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Ordering number : ENA1602A

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

TIG064E8 — N-Channel IGBT Light-Controlling Flash Applications

Features

- Low-saturation voltage
- Enhansment type
- Mounting Height 0.9mm, Mounting Area 8.12mm^2
- Halogen free compliance
- Low voltage drive (2.5V)
- Built-in Gate-to-Emitter protection diode
- dv / dt guarantee*

Specifications

Absolute Maximum Ratings at Ta=25°C

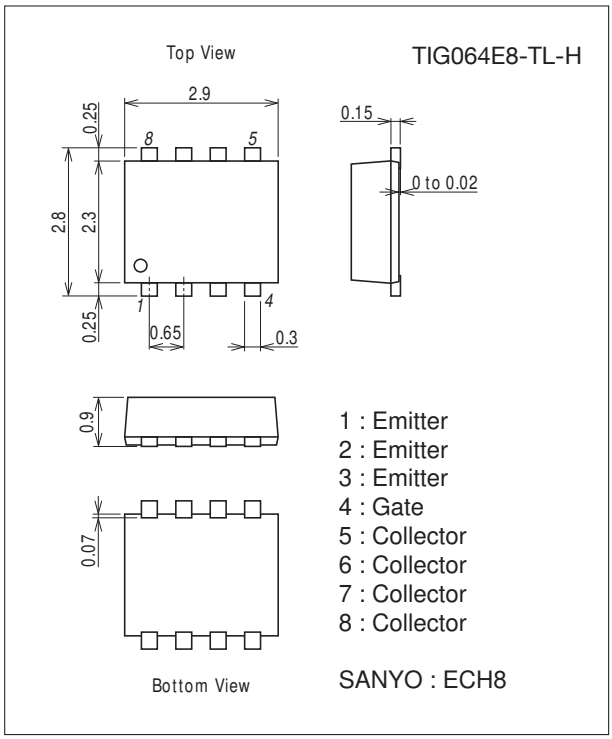
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Emitter Voltage	V_{CES}		400	V
Gate-to-Emitter Voltage (DC)	V_{GES}		±4	V
Gate-to-Emitter Voltage (Pulse)	V_{GES}	PW≤1ms	±5	V
Collector Current (Pulse)	I_{CP}	V_{GE}=2.5V, C_M=100μF	150	A
Maximum Collector-to-Emitter dv / dt	dV_{CE} / dt	V_{CE}≤320V, starting Tch=25°C	400	V / μs
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-40 to +150	°C

* : 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.

Package Dimensions

unit : mm (typ)

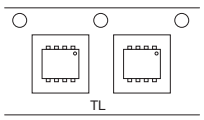
7011A-004



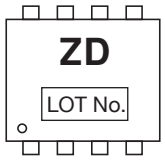
Product & Package Information

- Package : ECH8
- JEITA, JEDEC : -
- Minimum Packing Quantity : 3000 pcs./reel

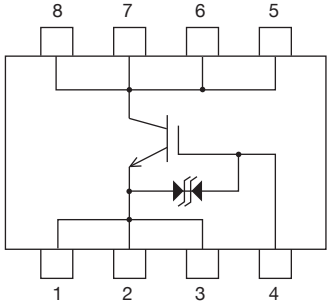
Packing Type: TL



Marking



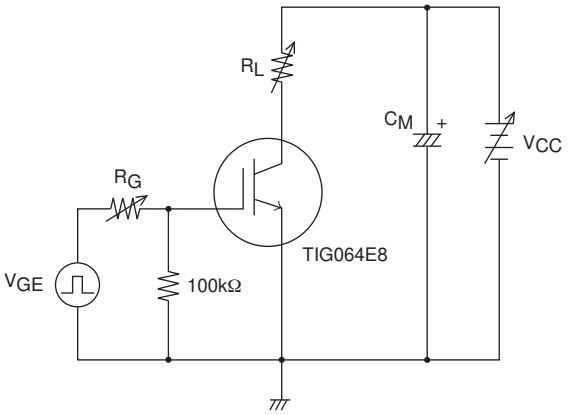
Electrical Connection



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}=±4V, V_{CE}=0V			±10	μA
Gate-to-Emitter Threshold Voltage	$V_{GE(off)}$	V_{CE}=10V, I_C=1mA	0.4		0.9	V
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=100A, V_{GE}=2.5V		4.2	7	V
Input Capacitance	Cies	V_{CE}=10V, f=1MHz		3100		pF
Output Capacitance	Coes			30		pF
Reverse Transfer Capacitance	Cres			23		pF

Fig.1 Large Current R Load Switching Circuit

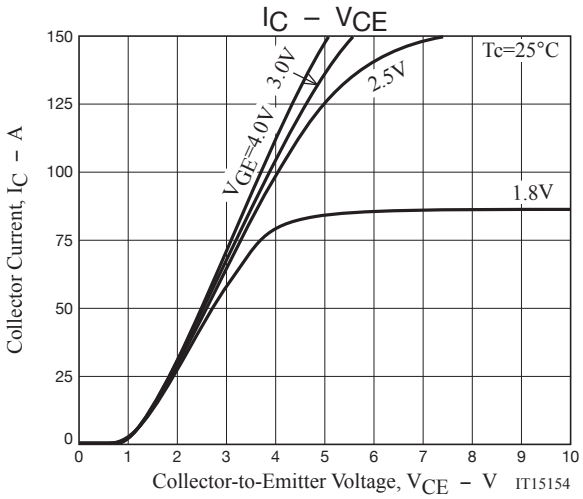


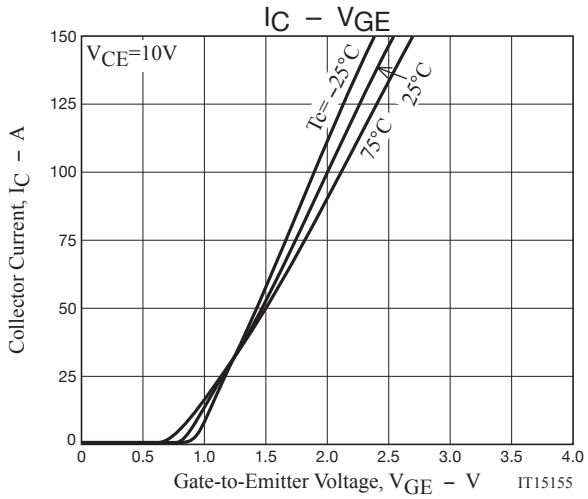
Note1. Gate Series Resistance $R_G \geq 160\Omega$ is recommended for protection purpose at the time of turn OFF. However, if dv / dt ≤ 400V / μs is satisfied at customer's actual set evaluation, $R_G < 160\Omega$ can also be used.

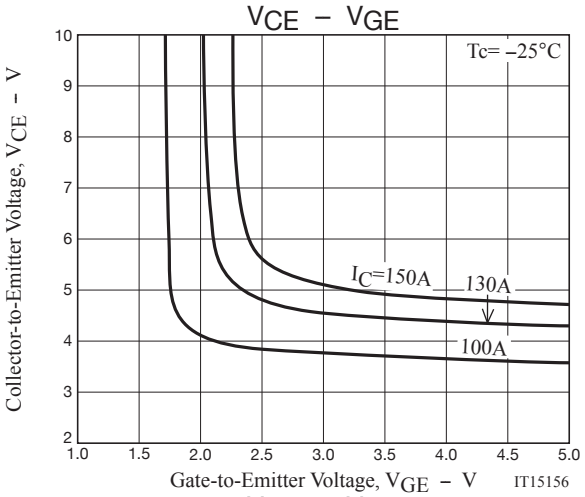
Note2. The collector voltage gradient dv / dt must be smaller than 400V / μs to protect the device when it is turned off.

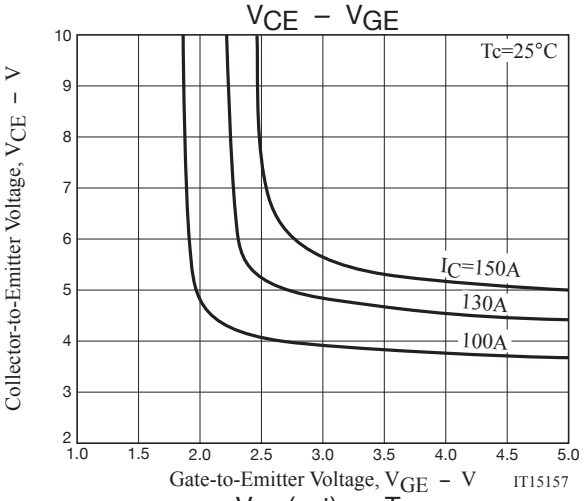
Ordering Information

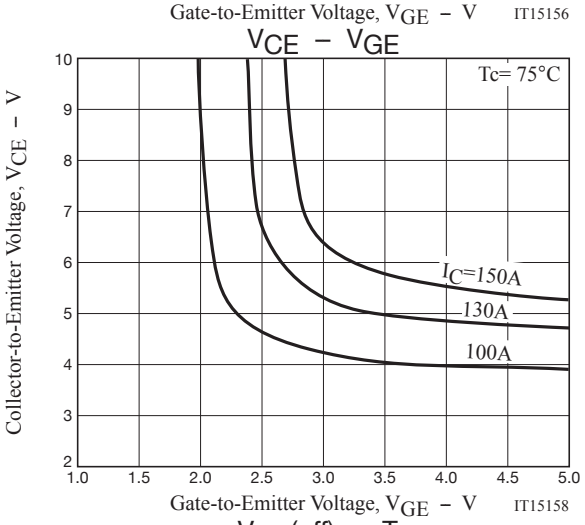
Device	Package	Shipping	memo
TIG064E8-TL-H	ECH8	3,000pcs./reel	Pb Free and Halogen Free

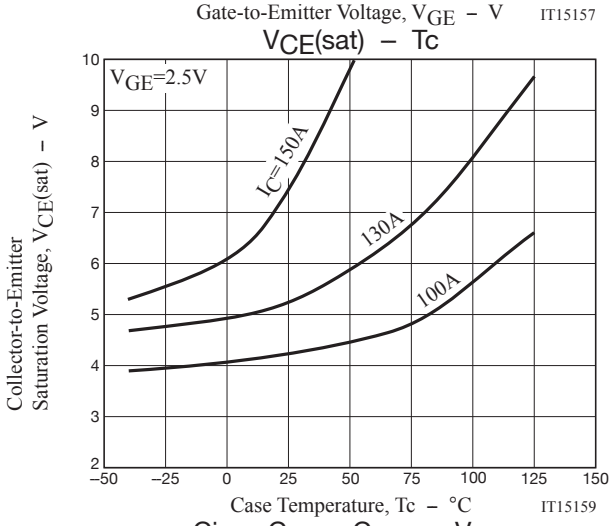


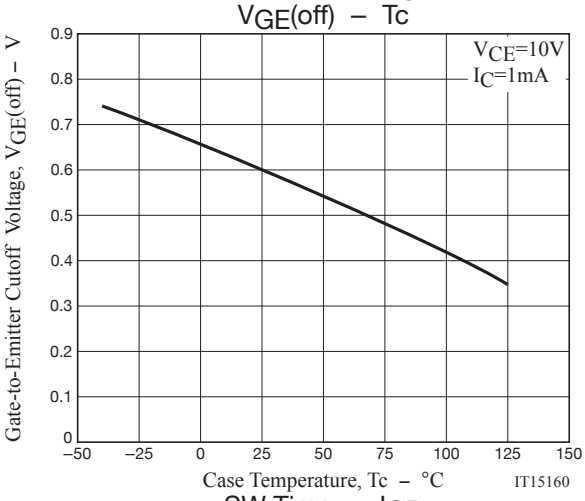


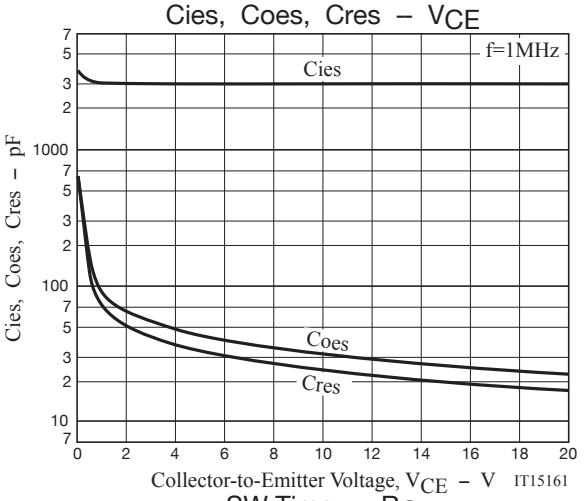

VCE – VGE
Tc= –25°C
IC=150A
130A
100A
Collector-to-Emitter Voltage, VCE – V
Gate-to-Emitter Voltage, VGE – V
IT15156

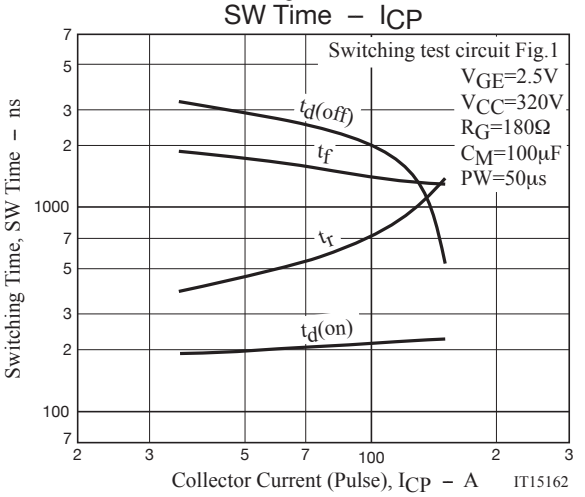

VCE – VGE
Tc=25°C
IC=150A
130A
100A
Collector-to-Emitter Voltage, VCE – V
Gate-to-Emitter Voltage, VGE – V
IT15157

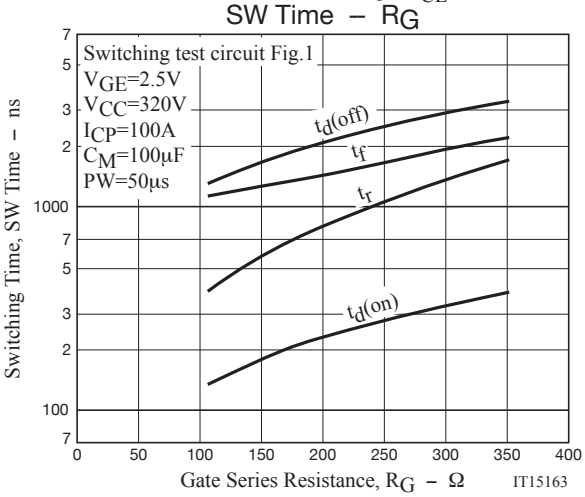

VCE – VGE
Tc= 75°C
IC=150A
130A
100A
Collector-to-Emitter Voltage, VCE – V
Gate-to-Emitter Voltage, VGE – V
IT15158

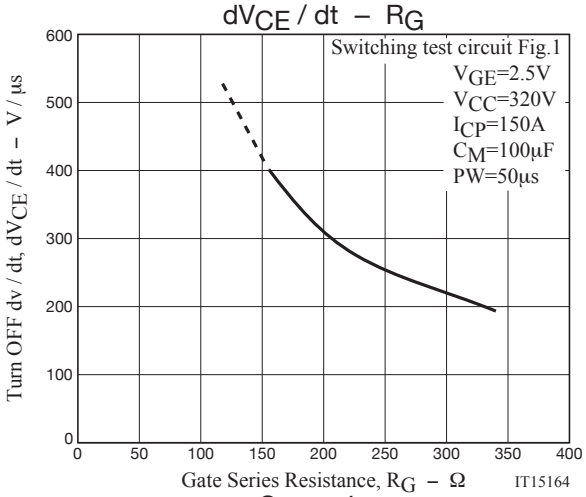

VCE(sat) – Tc
VGE=2.5V
IC=150A
130A
100A
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Case Temperature, Tc – °C
IT15159

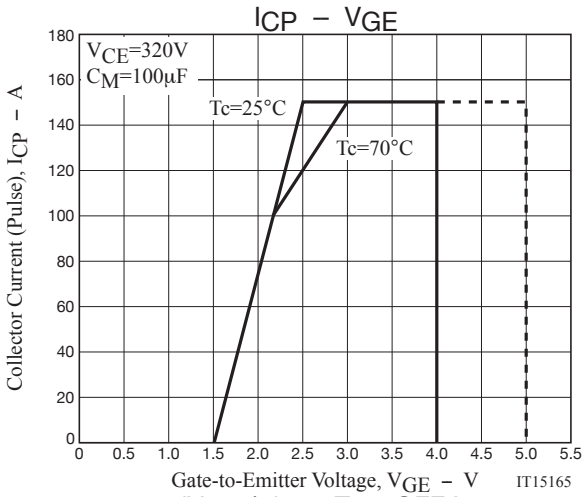

VGE(off) – Tc
VCE=10V
IC=1mA
Gate-to-Emitter Cutoff Voltage, VGE(off) – V
Case Temperature, Tc – °C
IT15160

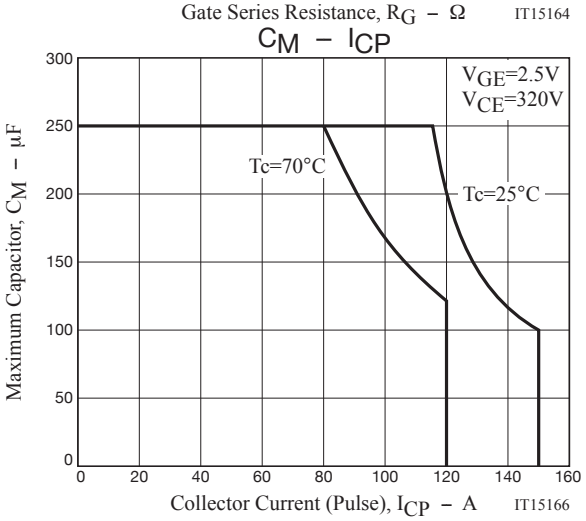

Cies, Coes, Cres – VCE
f=1MHz
Cies
Coes
Cres
Cies, Coes, Cres – pF
Collector-to-Emitter Voltage, VCE – V
IT15161

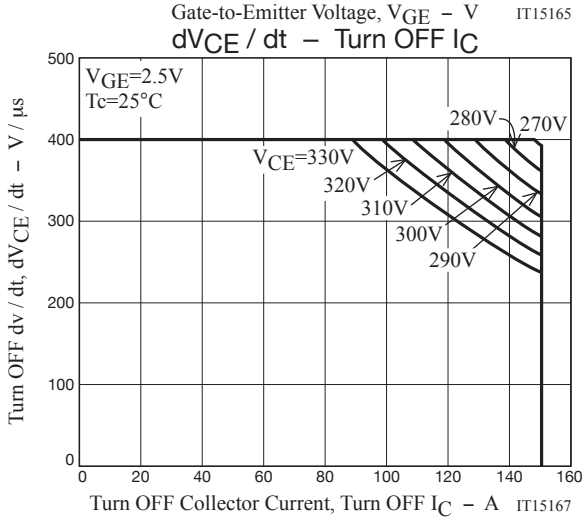

SW Time – ICP
Switching test circuit Fig.1
VGE=2.5V
VCC=320V
RG=180Ω
CM=100µF
PW=50µs
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Collector Current (Pulse), ICP – A
IT15162


SW Time – RG
Switching test circuit Fig.1
VGE=2.5V
VCC=320V
ICP=100A
CM=100µF
PW=50µs
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Gate Series Resistance, RG – Ω
IT15163


dVCE / dt – RG
Switching test circuit Fig.1
VGE=2.5V
VCC=320V
ICP=150A
CM=100µF
PW=50µs
Turn OFF dv / dt, dVCE / dt – V / µs
Gate Series Resistance, RG – Ω
IT15164


ICP – VGE
VCE=320V
CM=100µF
Tc=25°C
Tc=70°C
Collector Current (Pulse), ICP – A
Gate-to-Emitter Voltage, VGE – V
IT15165


CM – ICP
VGE=2.5V
VCE=320V
Tc=70°C
Tc=25°C
Maximum Capacitor, CM – µF
Collector Current (Pulse), ICP – A
IT15166


dVCE / dt – Turn OFF IC
VGE=2.5V
Tc=25°C
280V
270V
VCE=330V
320V
310V
300V
290V
Turn OFF dv / dt, dVCE / dt – V / µs
Turn OFF Collector Current, Turn OFF IC – A
IT15167

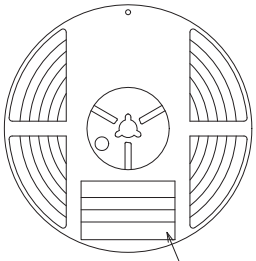
Embossed Taping Specification

TIG064E8-TL-H

1. Packing Format

Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
ECH8	CPH6	3,000	15,000	90,000	5 reels contained Dimensions:mm(external) 183×72×185	6 inner boxes contained Dimensions:mm(external) 440×195×210

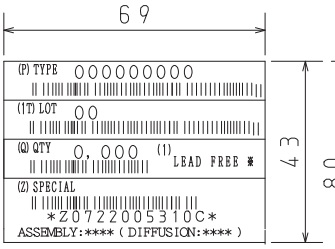
Packing method



Reel label

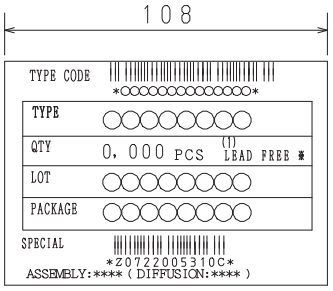
Reel label, Inner box label

(unit:mm)



Outer box label

It is a label at the time of factory shipments. The form of a label may change in physical distribution process.



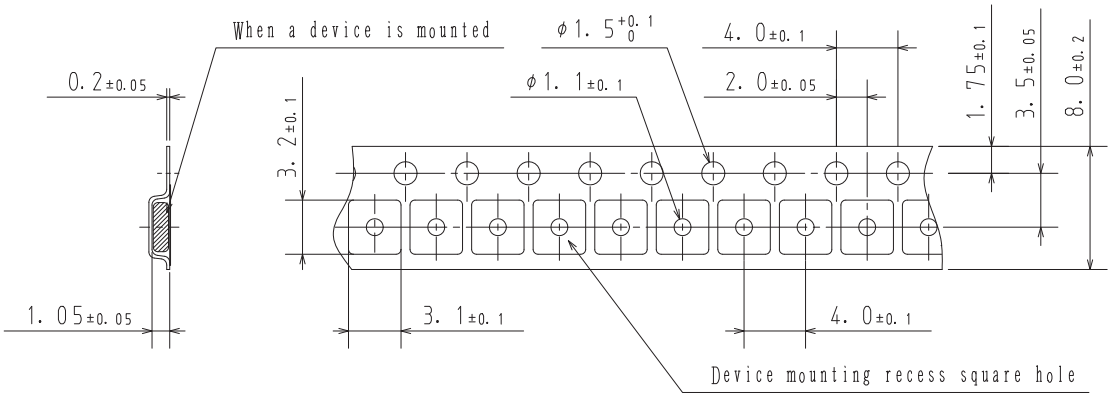
NOTE (1)

The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

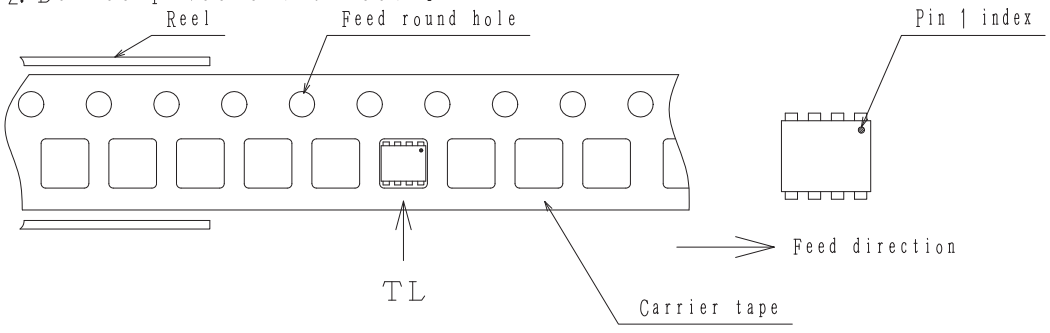
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

2-1. Carrier tape size (unit:mm)



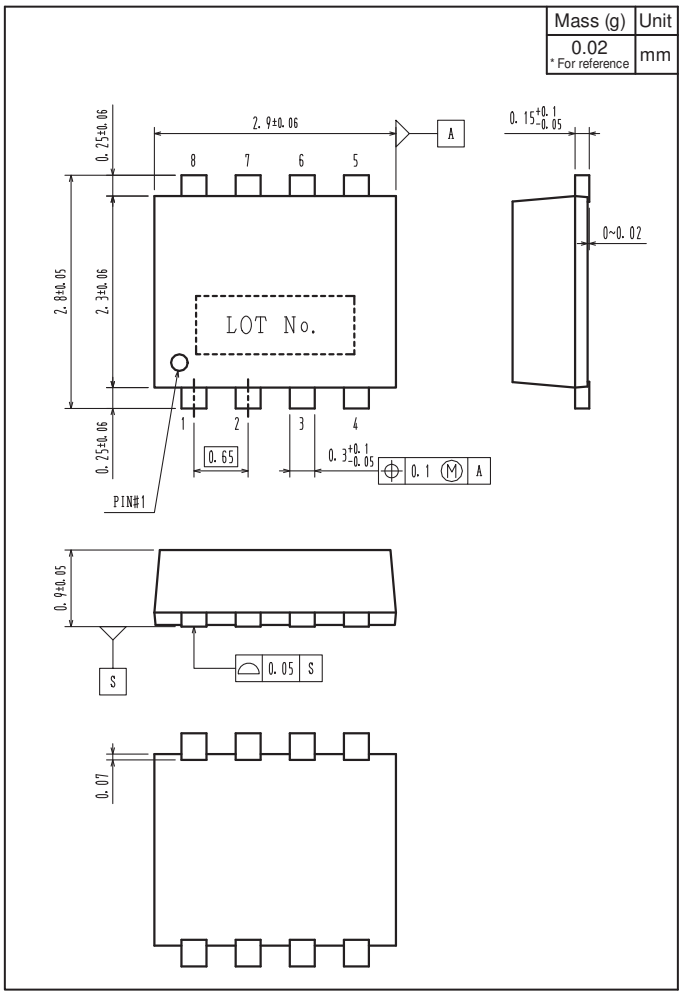
2-2. Device placement direction



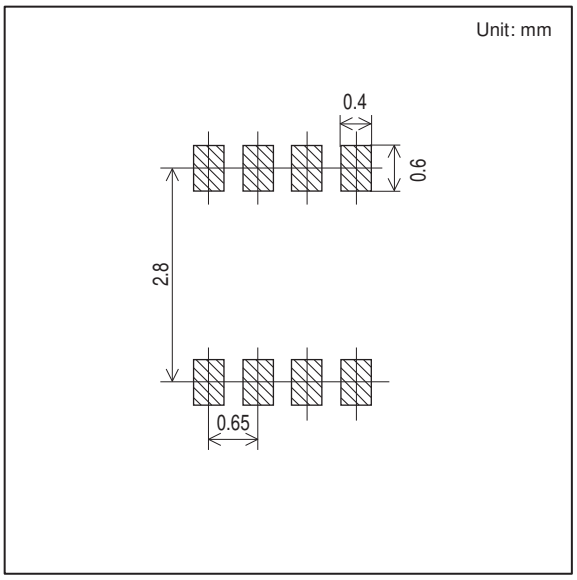
Those with pin 1 index on the feed hole side·····TL

Outline Drawing

TIG064E8-TL-H



Land Pattern Example



Note : TIG064E8 has protection diode between gate and emitter but handling it requires sufficient care to be taken.

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