

TIG065E8 — N-Channel IGBT

Light-Controlling Flash Applications

Features

- Low-saturation voltage
- Enhancement type
- Mounting Height 0.9mm, Mounting Area 8.12mm²
- 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

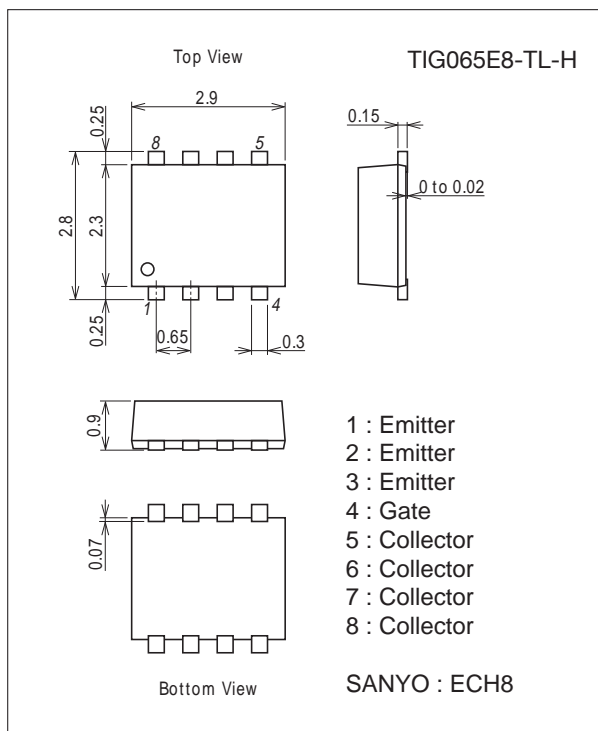
| Parameter | Symbol | Conditions | Ratings | Unit |
|--------------------------------------|------------------|---|-------------|--------|
| Collector-to-Emitter Voltage | V _{CES} | | 400 | V |
| Gate-to-Emitter Voltage (DC) | V _{GES} | | ±4 | V |
| Gate-to-Emitter Voltage (Pulse) | V _{GES} | PW≤1ms | ±5 | V |
| Collector Current (Pulse) | I _{CP} | V _{GE} =2.5V, C _M =100μF | 150 | A |
| Maximum Collector-to-Emitter dv / dt | dv / 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 |

* : Concerning dv / dt (slope of Collector Voltage at the time of Turn-OFF), will be 100% screen-detected in the circuit shown as Fig. 1.

Package Dimensions

unit : mm (typ)

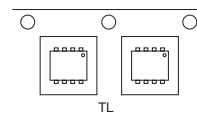
7011A-004



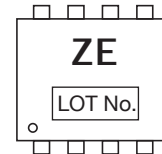
Product & Package Information

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

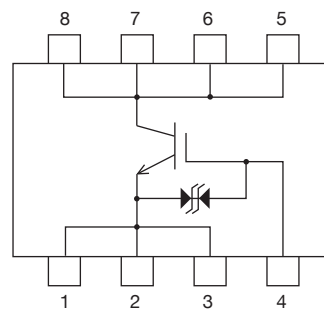
Packing Type: TL



Marking



Electrical Connection

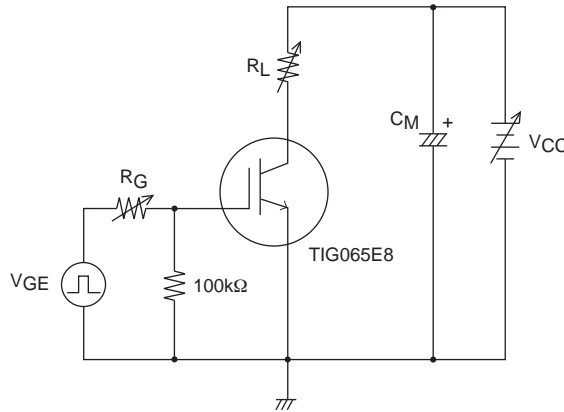


TIG065E8

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} | $V_{GE}=\pm 4V, V_{CE}=0V$ | | | ± 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 | C_{ies} | $V_{CE}=10V, f=1MHz$ | | 3100 | | pF | |
| Output Capacitance | C_{oes} | | | | 30 | | pF |
| Reverse Transfer Capacitance | C_{res} | | | | 23 | | pF |

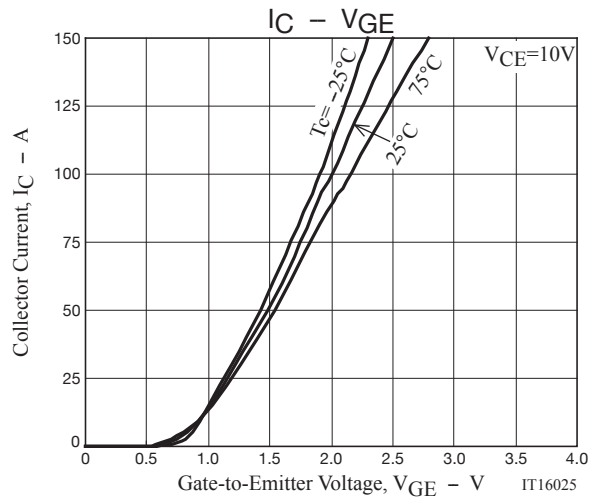
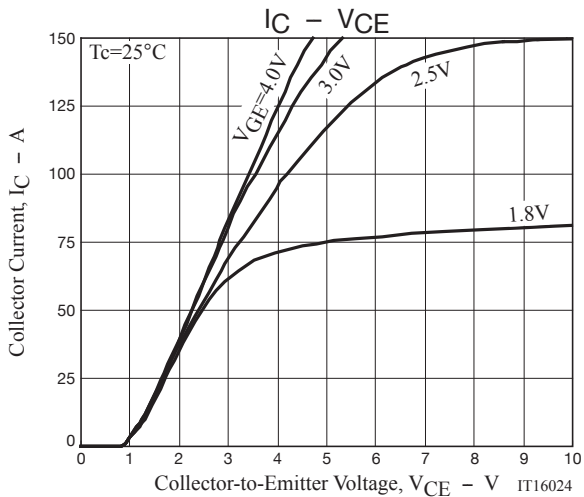
Fig.1 Large Current R Load Switching Circuit

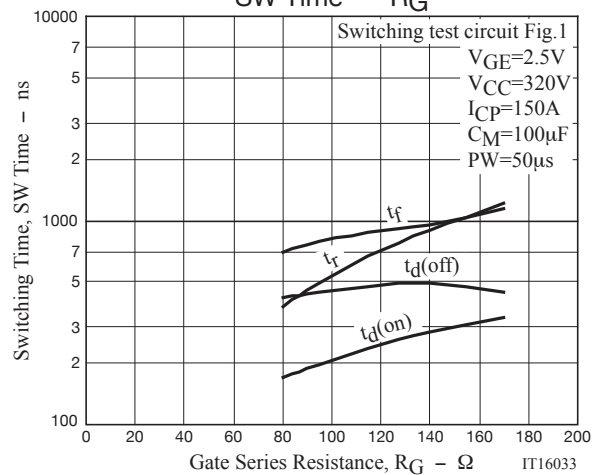
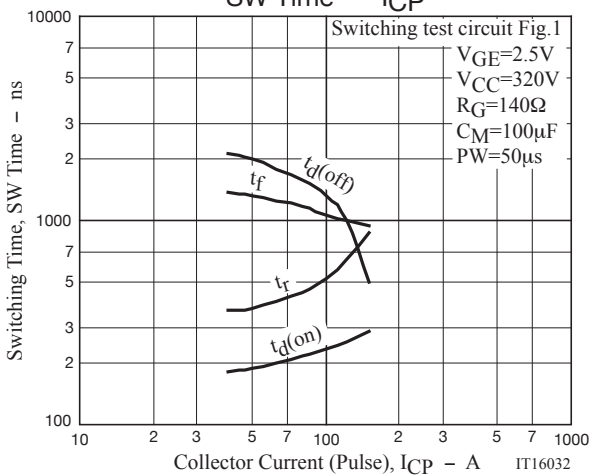
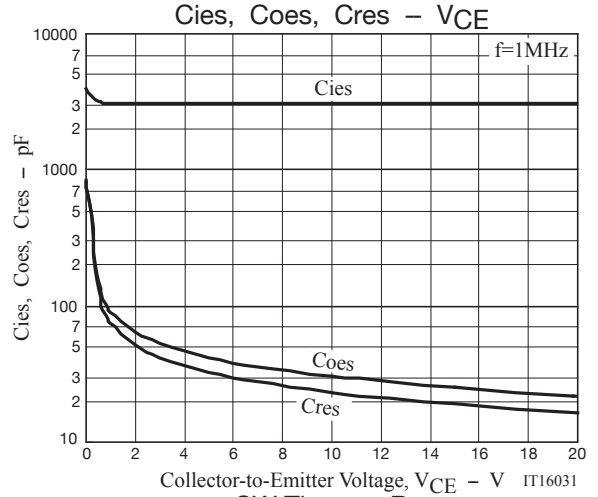
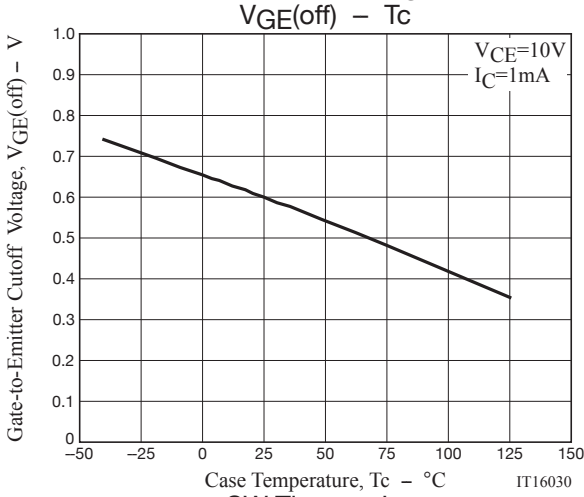
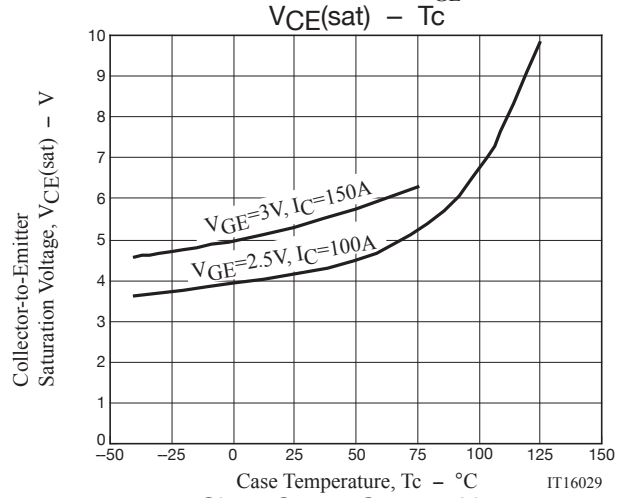
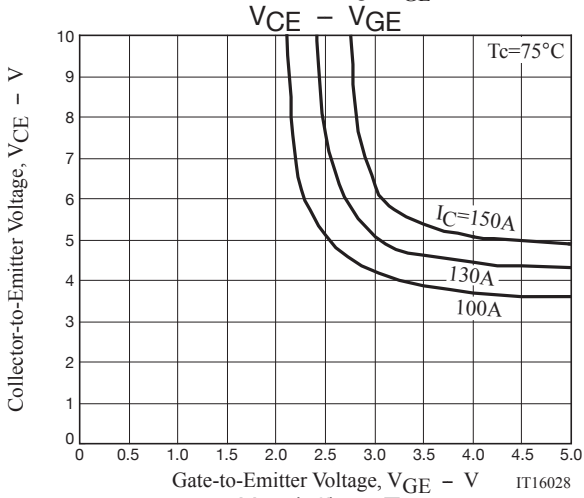
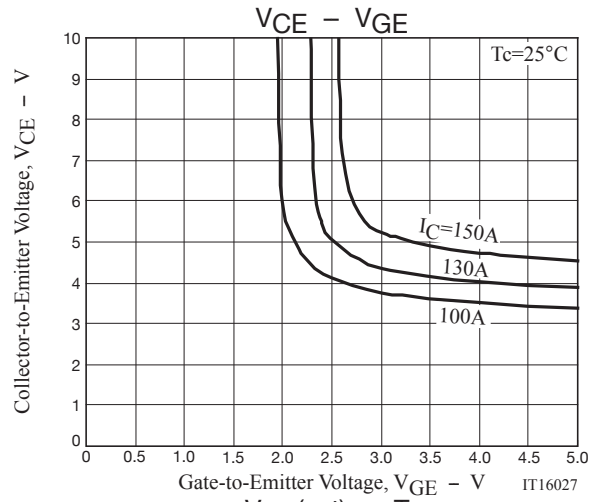
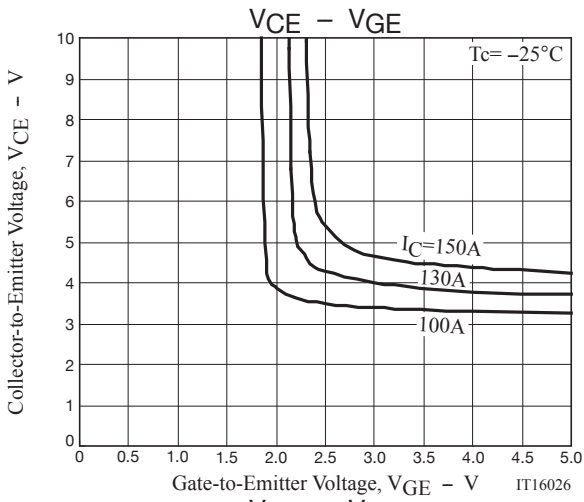


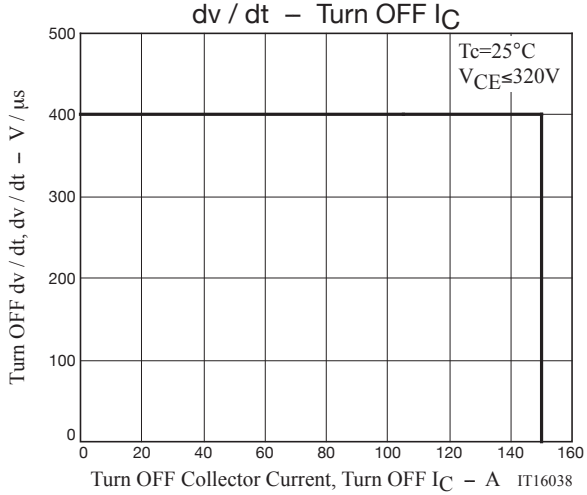
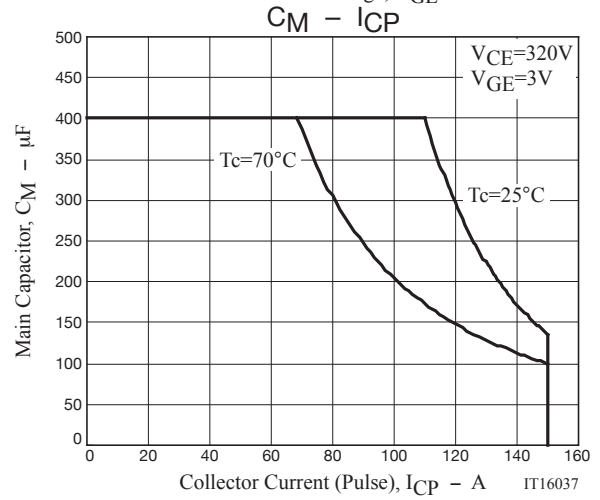
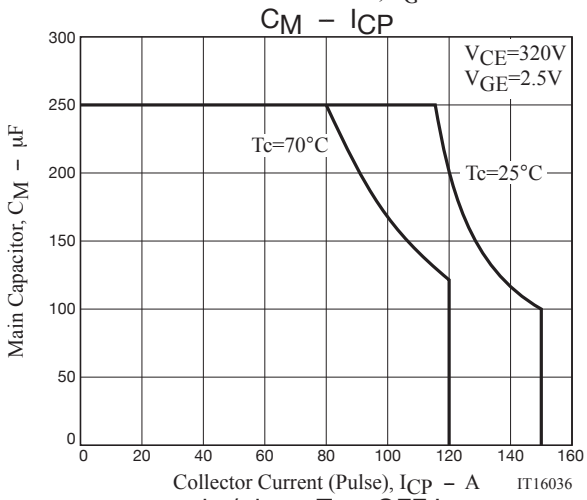
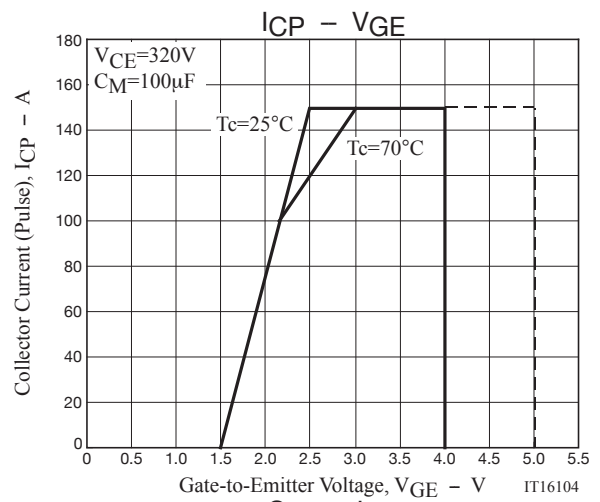
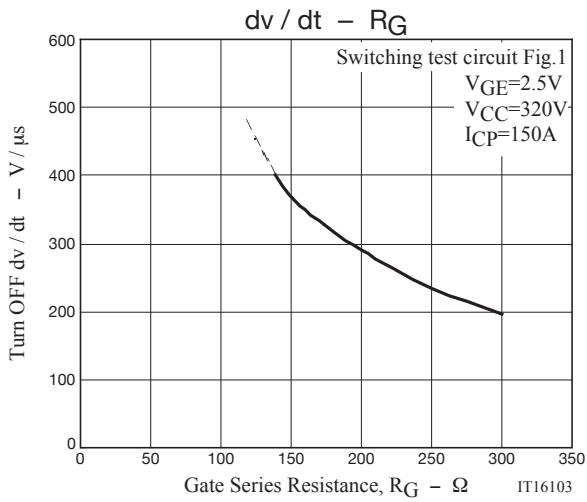
Note1. The collector voltage gradient dv / dt must be smaller than $400V / \mu s$ to protect the device of gate-series resistance R_G when it is turned off.

Ordering Information

| Device | Package | Shipping | memo |
|---------------|---------|----------------|--------------------------|
| TIG065E8-TL-H | ECH8 | 3,000pcs./reel | Pb Free and Halogen Free |





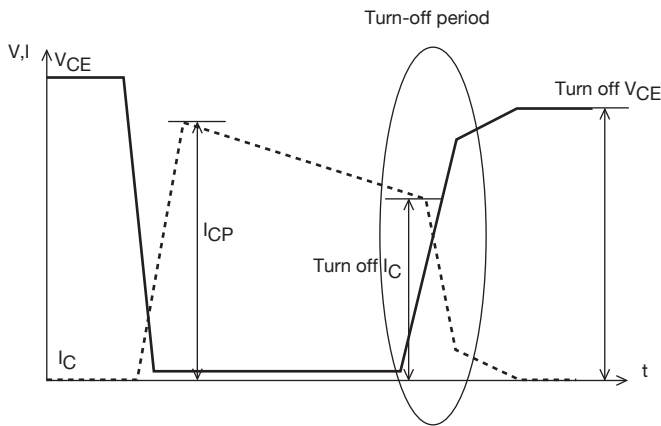


Definition of dv/dt

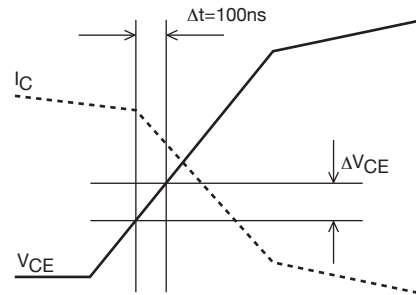
dv/dt is defined as the maximum slope of the below V_{CE} curve during turn-off period.

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

Overall waveform

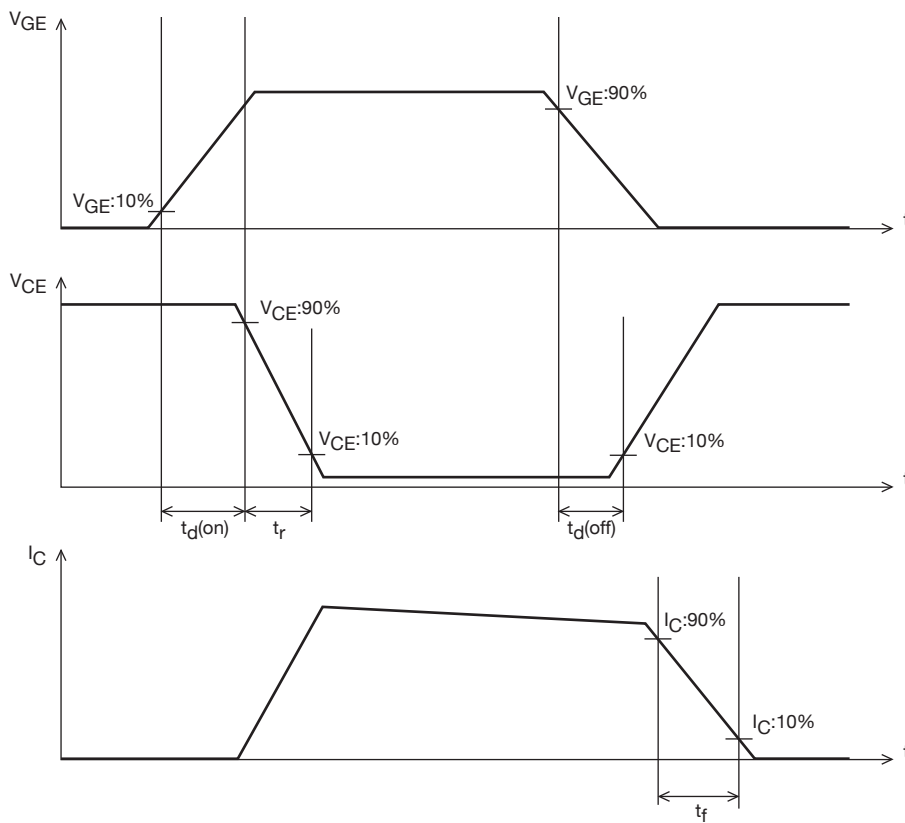


Enlarged picture of turn-off period



IT15323

Definition of Switching Time



IT15324

Embossed Taping Specification

TIG065E8-TL-H

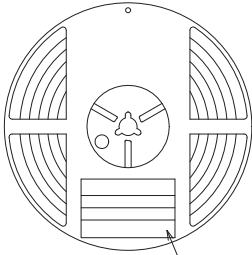
1. Packing Format

| 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 |

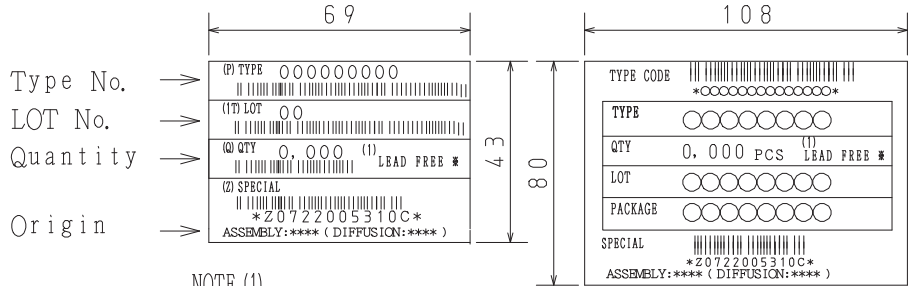
Reel label, Inner box label
(unit :mm)

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



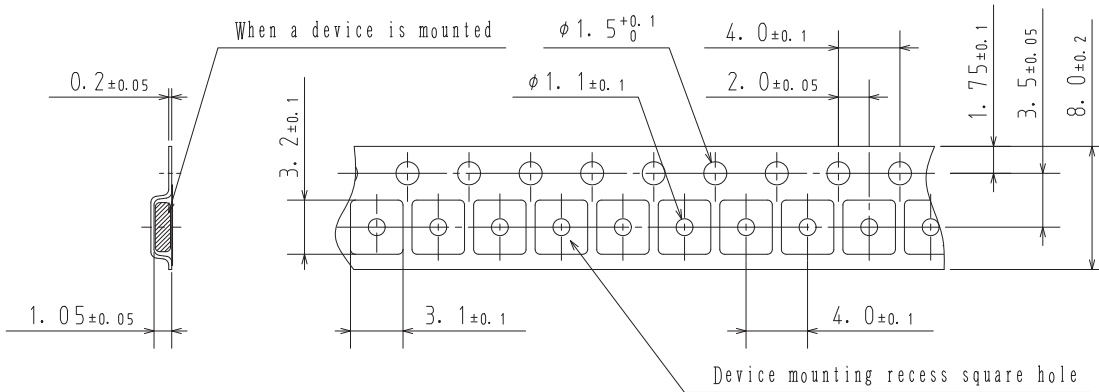
NOTE (1)

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

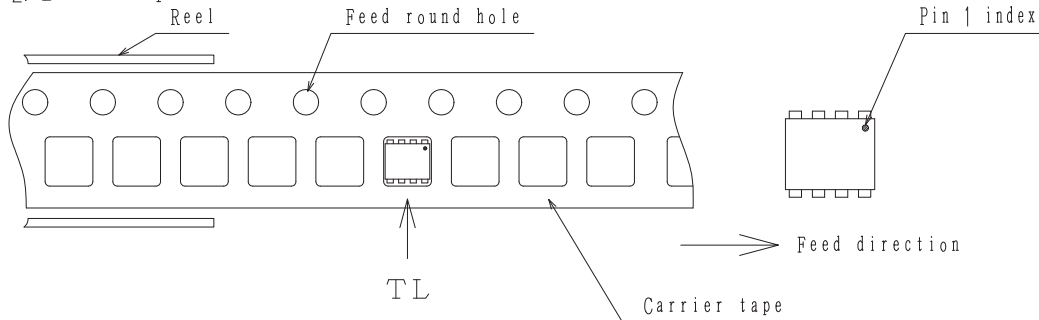
| Label | JEITA Phase |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3 |

2. Taping configuration

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



2-2. Device placement direction

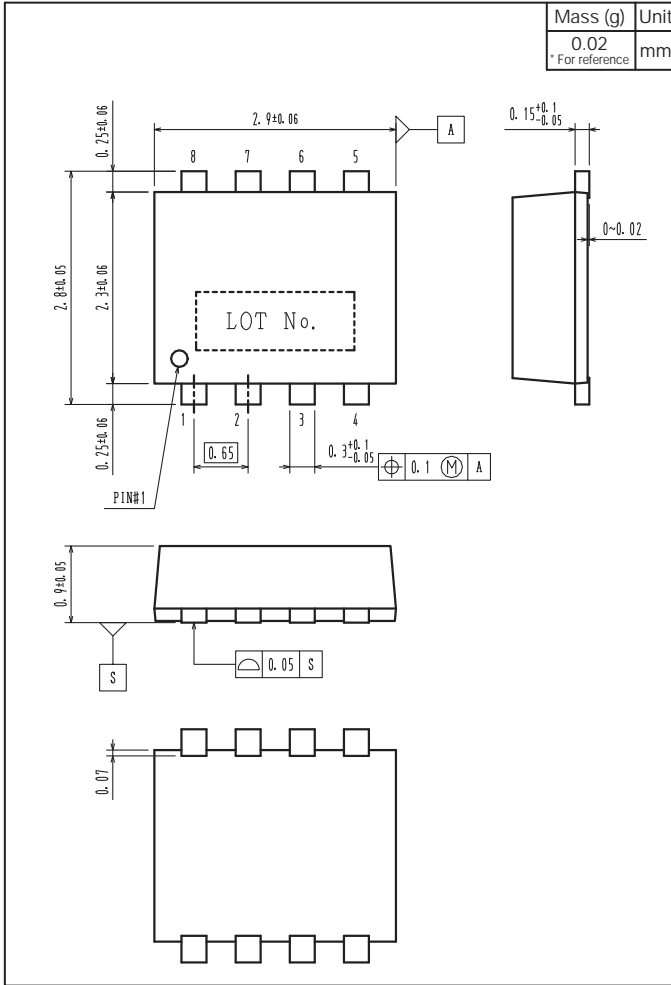


Those with pin 1 index on the feed hole side.....TL

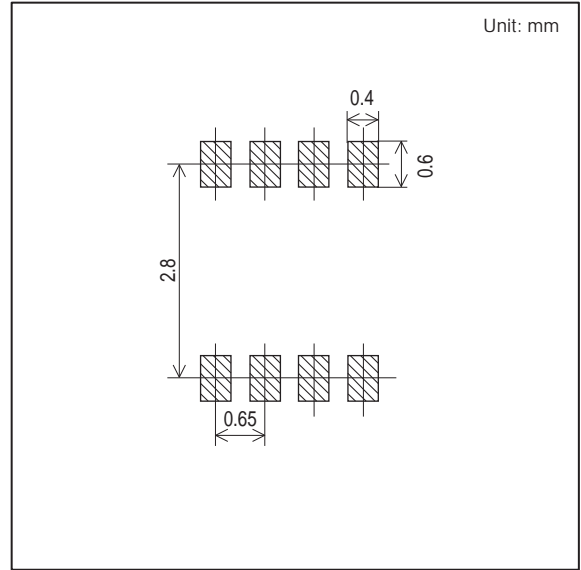
TIG065E8

Outline Drawing

TIG065E8-TL-H



Land Pattern Example



Note : TIG065E8 has protection diode between gate and emitter but handling it requires sufficient care to be taken.

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