



# TIG058E8 — N-Channel IGBT

## Light-Controlling Flash Applications

### Features

- Low-saturation voltage
- Enhancement type
- Mounting Height 0.9mm, Mounting Area 8.12mm<sup>2</sup>
- Halogen free compliance
- Low voltage drive (4V)
- Built-in Gate-to-Emitter protection diode
- dv / dt guarantee\*

### Specifications

#### Absolute Maximum Ratings at Ta=25°C

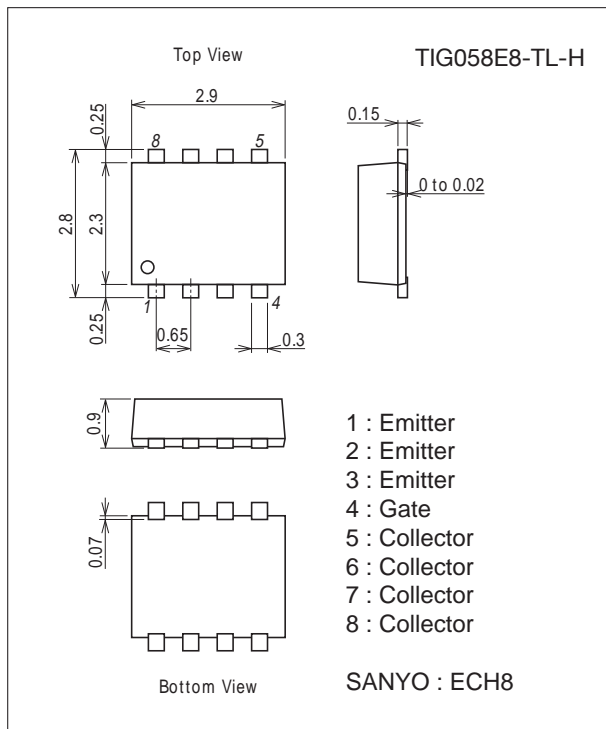
| Parameter                            | Symbol                | Conditions  | Ratings     | Unit   |
|--------------------------------------|-----------------------|---|-------------|--------|
| Collector-to-Emitter Voltage         | V <sub>CES</sub>      |   | 400         | V      |
| Gate-to-Emitter 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>       | C <sub>M</sub> =150μF, V <sub>GE</sub> =4V            | 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     |

\* : 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)

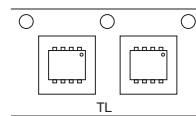
7011A-004



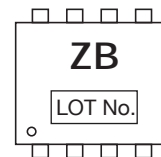
### Product & Package Information

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

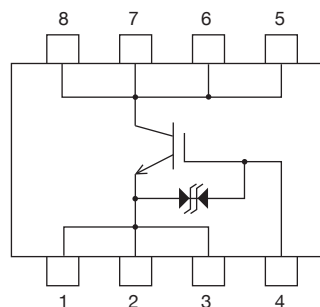
### Packing Type: TL



### Marking



### Electrical Connection

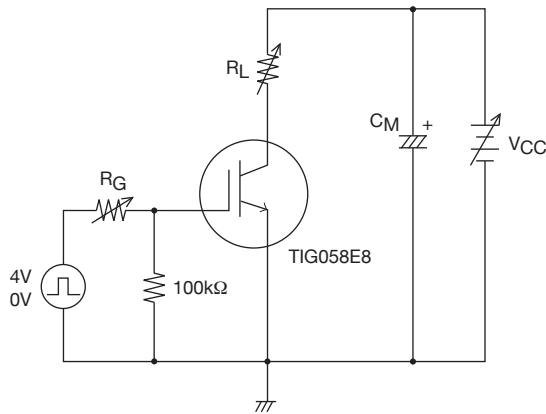


# TIG058E8

## 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       | $\mu A$ |    |
| Gate-to-Emitter Leakage Current         | $I_{GES}$     | $V_{GE}=\pm 6V, V_{CE}=0V$ |         |      | $\pm 10$ | $\mu A$ |    |
| Gate-to-Emitter Threshold Voltage       | $V_{GE(off)}$ | $V_{CE}=10V, I_C=1mA$      | 0.4     |      | 0.9      | V       |    |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=100A, V_{GE}=4V$      |         | 4.0  | 5.6      | V       |    |
| Input Capacitance                       | $C_{ies}$     | $V_{CE}=10V, f=1MHz$       |         | 2200 |          | pF      |    |
| Output Capacitance                      | $C_{oes}$     |                            |         |      | 32       |         | pF |
| Reverse Transfer Capacitance            | $C_{res}$     |                            |         |      | 24       |         | pF |

Fig.1 Large Current R Load Switching Circuit

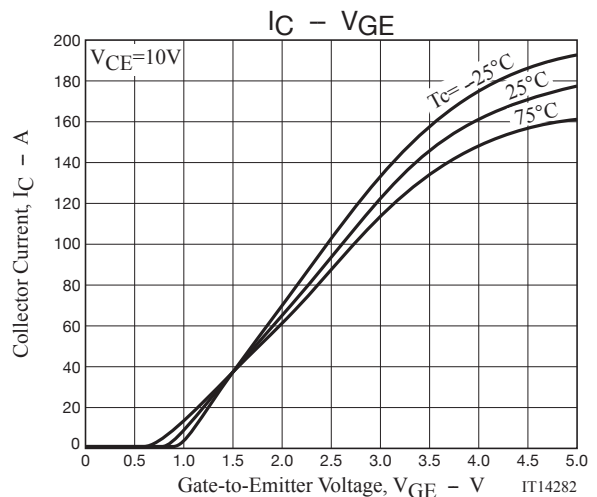
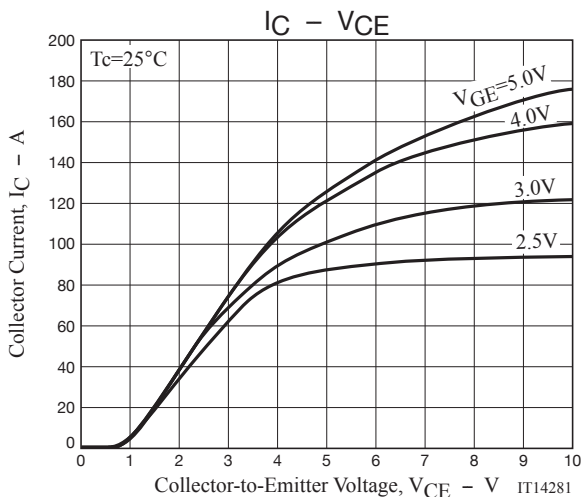


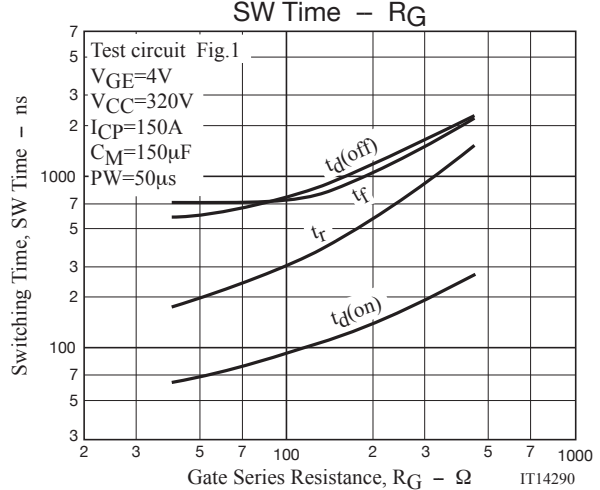
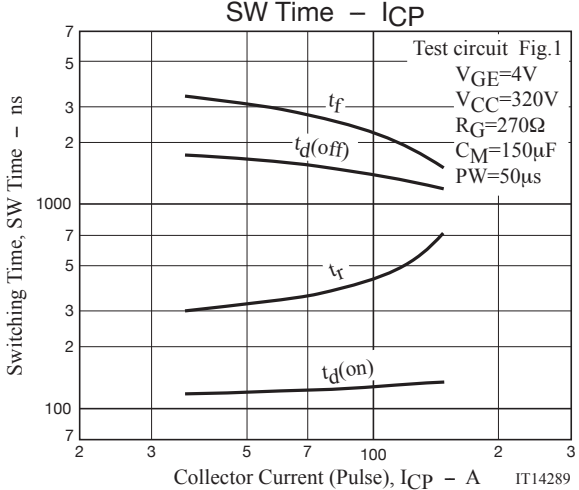
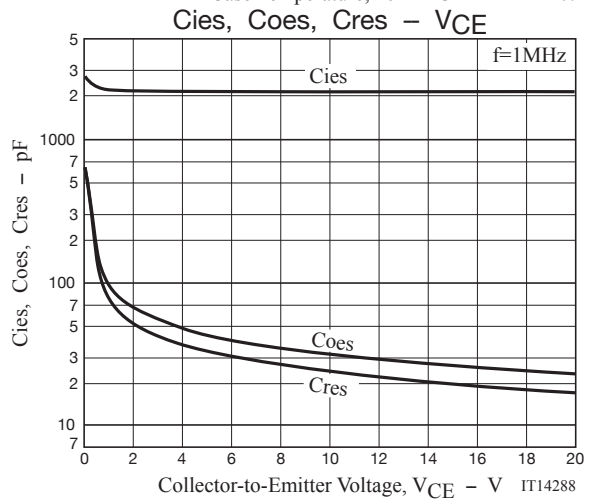
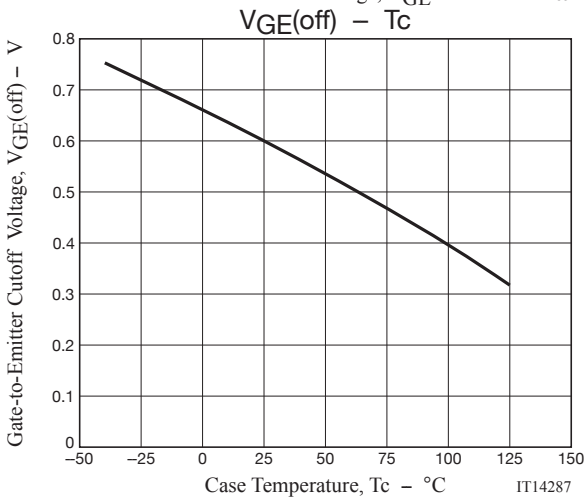
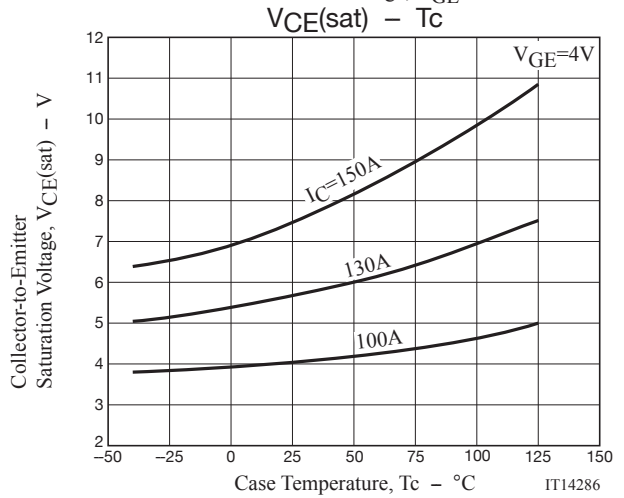
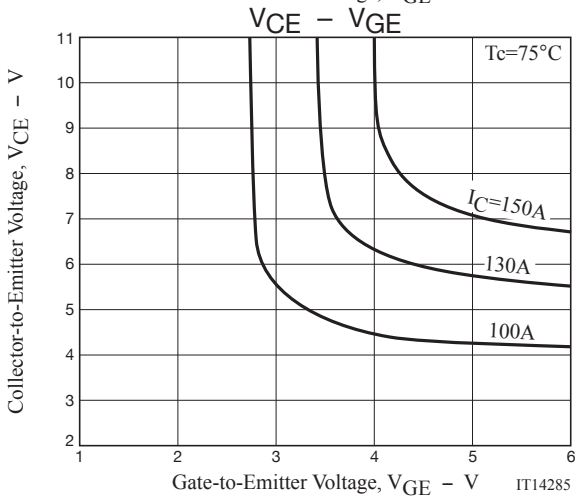
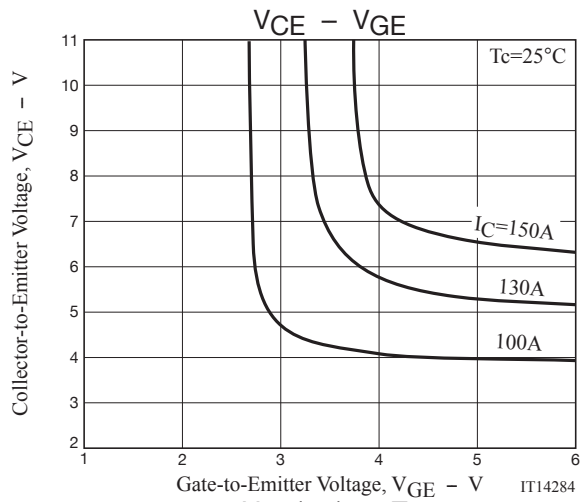
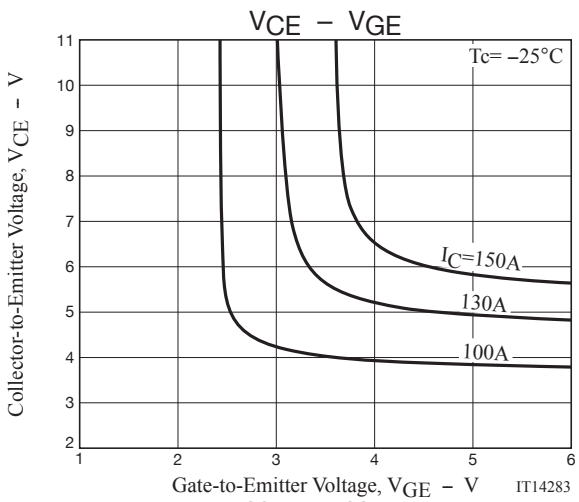
Note1. Gate Series Resistance  $R_G \geq 230\Omega$  is recommended for protection purpose at the time of turn OFF. However, if  $dv/dt \leq 400V/\mu s$  is satisfied at customer's actual set evaluation,  $R_G < 230\Omega$  can also be used.

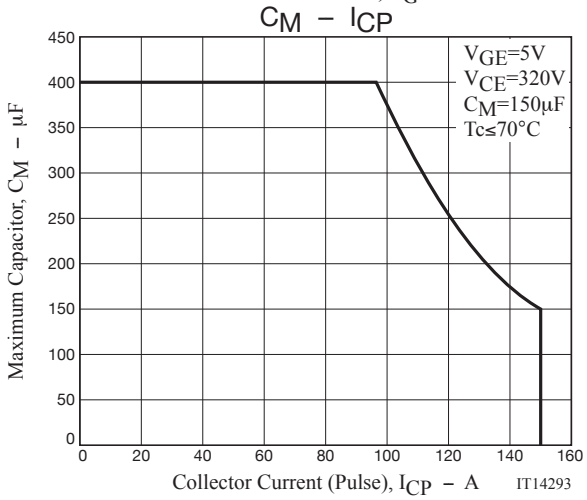
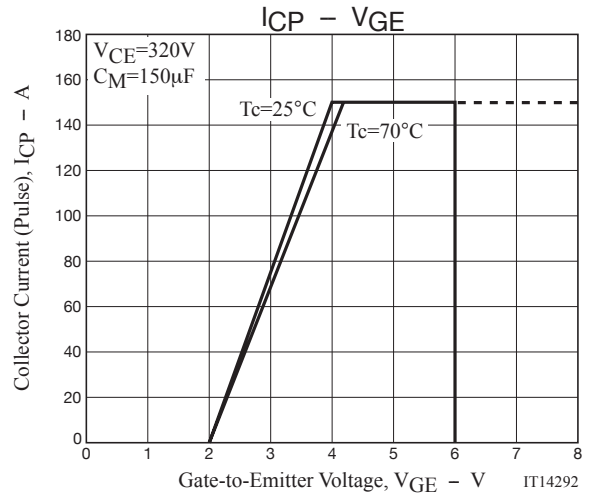
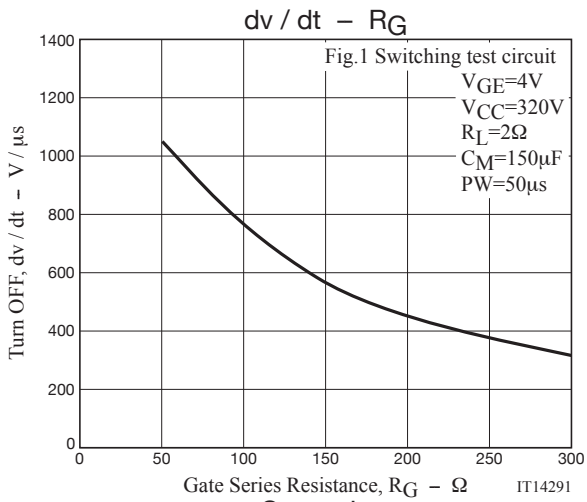
Note2. The collector voltage gradient  $dv/dt$  must be smaller than  $400V/\mu s$  to protect the device when it is turned off.

## Ordering Information

| Device        | Package | Shipping       | memo                     |
|---------------|---------|----------------|--------------------------|
| TIG058E8-TL-H | ECH8    | 3,000pcs./reel | Pb Free and Halogen Free |







Embossed Taping Specification

TIG058E8-TL-H

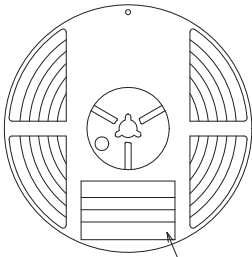
1. Packing Format

| 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<br>Dimensions:mm (external)<br>183×72×185 | 6 inner boxes contained<br>Dimensions:mm (external)<br>440×195×210 |

Reel label, Inner box label  
(unit :mm)

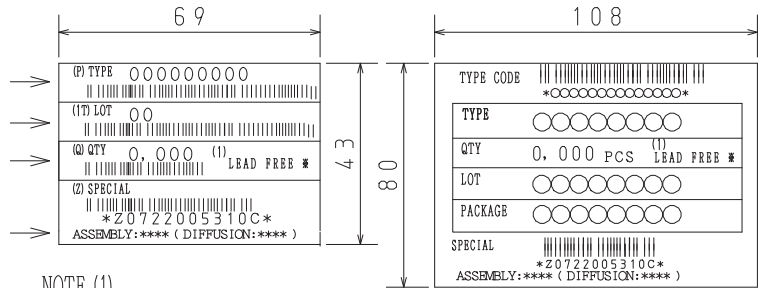
Outer box label  
It is a label at the time of factory shipments.  
The form of a label may change in physical distribution process.

Packing method



Reel label

Type No.  
LOT No.  
Quantity  
Origin



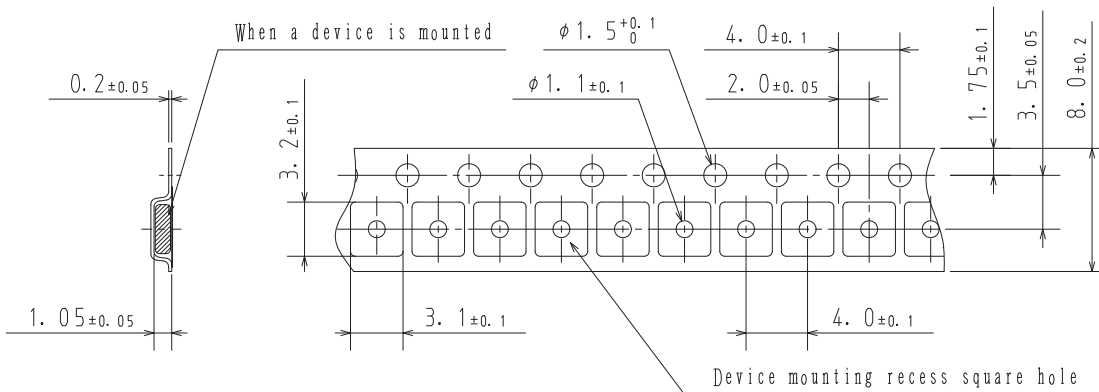
NOTE (1)

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

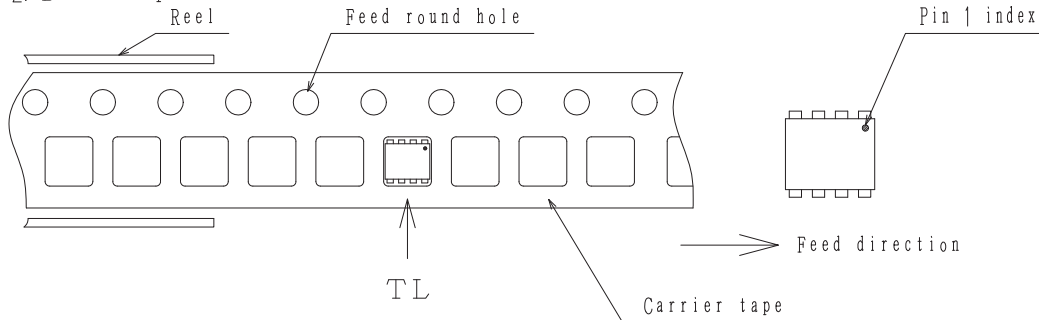
| Label       | JEITA Phase    |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3  |

2. Taping configuration

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



2-2. Device placement direction

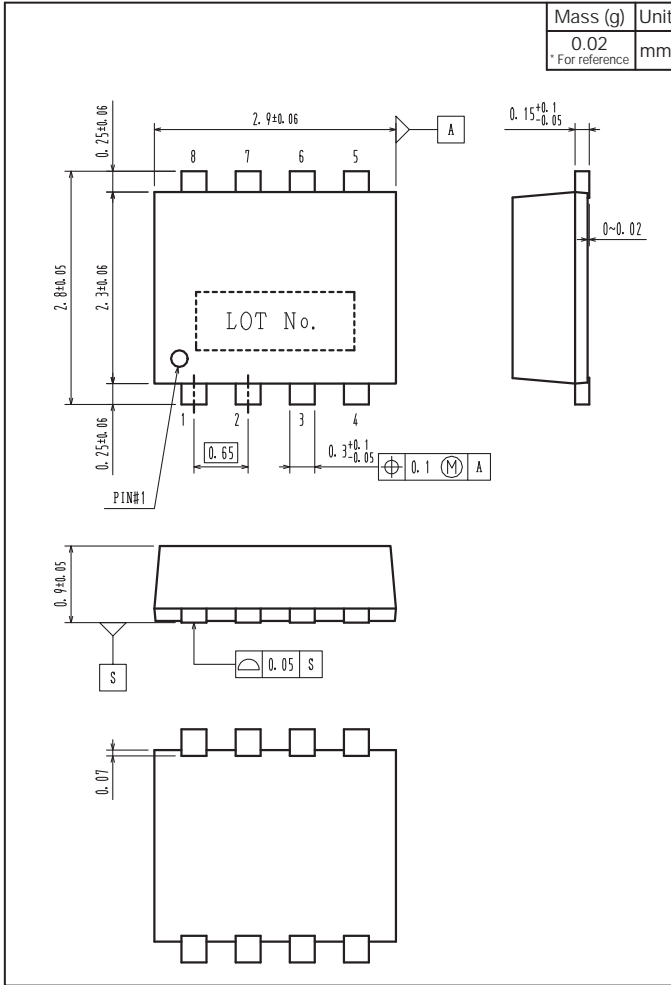


Those with pin 1 index on the feed hole side.....TL

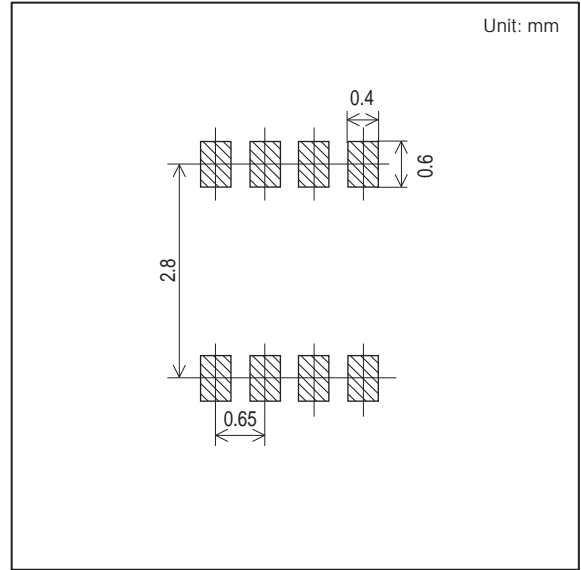
# TIG058E8

## Outline Drawing

TIG05E8-TL-H



## Land Pattern Example



Note : TIG058E8 has protection diode between gate and emitter but handling it requires sufficient care to be taken.

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