



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

TIG052TS

 — N-Channel IGBT
Light-Controlling Flash Applications

Features

- Low-saturation voltage.
- Low voltage drive (2.5V).
- Enhancement type.
- Built-in Gate-to-Emitter protection diode.
- Mounting Height 1.1mm, Mounting Area 19.2mm².
- dv / dt guarantee.*

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}		±6	V
Gate-to-Emitter Voltage (Pulse)	V _{GES}	PW≤1ms	±8	V
Collector Current (Pulse)	I _{CP}	PW≤500μs, duty cycle≤0.5%, C _M =400μF, V _{GE} =2.5V	150	A
Maximum Collector-to-Emitter dv / dt	dV _{CE} / dt	V _{CE} ≤320V, starting T _{ch} =25°C	400	V / μs
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-40 to +150	°C

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} =±6V, V _{CE} =0V			±10	μA

Marking : G052

Continued on next page.

* : 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.

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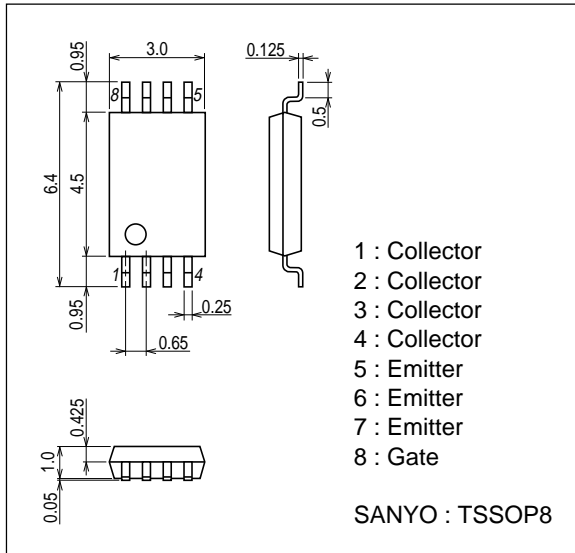
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Emitter Threshold Voltage	$V_{GE(off)}$	$V_{CE}=10V, I_C=1mA$	0.4		1.0	V
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=150A, V_{GE}=2.5V$		3.7	5.5	V
Input Capacitance	Cies	$V_{CE}=10V, f=1MHz$		3800		pF
Output Capacitance	Coes	$V_{CE}=10V, f=1MHz$		58		pF
Reverse Transfer Capacitance	Cres	$V_{CE}=10V, f=1MHz$		47		pF

Package Dimensions

unit : mm (typ)
7006A-007



Electrical Connection

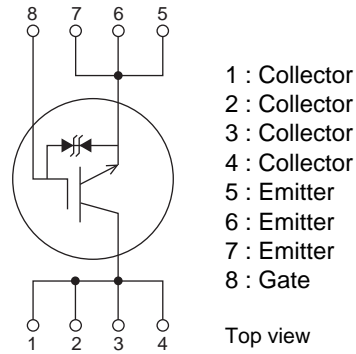
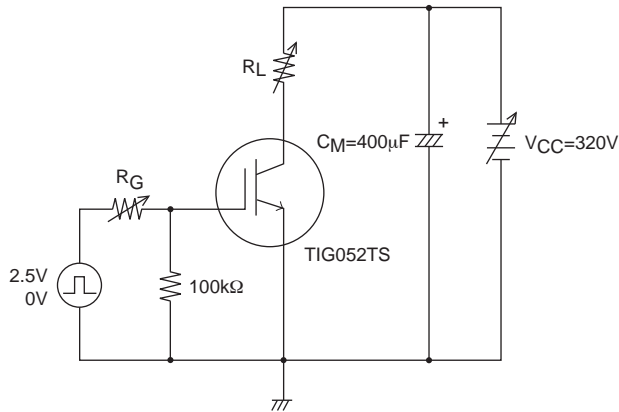


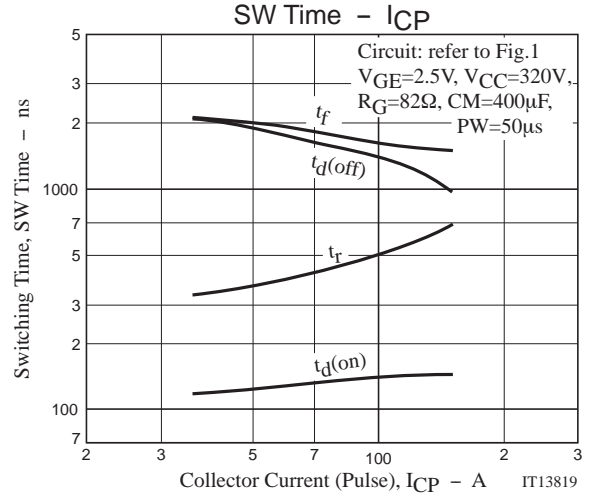
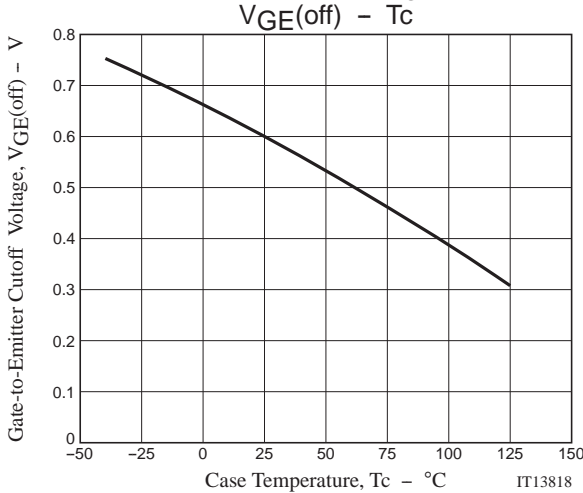
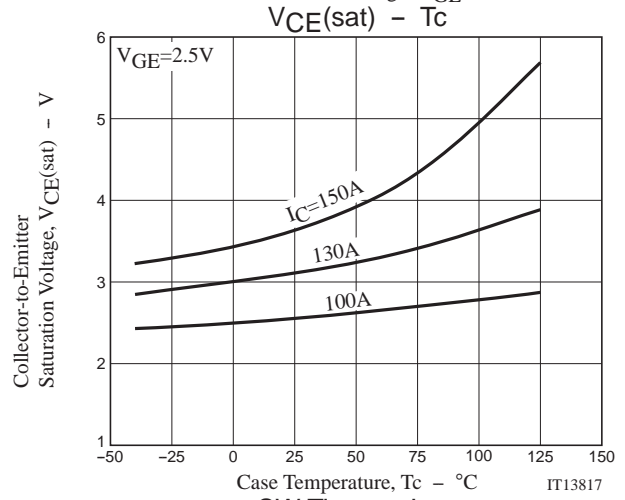
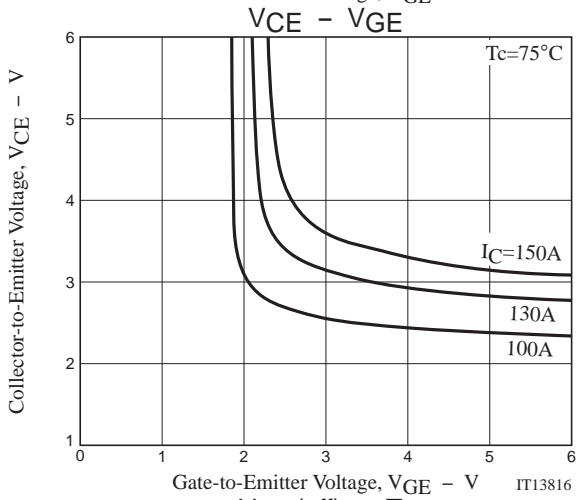
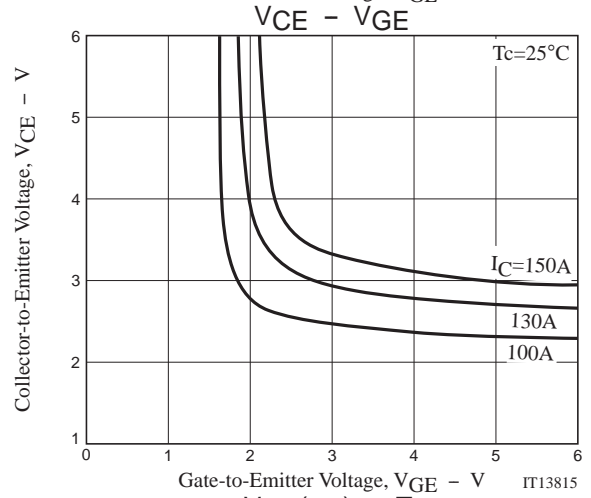
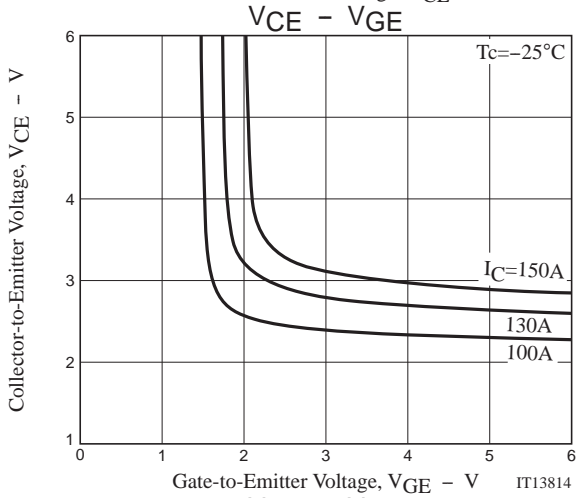
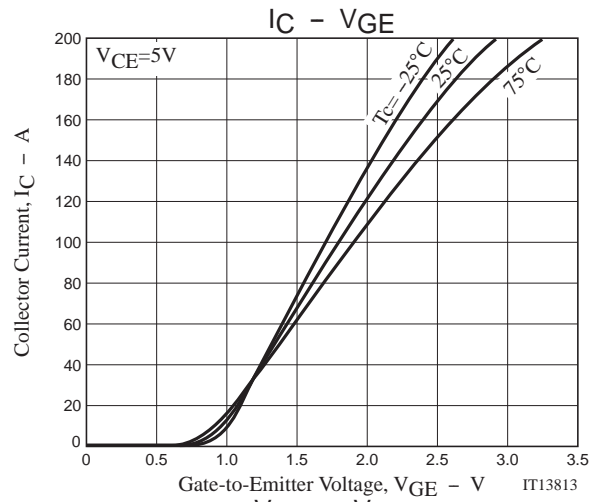
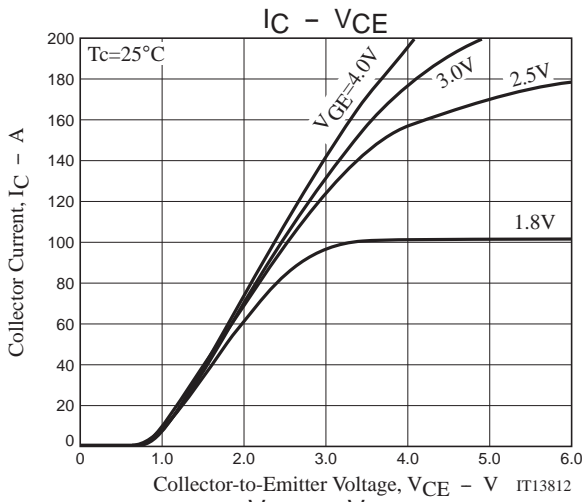
Fig.1 Large Current R Load Switching Circuit



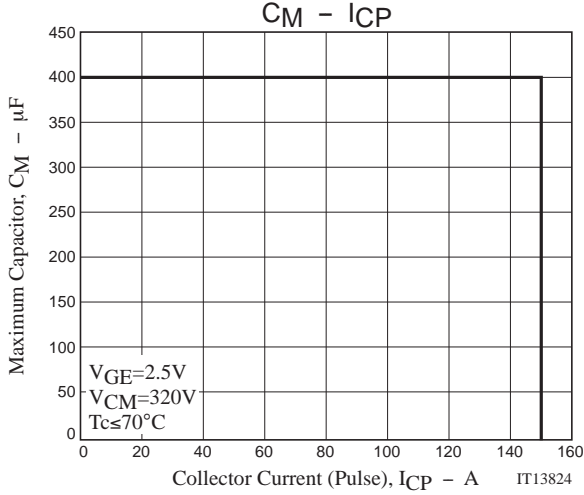
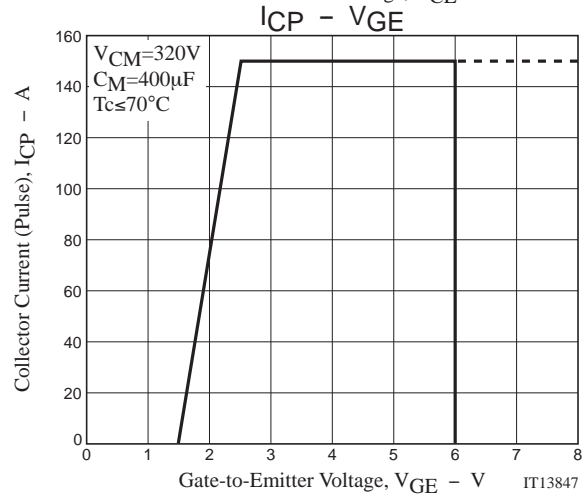
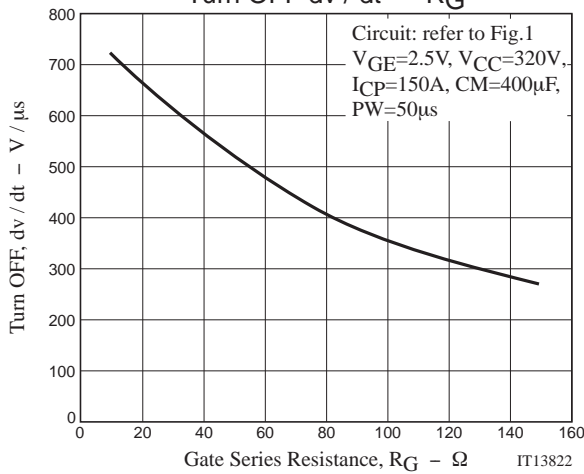
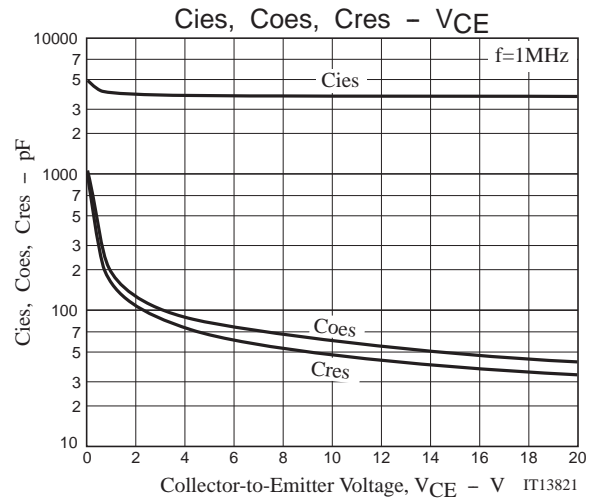
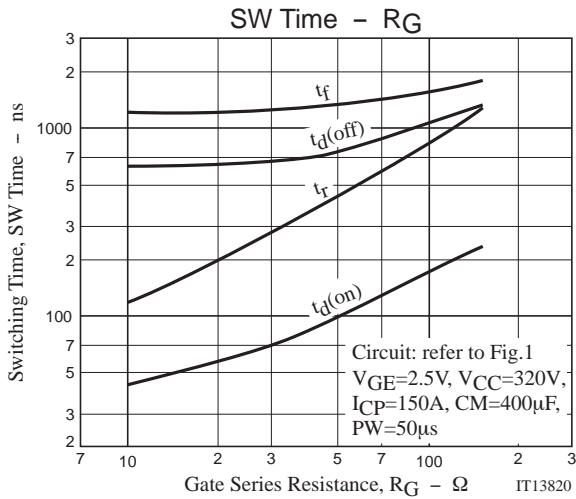
Note1. Gate Series Resistance $R_G \geq 82\Omega$ is recommended for protection purpose at the time of turn OFF. However, if $dv/dt \leq 400V/\mu s$ is satisfied at customer's actual set evaluation, $R_G < 82\Omega$ can also be used.

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

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Note : TIG052TS has protection diode between gate and emitter but handling it requires sufficient care to be taken.

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