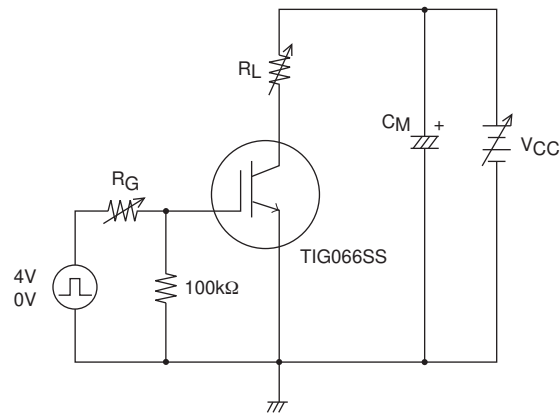


TIG066SS

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	μA
Gate-to-Emitter Leakage Current	I_{GES}	$V_{GE}=\pm 6\text{V}, V_{CE}=0\text{V}$			± 10	μA
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

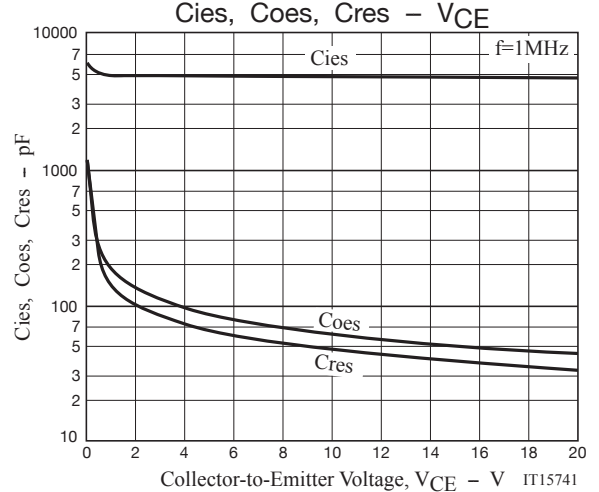
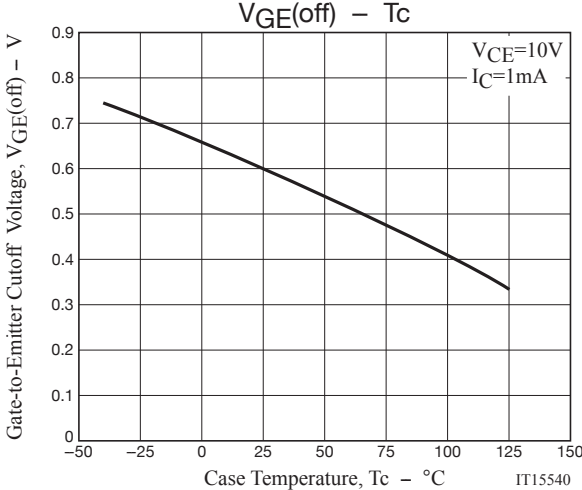
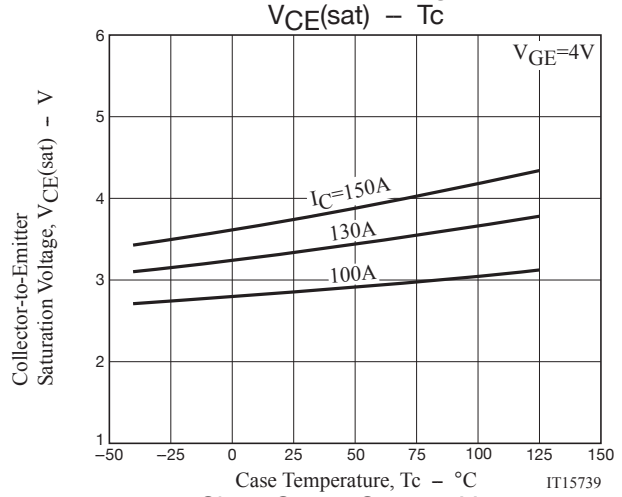
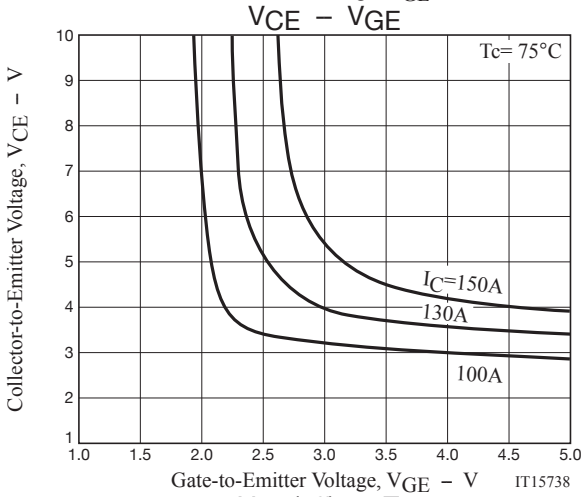
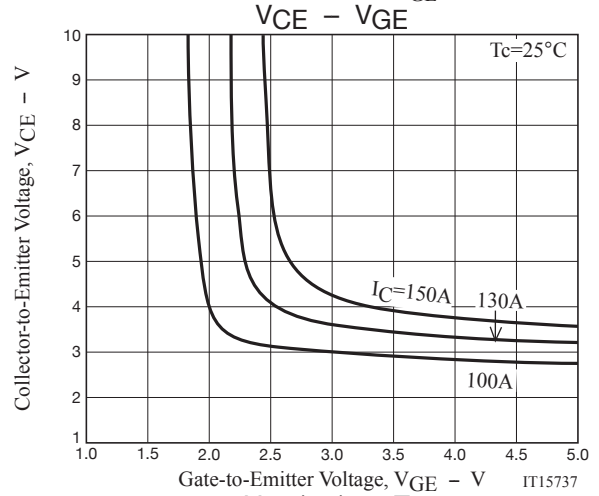
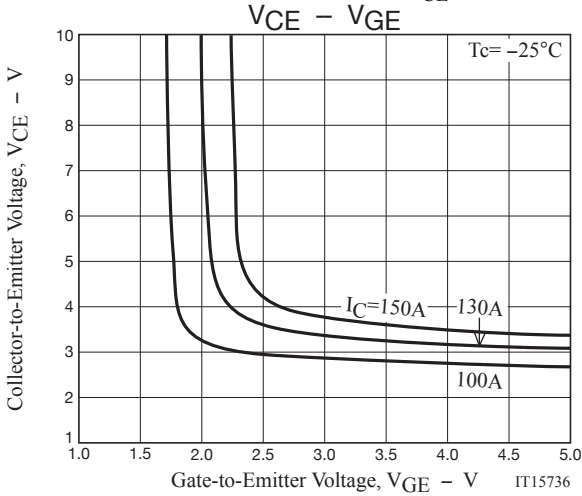
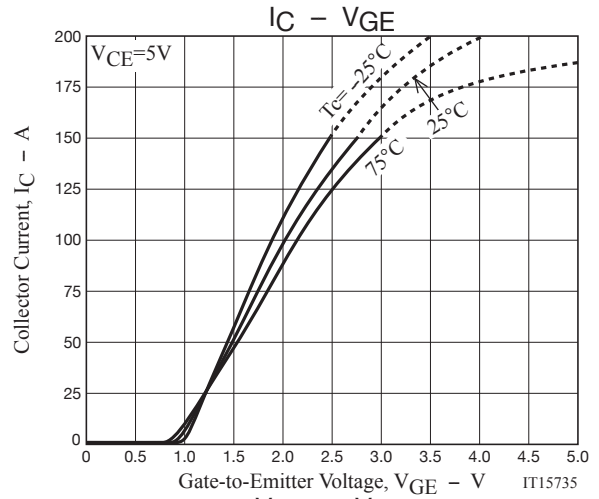
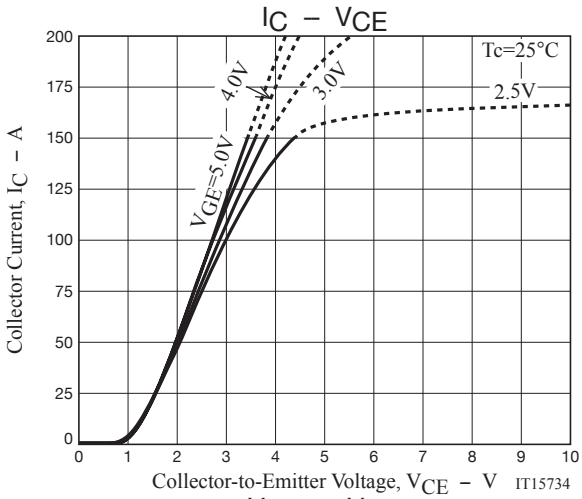
Fig1 Large Current R Load Switching Circuit

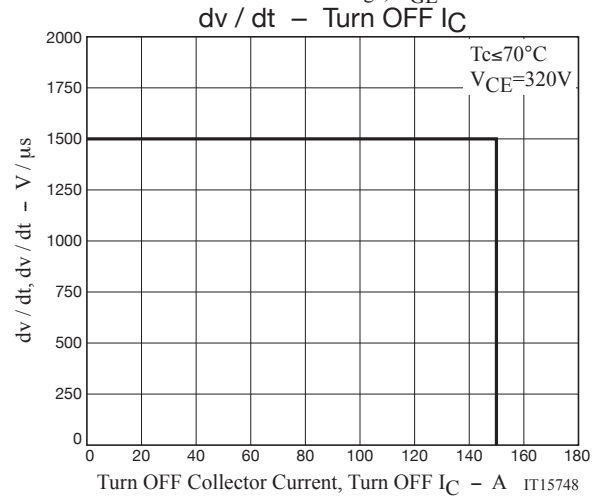
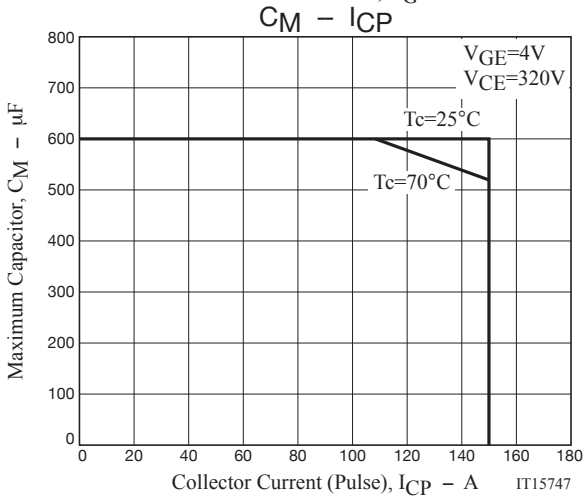
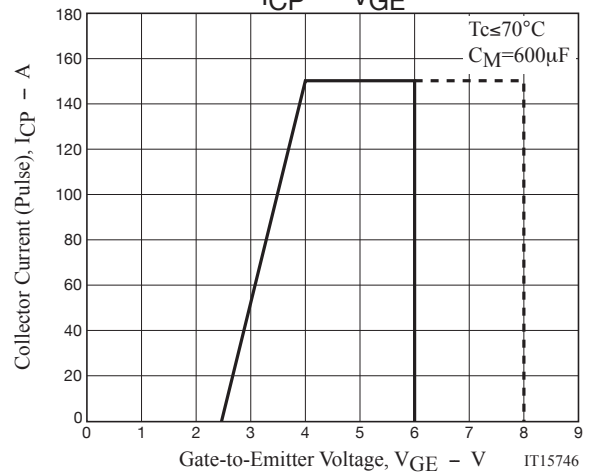
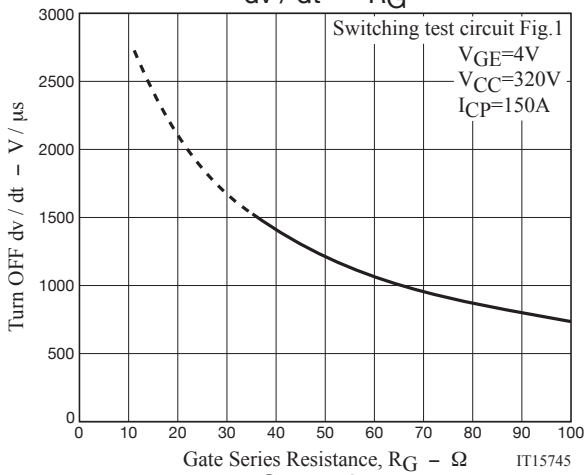
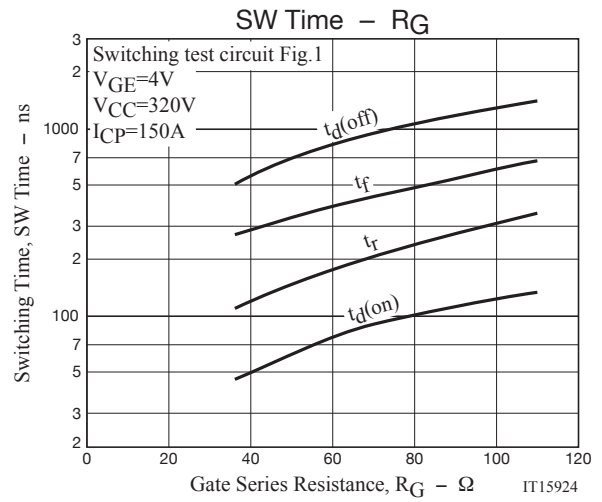
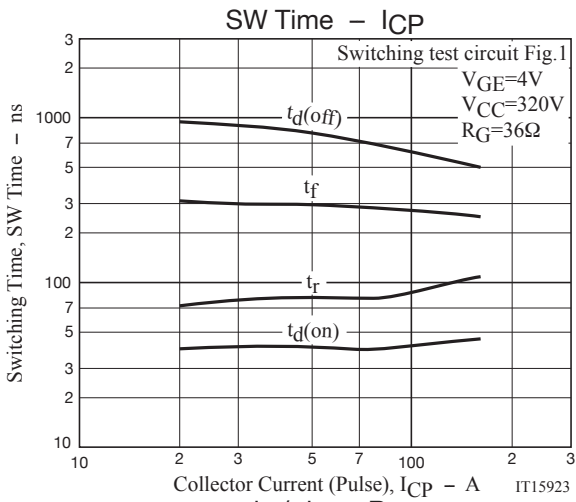


Note1. Gate Series Resistance $R_G \geq 36\Omega$ is recommended for protection purpose at the time of turn OFF. However, if $dv/dt \leq 1500\text{V}/\mu\text{s}$ is satisfied at customer's actual set evaluation, $R_G < 36\Omega$ can also be used.

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.

TIG066SS

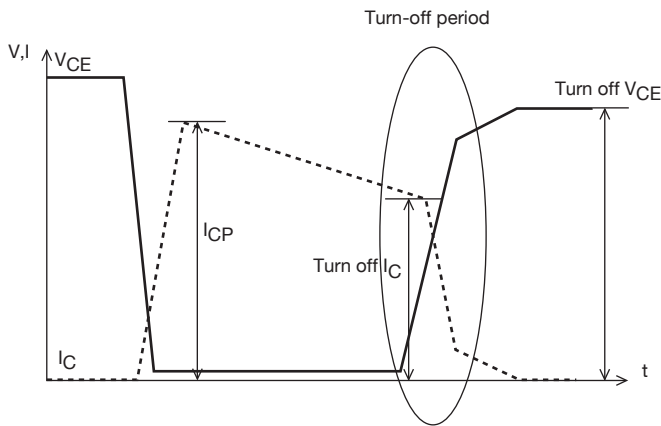




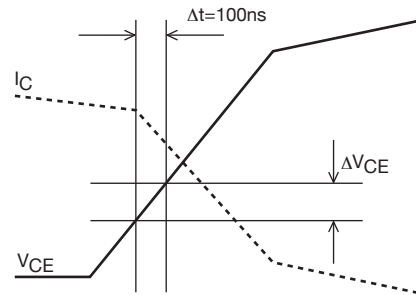
Definition of dv/dt

dv/dt is defined as the maximum slope of the below V_{CE} curve during turn-off period.
 $dv/dt = \Delta V_{CE} / \Delta t = \Delta V_{CE} / 100ns$

Overall waveform

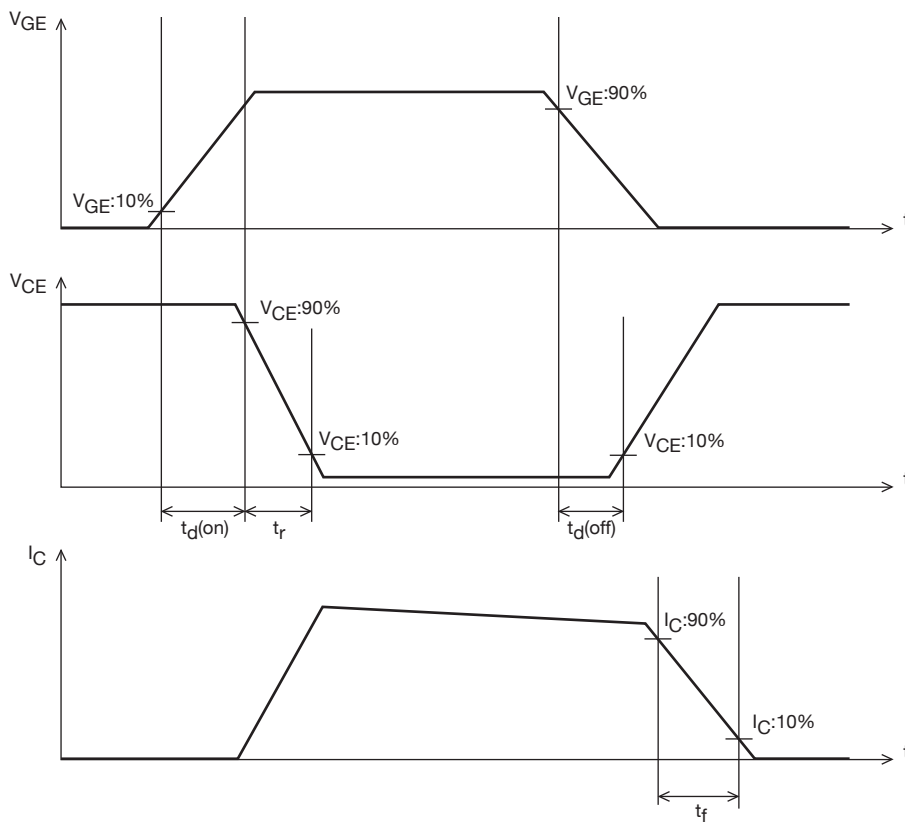


Enlarged picture of turn-off period



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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