



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

TIG066SS — N-Channel IGBT

Light-Controlling Flash Applications

Features

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

Specifications

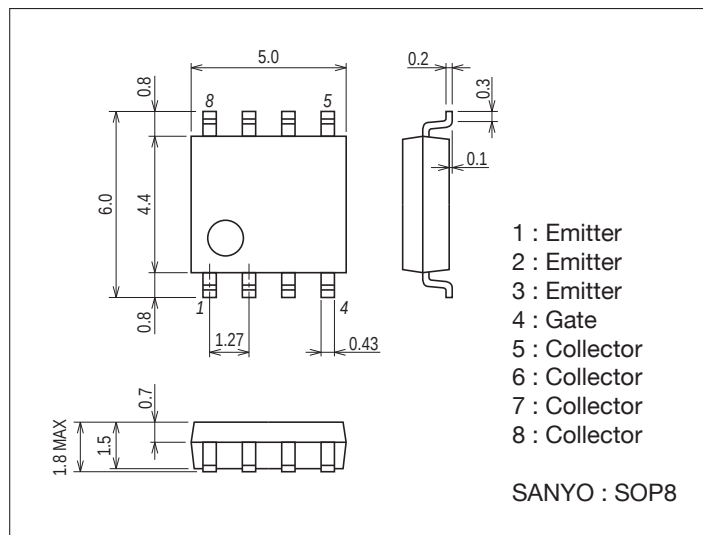
Absolute Maximum Ratings at Ta=25°C

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 _{GES} P	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 Tch=25°C	1500	V / μs
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-40 to +150	°C

Package Dimensions

unit : mm (typ)

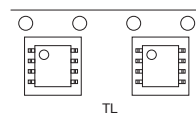
7005A-008



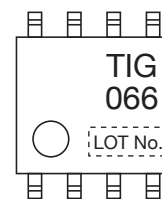
Product & Package Information

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

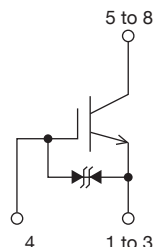
Packing Type: TL



Marking



Electrical Connection

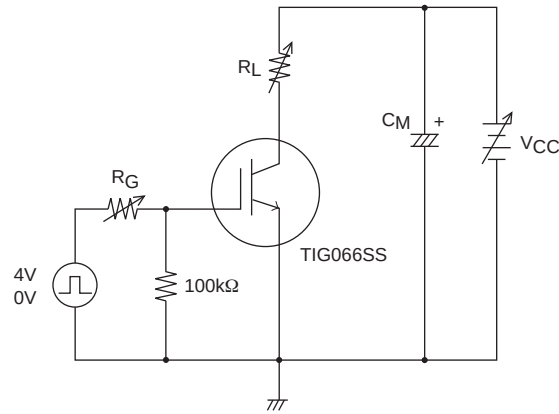


TIG066SS

Electrical Characteristics at Ta=25°C

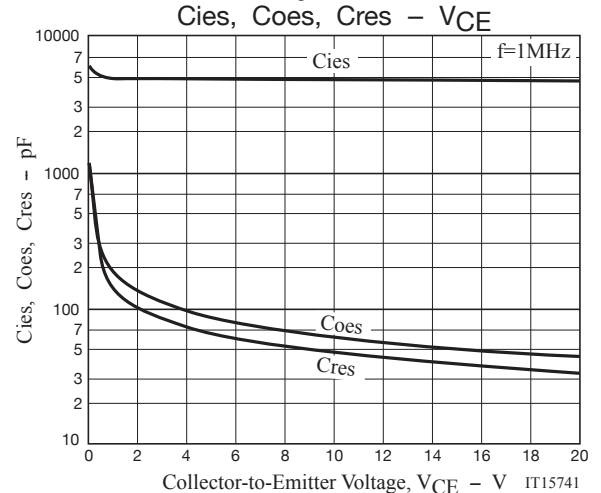
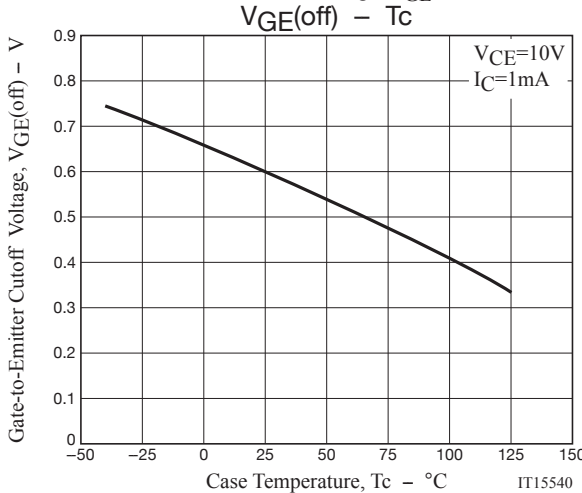
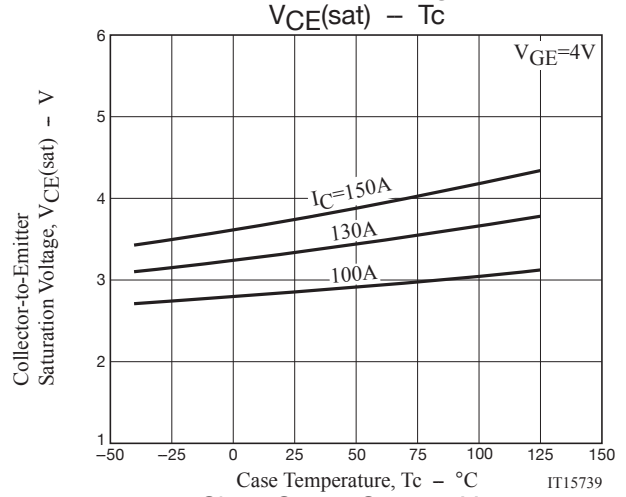
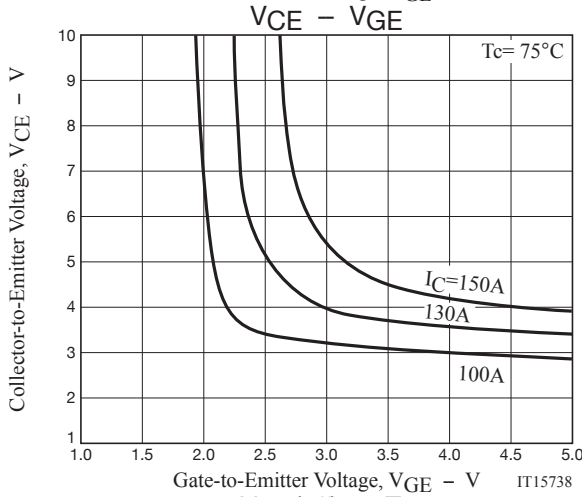
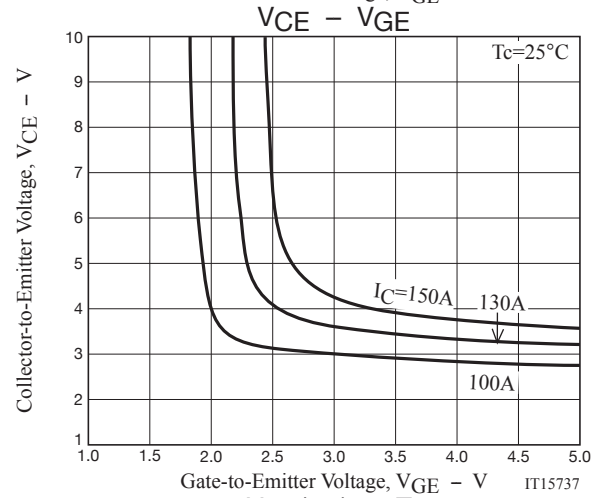
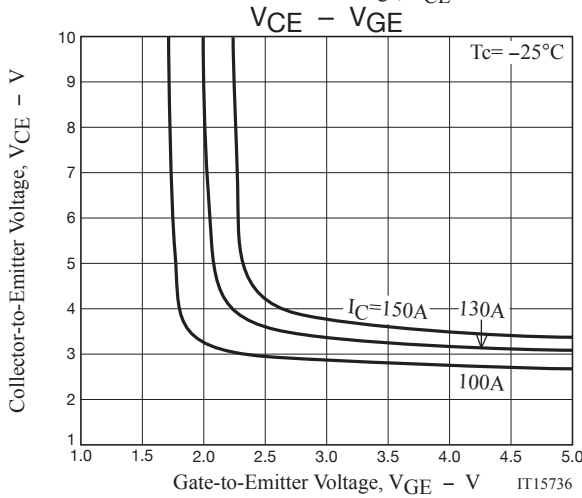
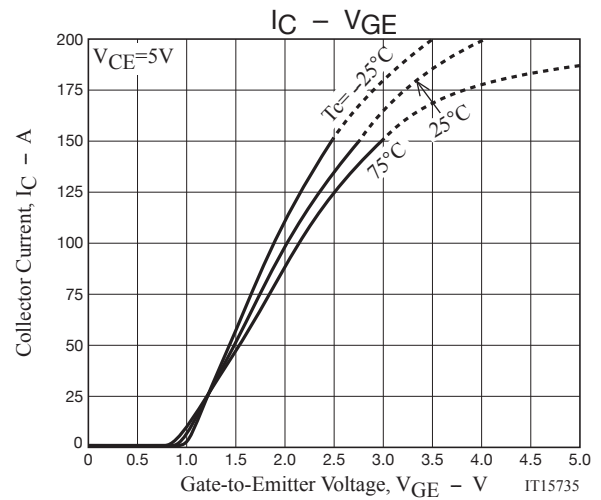
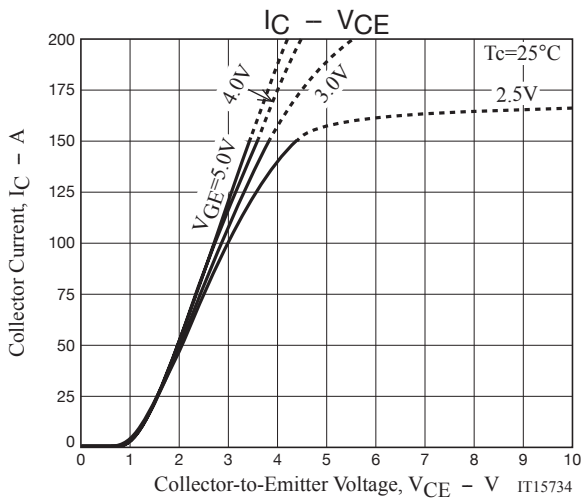
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=2mA, V_{GE}=0V$	400			V
Collector-to-Emitter Cutoff Current	I_{CES}	$V_{CE}=320V, V_{GE}=0V$			10	μA
Gate-to-Emitter Leakage Current	I_{GES}	$V_{GE}=\pm 6V, V_{CE}=0V$			± 10	μA
Gate-to-Emitter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

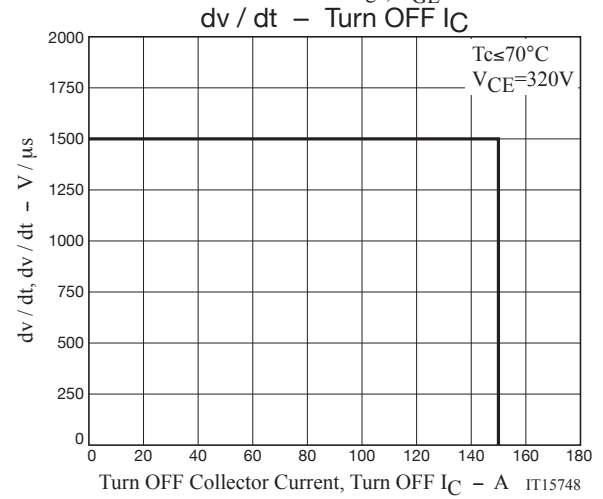
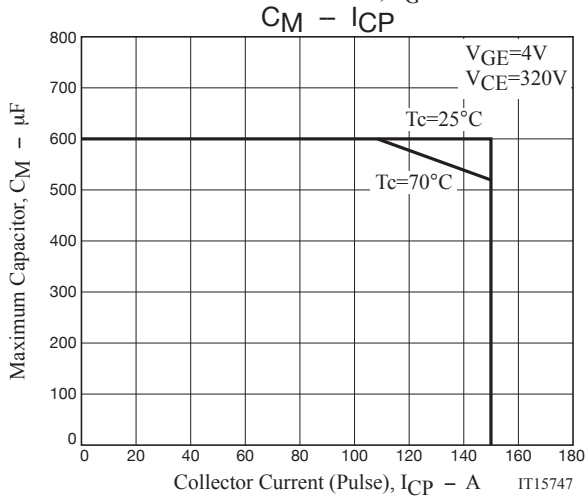
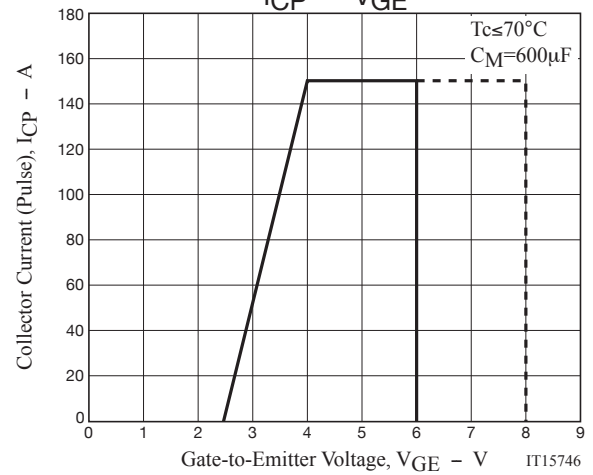
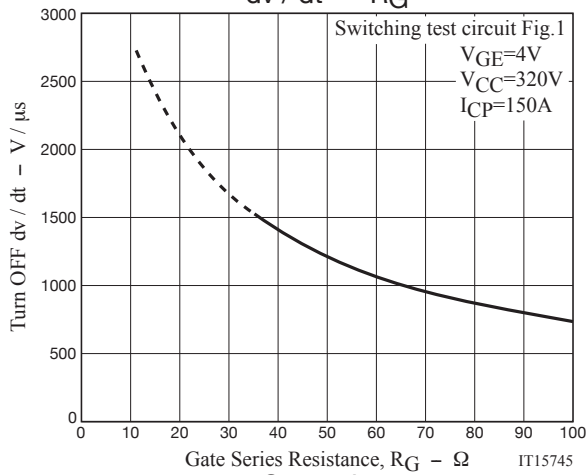
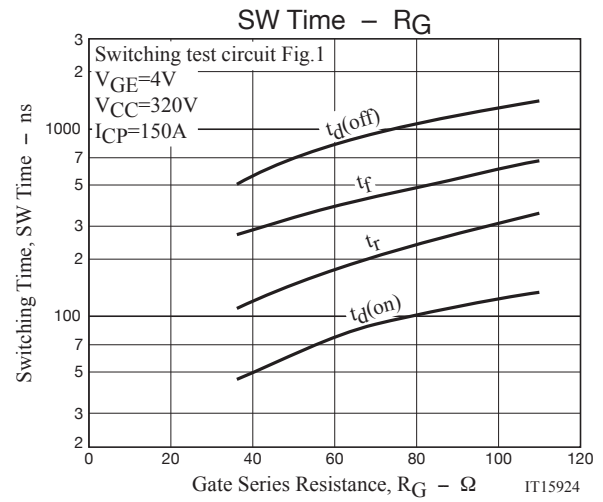
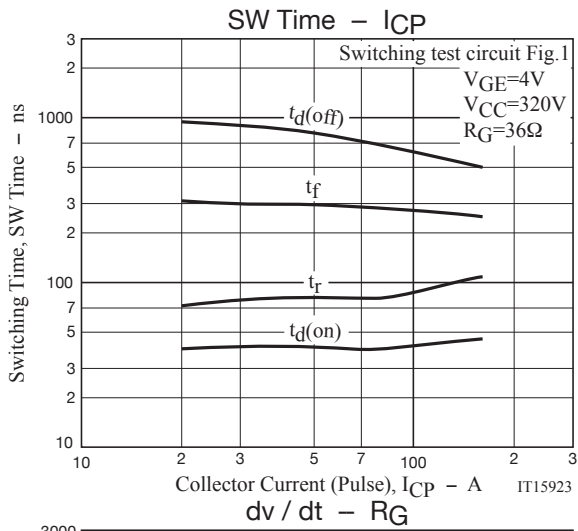
Fig1 Large Current R Load Switching Circuit



Note1. Gate Series Resistance $R_G \geq 36\Omega$ is recommended for protection purpose at the time of turn OFF. However, if $dv/dt \leq 1500V/\mu s$ 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 $1500V/\mu s$ to protect the device when it is turned off.



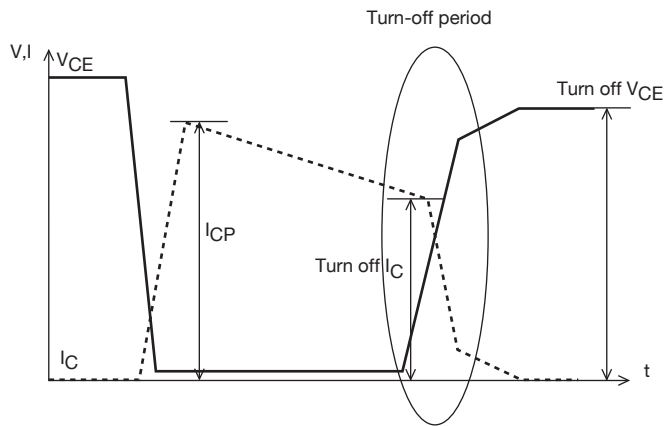


Definition of dv/dt

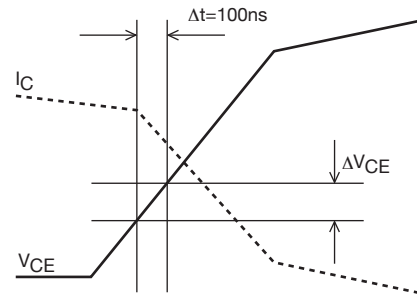
dv/dt is defined as the maximum slope of the below V_{CE} curve during turn-off period.

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

Overall waveform

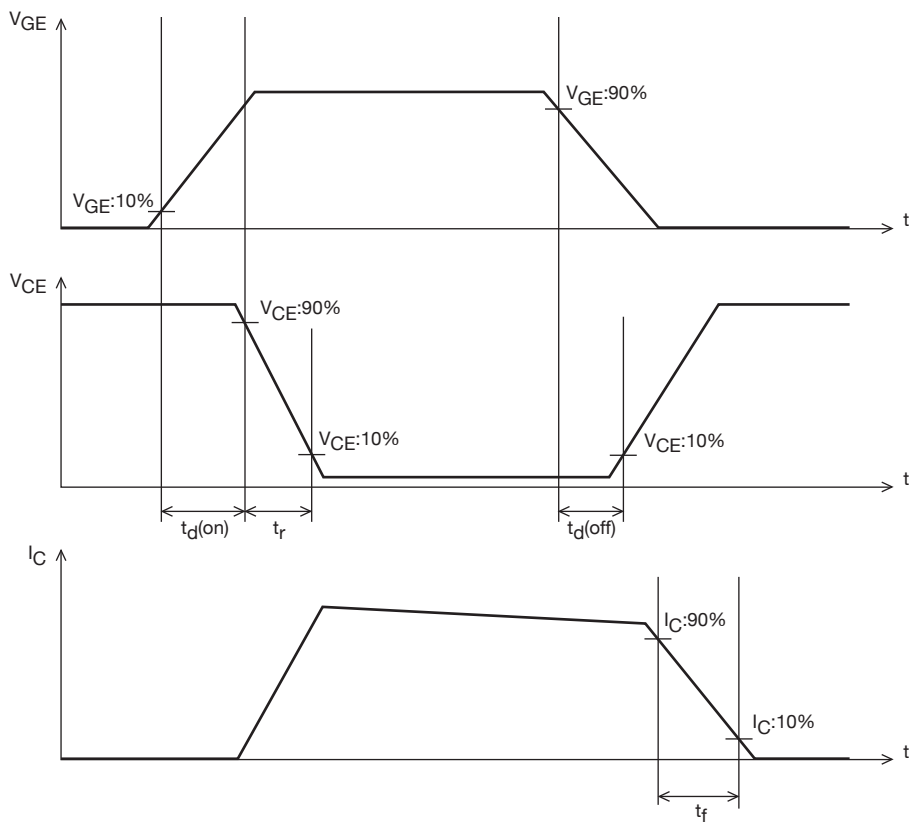


Enlarged picture of turn-off period



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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