

TIG067SS



IGBT

400V, 150A, $V_{CE(sat)}$;3.8V Single N-Channel

ON Semiconductor®

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Features

- Low-saturation Voltage
- Enhancement Type
- High Speed Switching
- 4.0V Drive
- Built-in Gate-to-Emitter Protection Diode
- Pb-Free, Halogen Free and RoHS Compliance

Applications

- Light-controlling Flash

Specifications

Absolute Maximum Ratings at $T_a=25^{\circ}\text{C}$

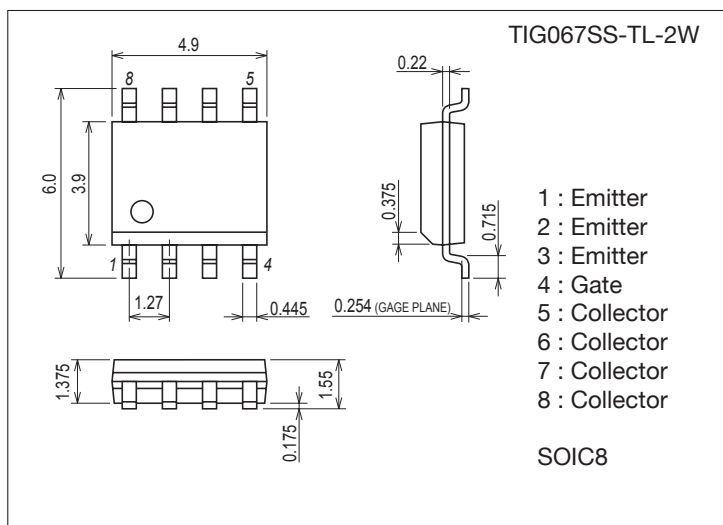
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Emitter Voltage (DC)	V_{CES}		400	V
Collector-to-Emitter Voltage (Pulse)	V_{CESP}	$PW \leq 1\text{ms}$	450	V
Gate-to-Emitter Voltage (DC)	V_{GES}		± 6	V
Gate-to-Emitter Voltage (Pulse)	V_{GESP}	$PW \leq 1\text{ms}$	± 8	V
Collector Current (Pulse)	I_{CP}	$C_M=600\mu\text{F}$	150	A
Maximum Collector-to-Emitter dv/dt	dv/dt	$V_{CE} \leq 320\text{V}$, starting $T_{ch}=25^{\circ}\text{C}$	1500	V / μs
Allowable Power Dissipation	P_D	When mounted on FR4 substrate (11,680mm ² ×1.6mm)	1.2	W
Channel Temperature	T_{ch}		150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}		-40 to +150	$^{\circ}\text{C}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

unit : mm (typ)

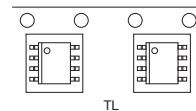
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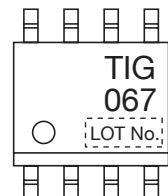
Product & Package Information

- Package : SOIC8
- JEITA, JEDEC : SC-87, SOT-96
- Minimum Packing Quantity : 2500 pcs./reel

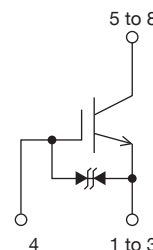
Packing Type: TL



Marking



Electrical Connection



ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

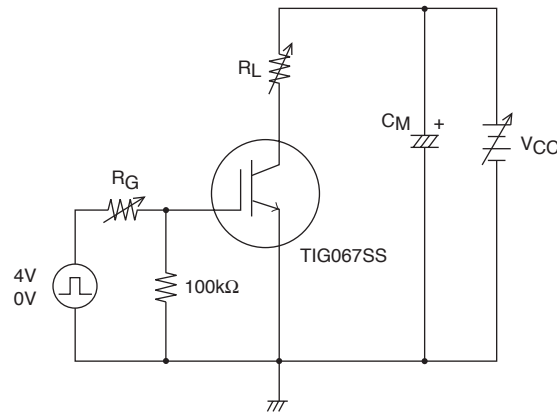
TIG067SS

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}			59		pF
Reverse Transfer Capacitance	C_{res}			43		pF
Fall Time	t_f	$I_C=150A, V_{CC}=320V, \text{Resistor load } V_{GE}=4V, R_G=36\Omega$		270		ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

Fig1 Large Current R Load Switching Circuit

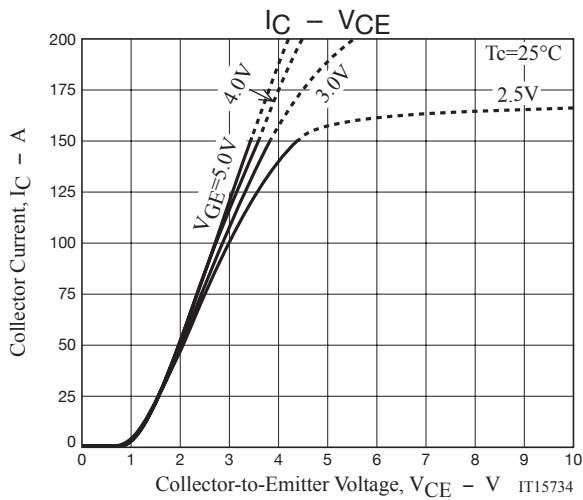
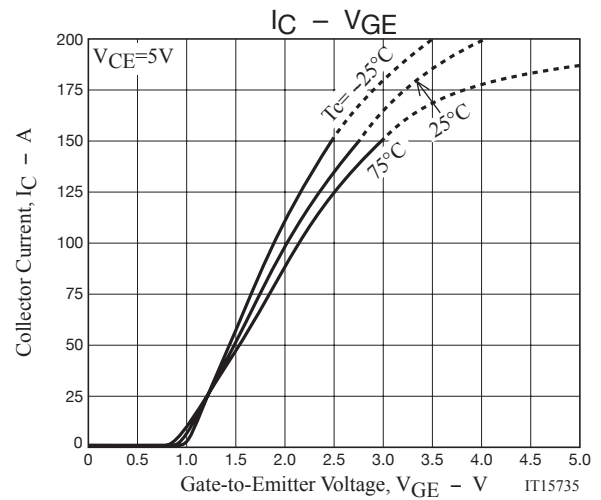
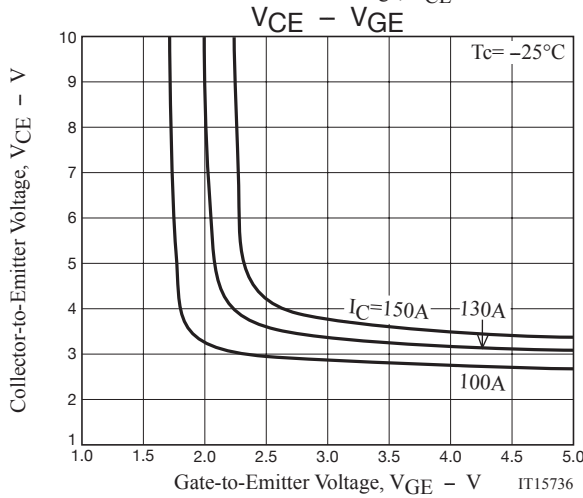
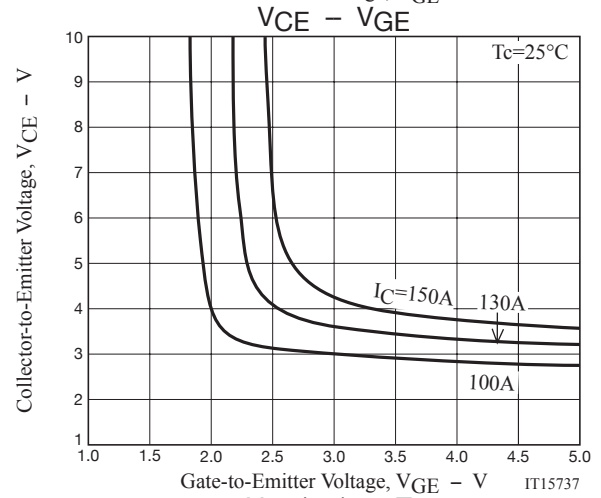
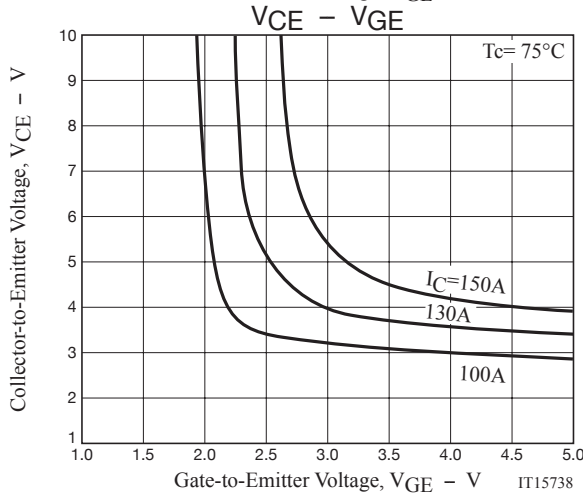
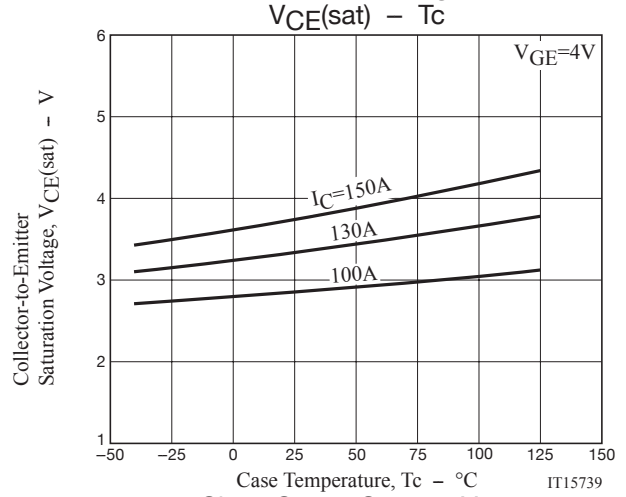
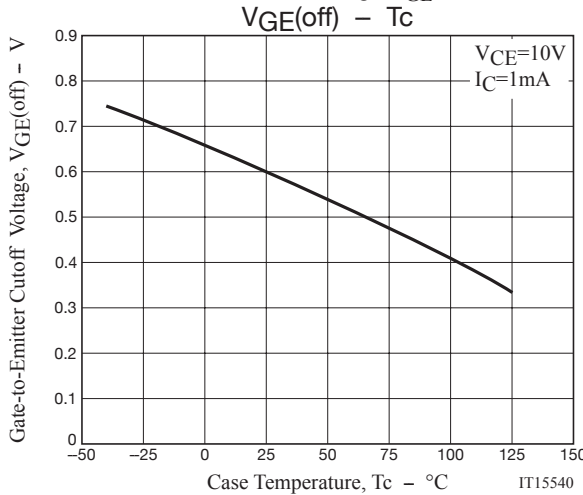
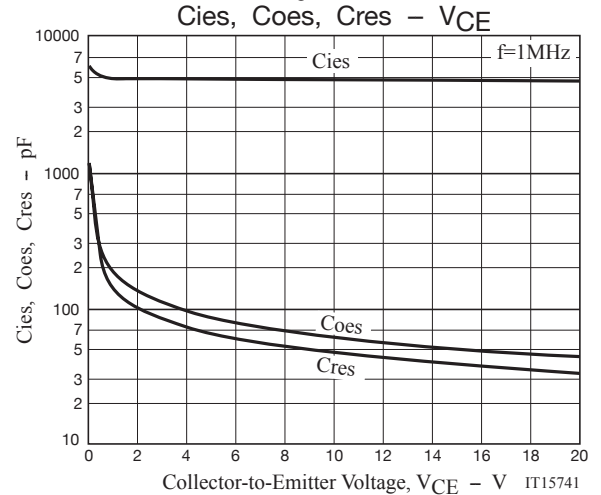


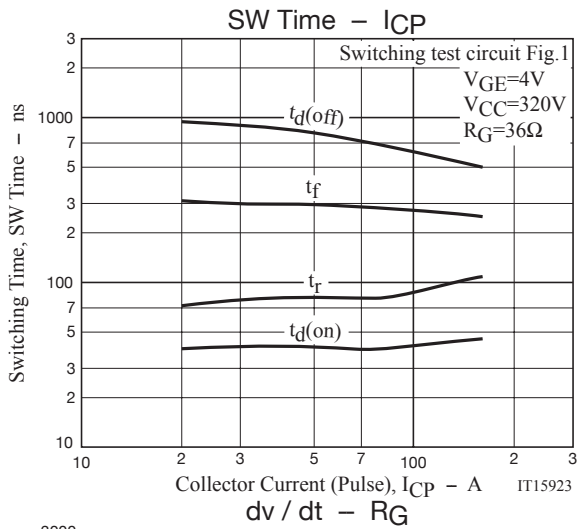
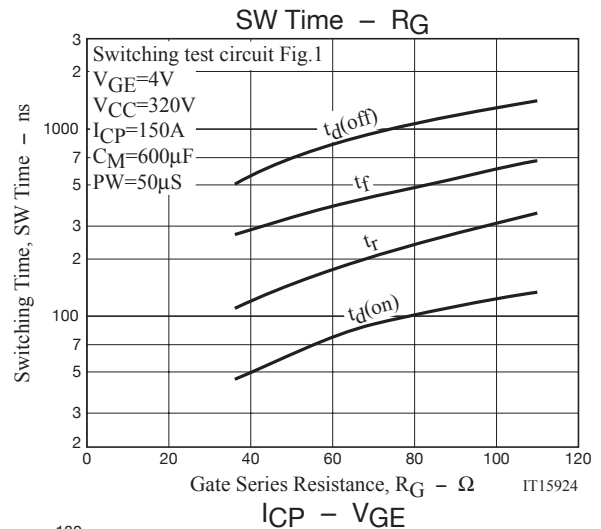
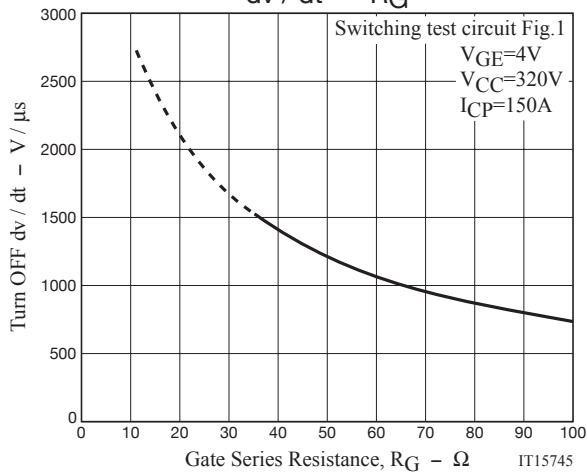
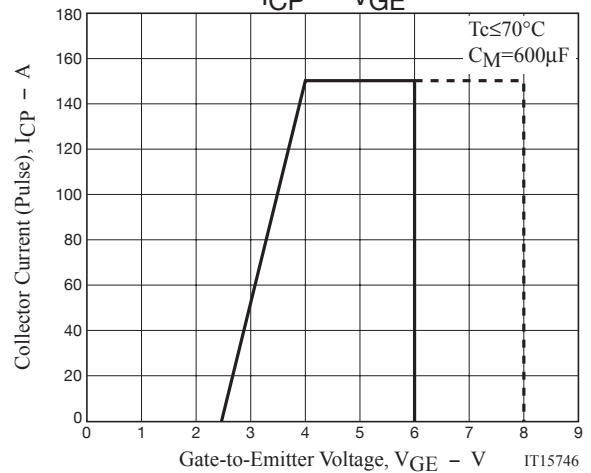
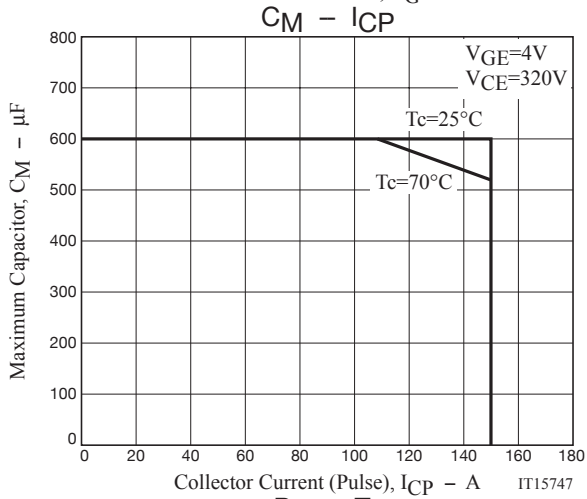
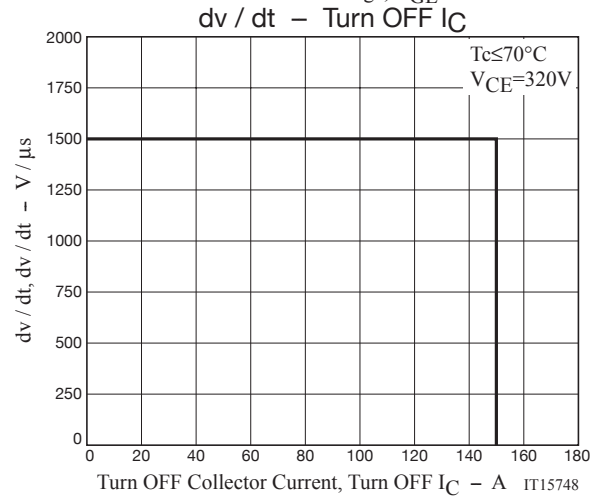
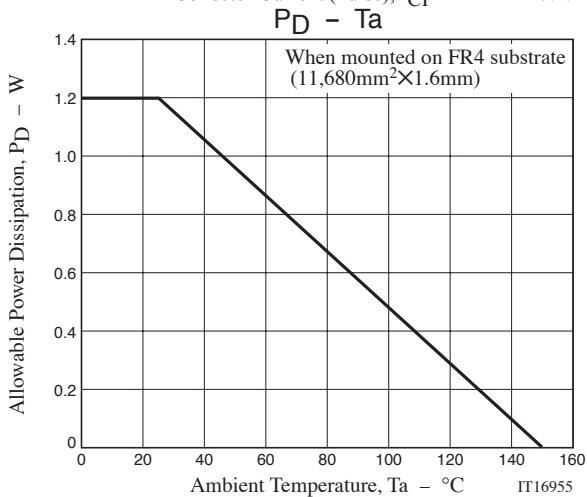
Note1. Gate Series Resistance $R_G \geq 36\Omega$ is recommended for protection purpose at the time of turn OFF. However, if $dv/dt \leq 1500/\mu s$ is satisfied at customer's actual set evaluation, $R_G < 36\Omega$ can also be used.

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

ORDERING INFORMATION

Device	Package	Shipping	memo
TIG067SS-TL-2W	SOIC8	2,500pcs./reel	Pb-Free and Halogen Free



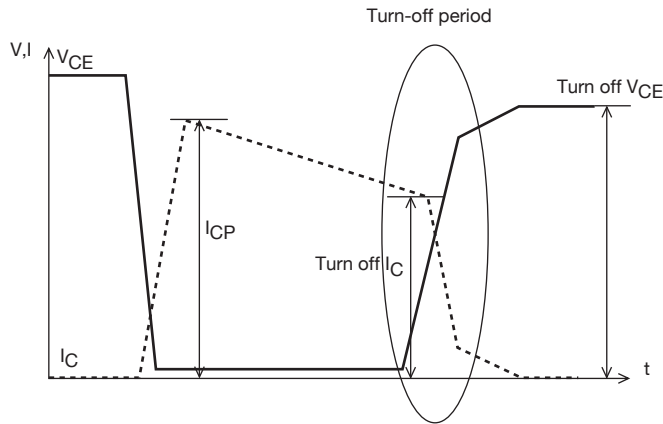


Definition of dv/dt

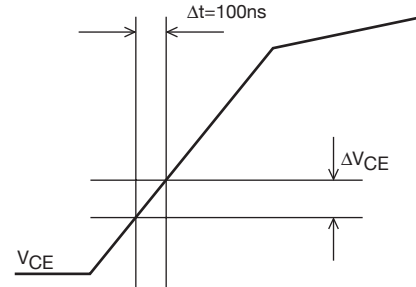
dv/dt is defined as the maximum slope of the below V_{CE} curve during turn-off period.

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

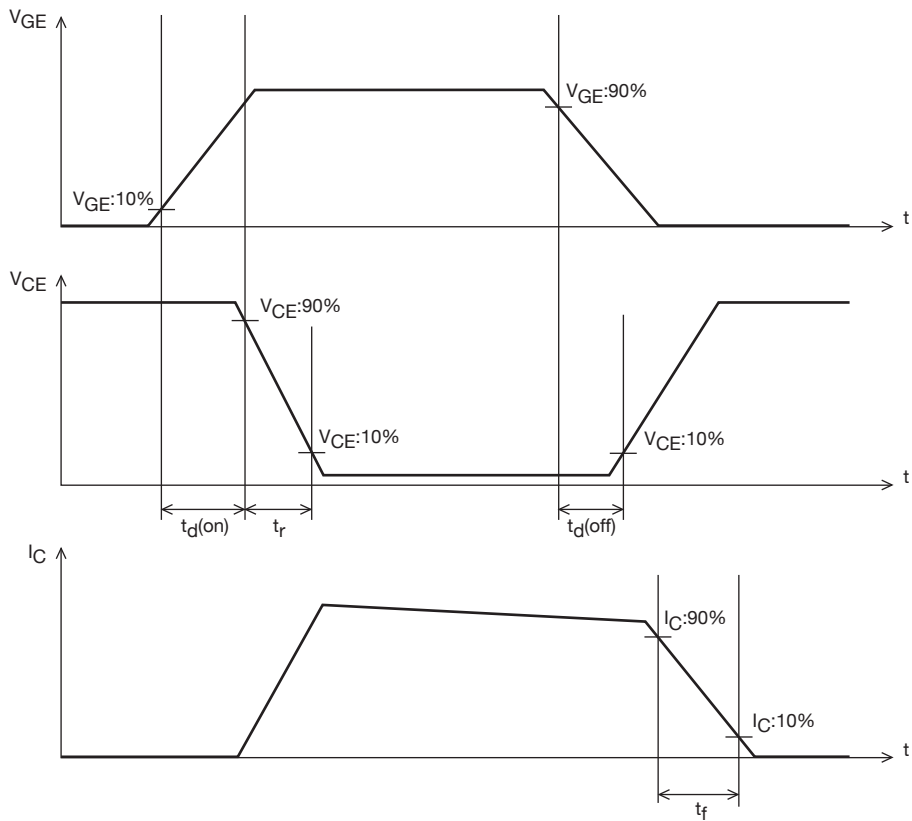
Overall waveform



Enlarged picture of turn-off period

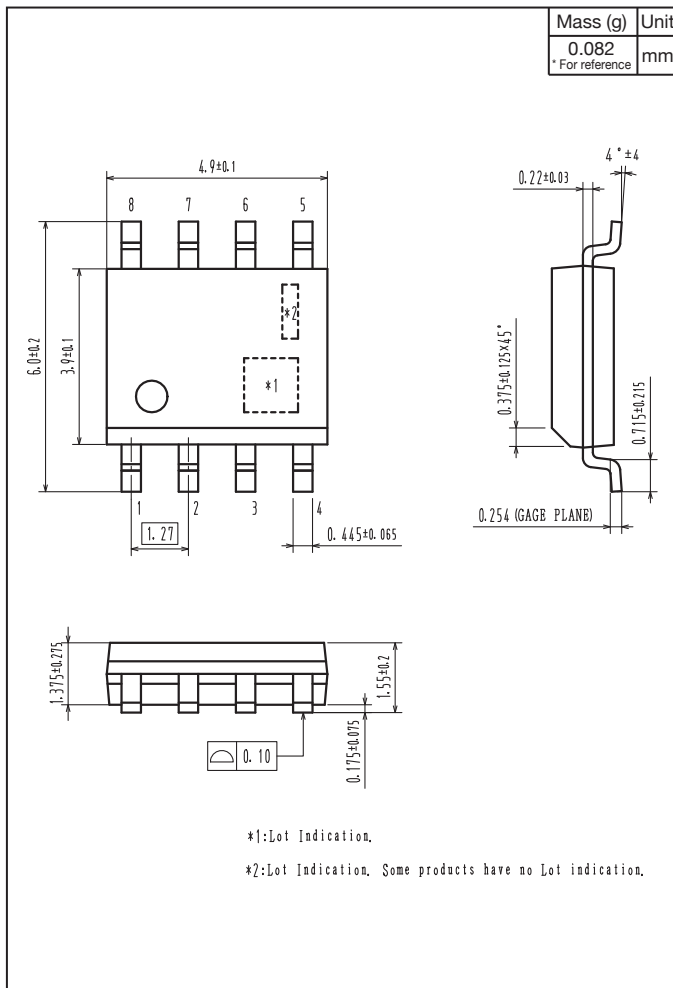


Definition of Switching Time

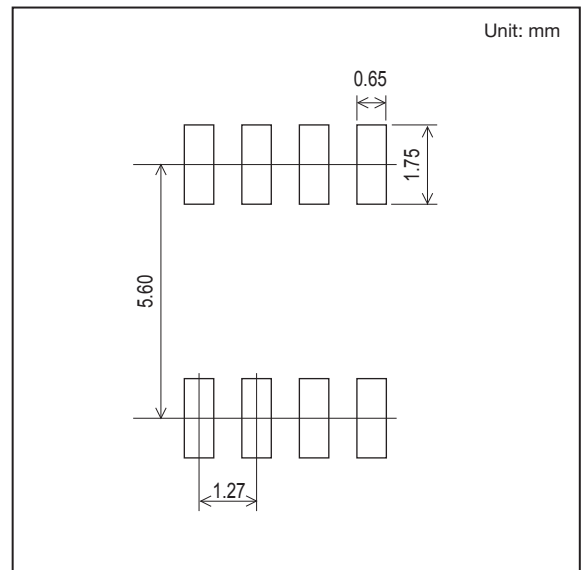


Outline Drawing

TIG067SS-TL-2W



Land Pattern Example



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