

# TIG030TS — N-Channel IGBT

## Light-Controlling Flash Applications

### Features

- Low-saturation voltage.
- 4V drive.
- Enhancement type.
- Built-in gate-to-emitter protection diode.
- Mounting height 1.1mm, mounting area 19.2mm<sup>2</sup>.
- dv / dt guarantee.\*

### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Emitter Voltage	V <sub>CES</sub>		400	V
Gate-to-Emitter Voltage (DC)	V <sub>GES</sub>		±6	V
Gate-to-Emitter Voltage (Pulse)	V <sub>GES</sub>	PW≤1ms	±8	V
Collector Current (Pulse)	I <sub>CP</sub>	PW≤500μs, duty cycle≤0.5%, C <sub>M</sub> =400μF	150	A
Maximum Collector-to-Emitter dv / dt	dV <sub>CE</sub> / dt	V <sub>CE</sub> ≤320V, starting T <sub>ch</sub> =25°C	400	V / μs
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-40 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Breakdown Voltage	V <sub>(BR)CES</sub>	I <sub>C</sub> =2mA, V <sub>GE</sub> =0V	400			V
Collector-to-Emitter Cutoff Current	I <sub>CES</sub>	V <sub>CE</sub> =320V, V <sub>GE</sub> =0V			10	μA
Gate-to-Emitter Leakage Current	I <sub>GES</sub>	V <sub>GE</sub> =±6V, V <sub>CE</sub> =0V			±10	μA

Marking : G030

Continued on next page.

\* : Conduct 100% screening of dv / dt (slope of collector voltage at the time of turn-off) by dv / dt>400V/μs.

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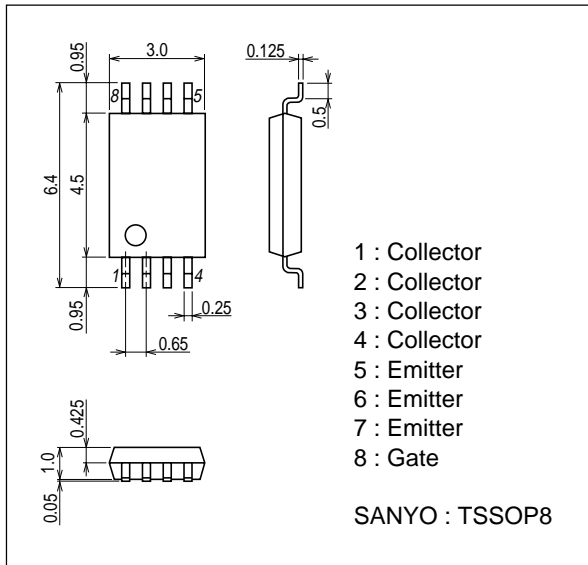
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Emitter Threshold Voltage	$V_{GE(off)}$	$V_{CE}=10V, I_C=1mA$	0.5		1.2	V
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=150A, V_{GE}=4V$		3.7	5.4	V
Input Capacitance	Cies	$V_{CE}=10V, f=1MHz$		2610		pF
Output Capacitance	Coes	$V_{CE}=10V, f=1MHz$		59		pF
Reverse Transfer Capacitance	Cres	$V_{CE}=10V, f=1MHz$		36		pF

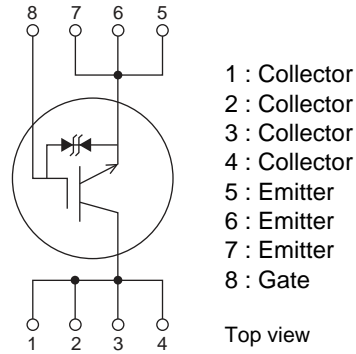
## Package Dimensions

unit : mm (typ)

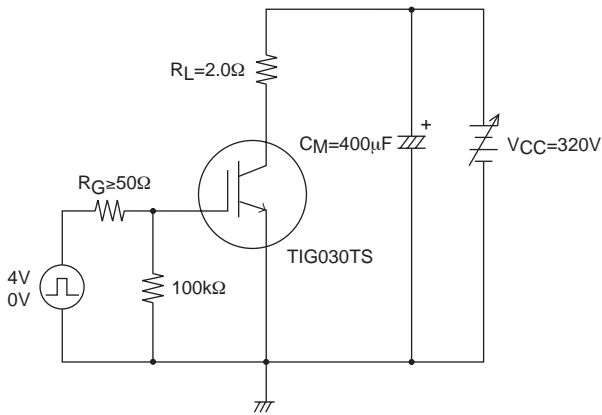
7006A-007



## Electrical Connection



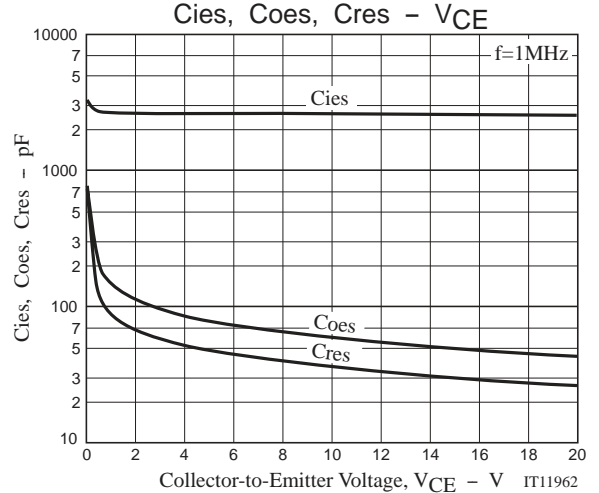
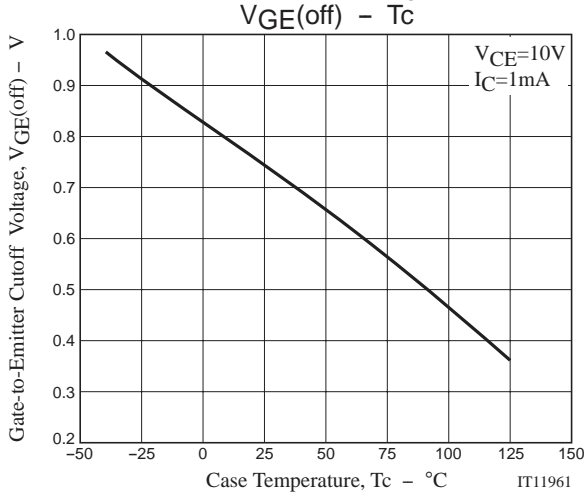
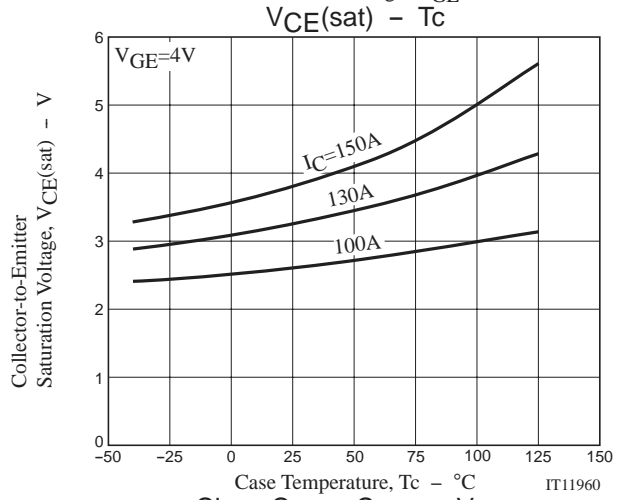
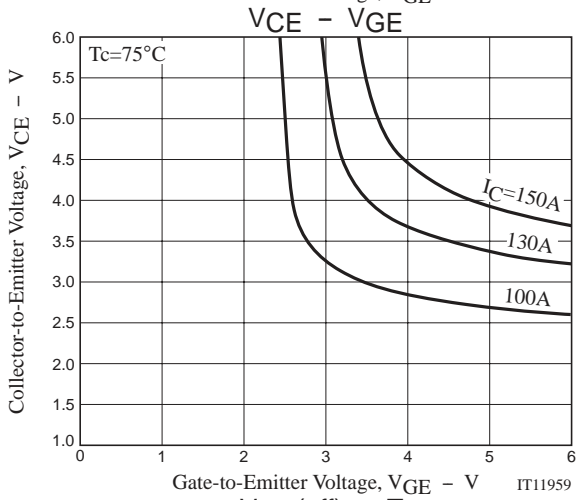
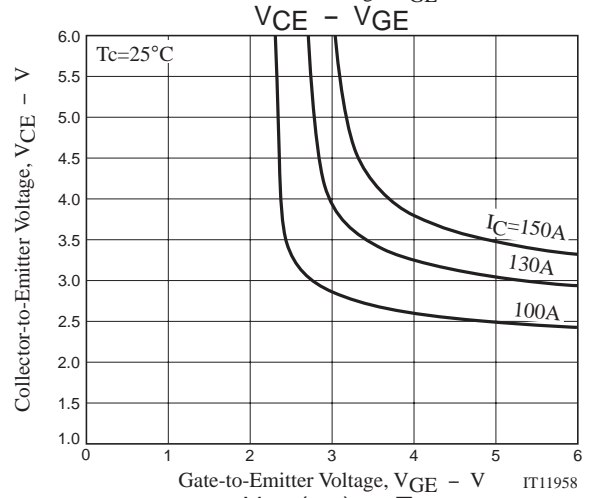
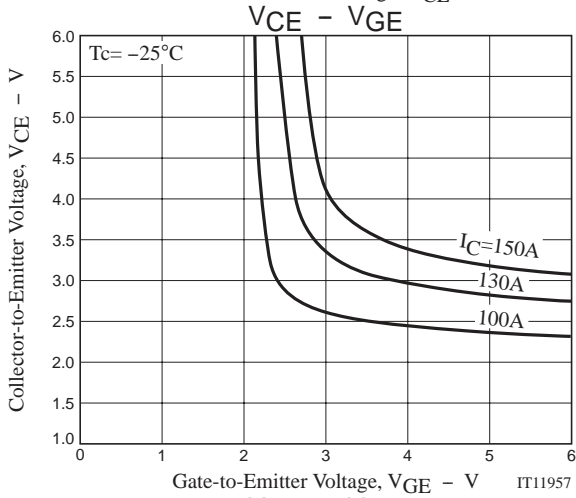
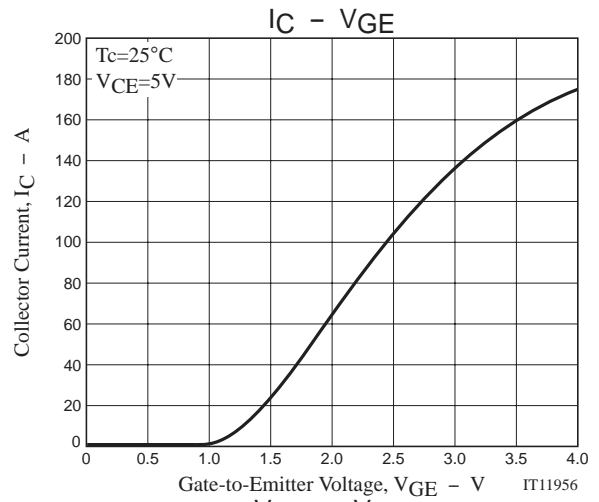
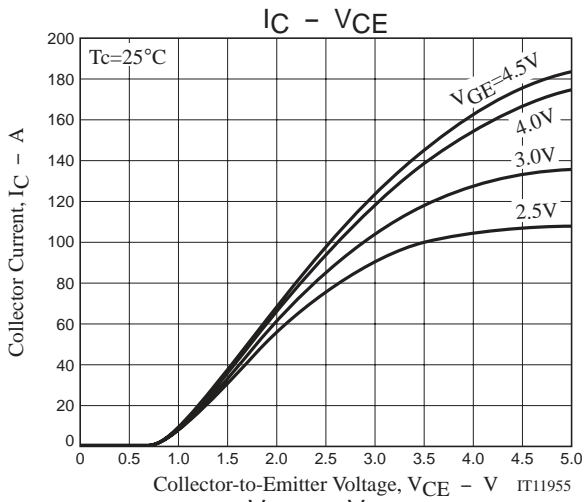
## Large Current R Load Screening Circuit



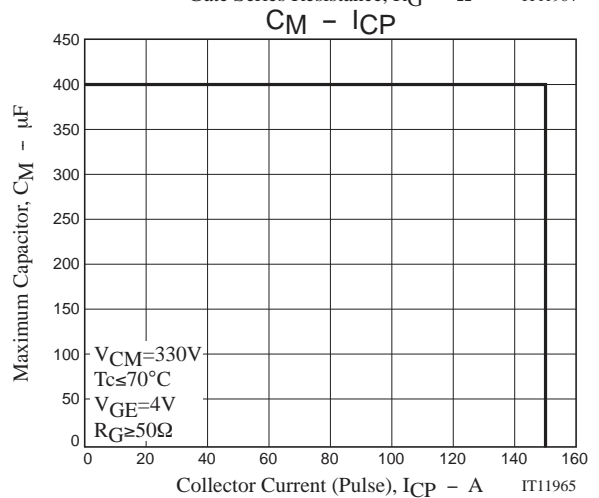
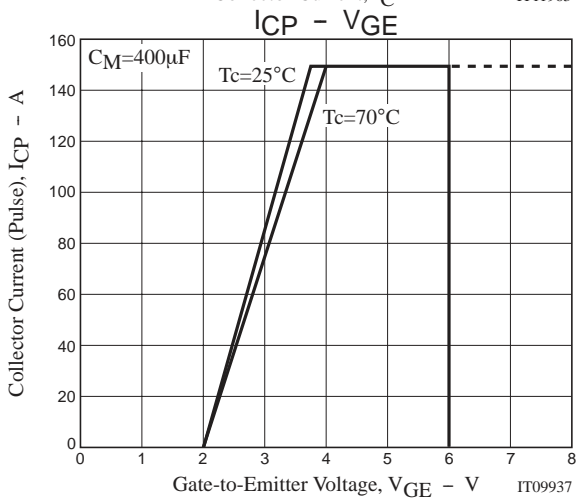
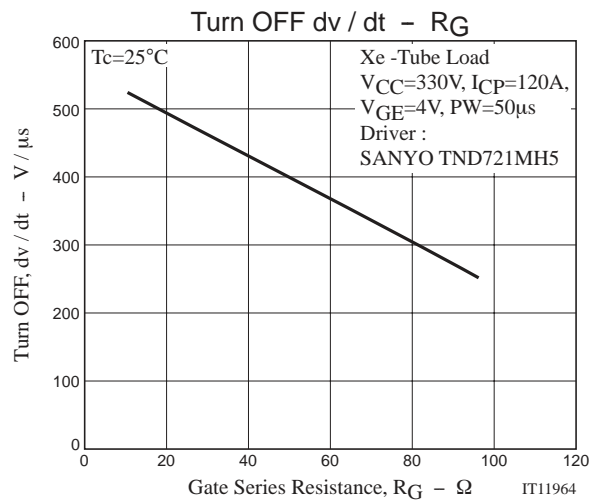
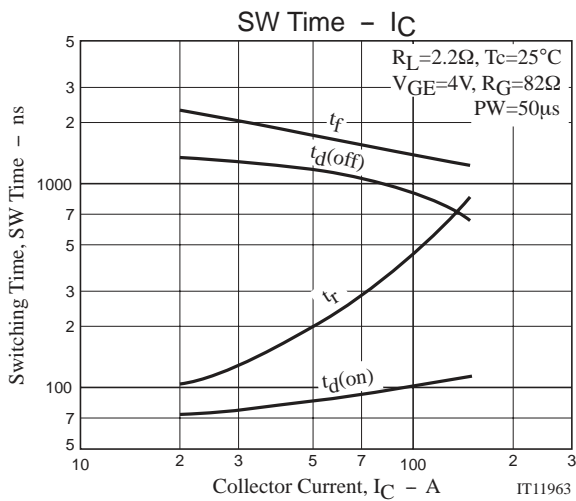
Note1. Gate Series Resistance  $R_G \geq 50\Omega$  is recommended for protection purpose at the time of turn OFF. However, if  $dv/dt \leq 400V/\mu s$  is satisfied at customer's actual set evaluation,  $R_G < 50\Omega$  can also be used.

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 : TIG030TS has protection diode between gate and emitter but handling it requires sufficient care to be taken.

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