



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## ECH8315 — P-Channel Silicon MOSFET — General-Purpose Switching Device Applications

### Features

- Low ON-resistance
- 4V drive
- Halogen free compliance
- Protection diode in

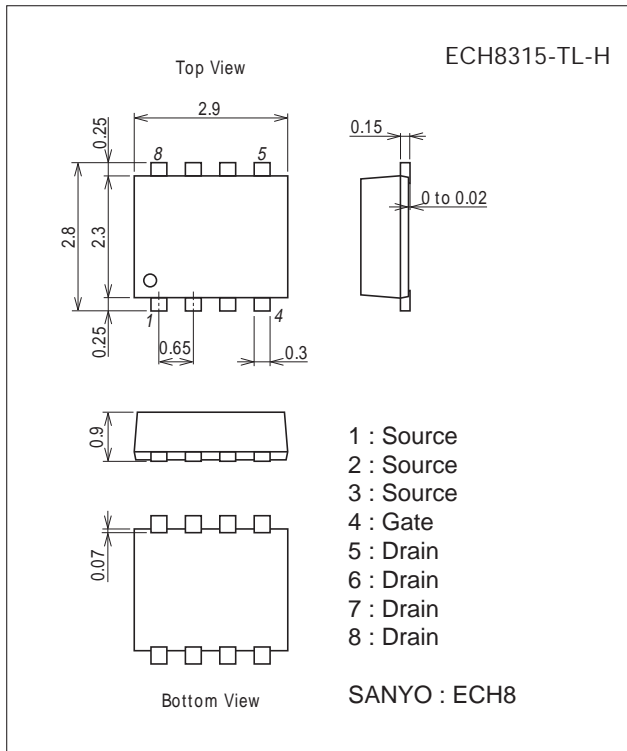
### Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter                   | Symbol           | Conditions  | Ratings     | Unit |
|-----------------------------|------------------|---|-------------|------|
| Drain-to-Source Voltage     | V <sub>DSS</sub> |   | -30         | V    |
| Gate-to-Source Voltage      | V <sub>GSS</sub> |   | ±20         | V    |
| Drain Current (DC)          | I <sub>D</sub>   |   | -7.5        | A    |
| Drain Current (Pulse)       | I <sub>DP</sub>  | PW≤10μs, duty cycle≤1%  | -40         | A    |
| Allowable Power Dissipation | P <sub>D</sub>   | When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm) | 1.5         | W    |
| Channel Temperature         | T <sub>ch</sub>  |   | 150         | °C   |
| Storage Temperature         | T <sub>stg</sub> |   | -55 to +150 | °C   |

### Package Dimensions

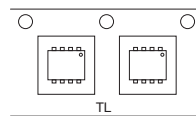
unit : mm (typ.)  
7011A-002



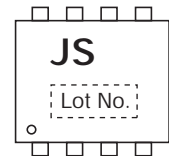
### Product & Package Information

- Package : ECH8
- JEITA, JEDEC : -
- Minimum Packing Quantity : 3,000 pcs./reel

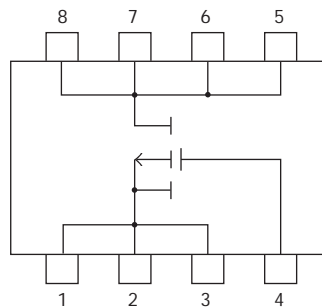
### Packing Type : TL



### Marking



### Electrical Connection

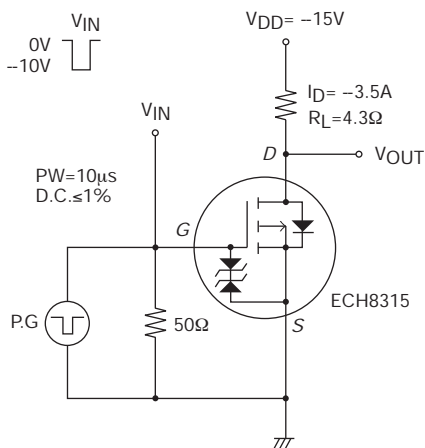


# ECH8315

## Electrical Characteristics at Ta=25°C

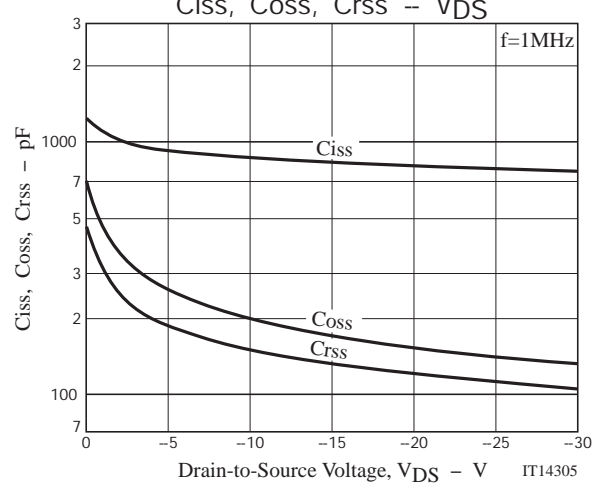
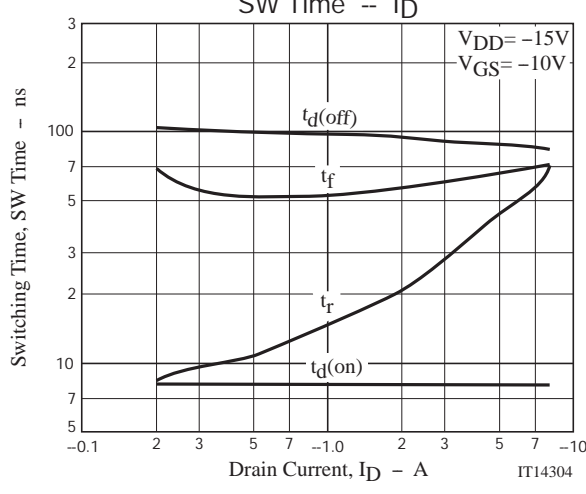
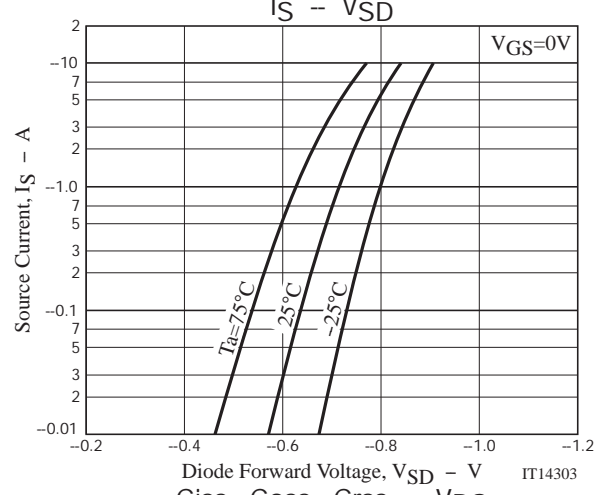
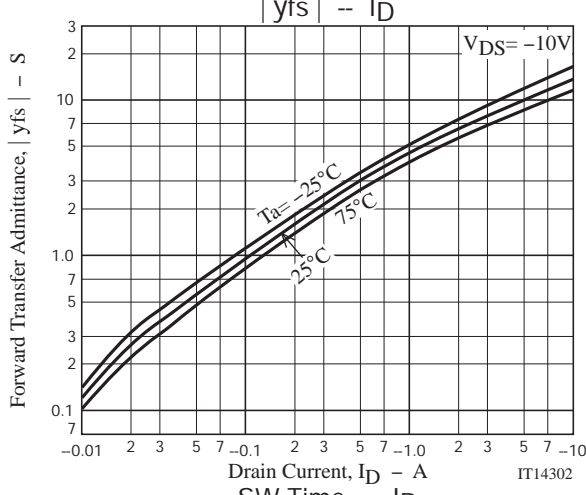
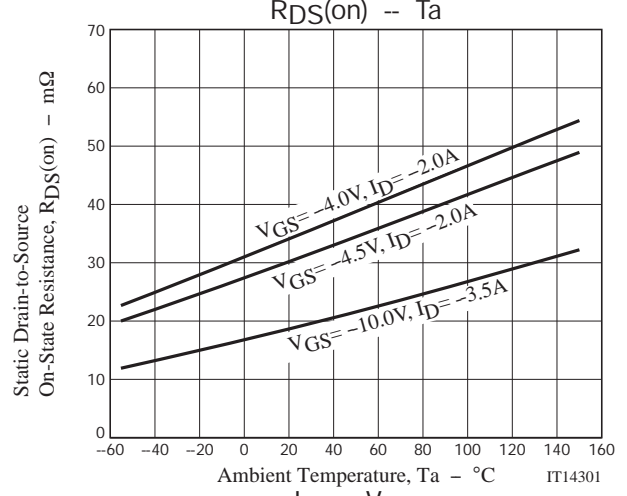
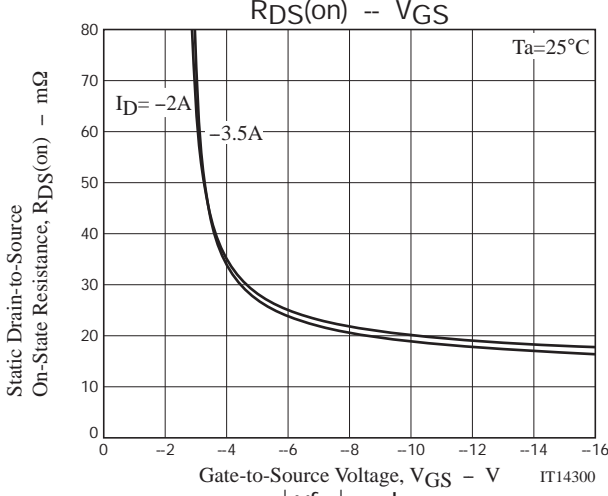
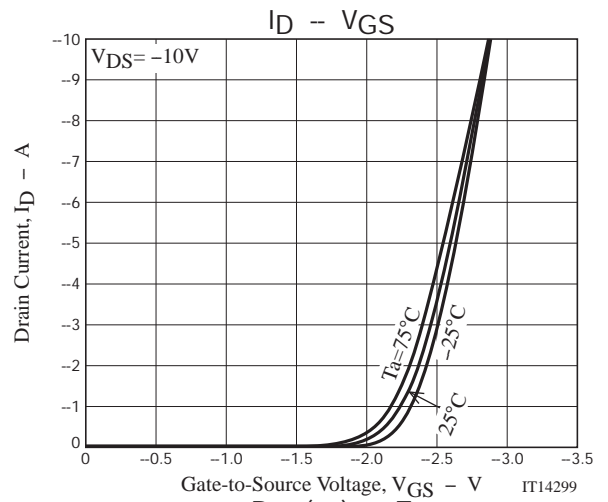
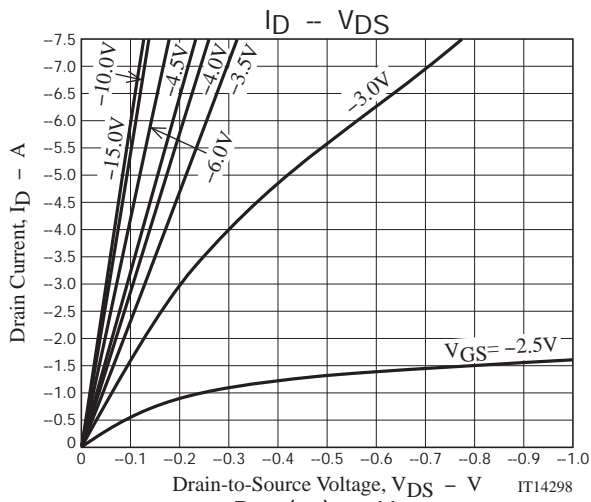
| Parameter                                  | Symbol               | Conditions  | Ratings                                    |      |       | Unit |
|--|----------------------|---|--|------|-------|------|
|  |                      |   | min.                                       | typ. | max.  |      |
| Drain-to-Source Breakdown Voltage          | V(BR)DSS             | I <sub>D</sub> =-1mA, V <sub>GS</sub> =0V                           | -30  |      |       | V    |
| Zero-Gate Voltage Drain Current            | I <sub>DSS</sub>     | V <sub>DS</sub> =-30V, V <sub>GS</sub> =0V                          |  |      | -1    | μA   |
| Gate-to-Source Leakage Current             | I <sub>GSS</sub>     | V <sub>GS</sub> =±16V, V <sub>DS</sub> =0V                          |  |      | ±10   | μA   |
| Cutoff Voltage                             | V <sub>GS(off)</sub> | V <sub>DS</sub> =-10V, I <sub>D</sub> =-1mA                         | -1.2                                       |      | -2.6  | V    |
| Forward Transfer Admittance                | y <sub>fs</sub>      | V <sub>DS</sub> =-10V, I <sub>D</sub> =-3.5A                        | 5  | 8.4  |       | S    |
| Static Drain-to-Source On-State Resistance | R <sub>DS(on)1</sub> | I <sub>D</sub> =-3.5A, V <sub>GS</sub> =-10V                        |  | 19   | 25    | mΩ   |
|  | R <sub>DS(on)2</sub> | I <sub>D</sub> =-2A, V <sub>GS</sub> =-4.5V                         |  | 31   | 44    | mΩ   |
|  | R <sub>DS(on)3</sub> | I <sub>D</sub> =-2A, V <sub>GS</sub> =-4V                           |  | 35   | 49    | mΩ   |
| Input Capacitance                          | C <sub>iss</sub>     | V <sub>DS</sub> =-10V, f=1MHz                                       |  | 875  |       | pF   |
| Output Capacitance                         | C <sub>oss</sub>     | V <sub>DS</sub> =-10V, f=1MHz                                       |  | 200  |       | pF   |
| Reverse Transfer Capacitance               | C <sub>rss</sub>     | V <sub>DS</sub> =-10V, f=1MHz                                       |  | 150  |       | pF   |
| Turn-ON Delay Time                         | t <sub>d(on)</sub>   | See specified Test Circuit.   |  | 8.1  |       | ns   |
| Rise Time                                  | t <sub>r</sub>       |   |  | 33   |       | ns   |
| Turn-OFF Delay Time                        | t <sub>d(off)</sub>  |   |  | 92   |       | ns   |
| Fall Time                                  | t <sub>f</sub>       |   |  | 60   |       | ns   |
| Total Gate Charge                          | Q <sub>g</sub>       |   |  |      | 18    |      |
| Gate-to-Source Charge                      | Q <sub>gs</sub>      | V <sub>DS</sub> =-15V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-7.5A |  | 2.1  |       | nC   |
| Gate-to-Drain "Miller" Charge              | Q <sub>gd</sub>      |   |  | 4.7  |       | nC   |
| Diode Forward Voltage                      | V <sub>SD</sub>      |   | I <sub>S</sub> =-7.5A, V <sub>GS</sub> =0V |      | -0.82 | -1.2 |

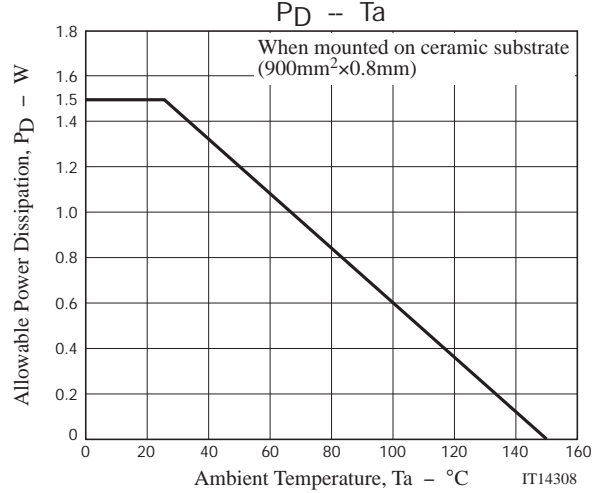
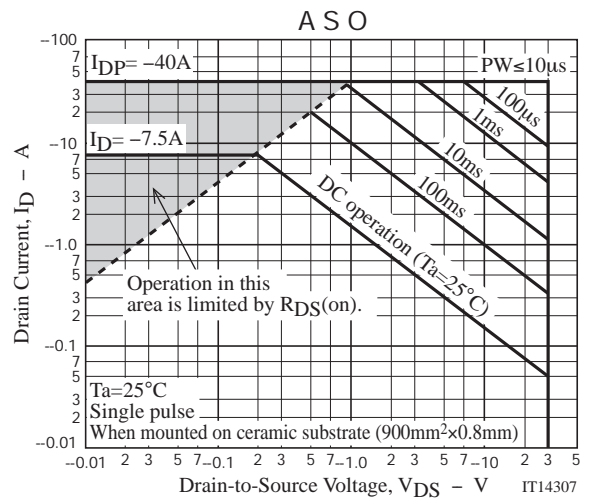
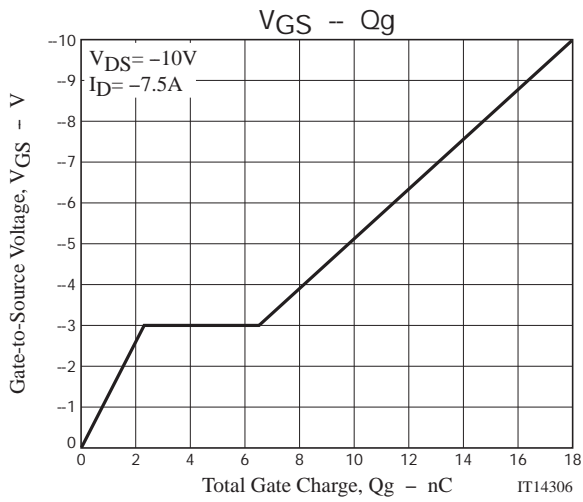
## Switching Time Test Circuit



## Ordering Information

| Device       | Package | Shipping       | memo                     |
|--------------|---------|----------------|--------------------------|
| ECH8315-TL-H | ECH8    | 3,000pcs./reel | Pb-Free and Halogen Free |





Embossed Taping Specification

ECH8315-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

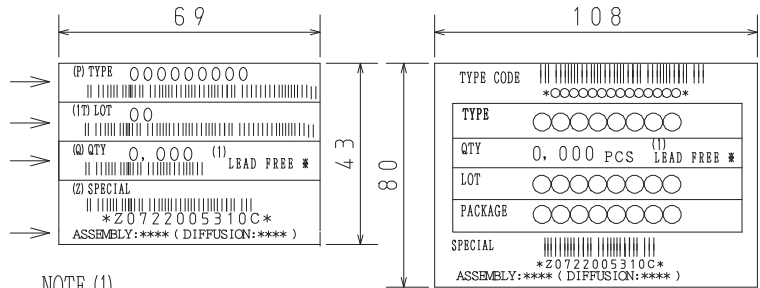
It is a label at the time of factory shipments.  
The form of a label may change in physical distribution process.

Packing method



Reel label

Type No.  
LOT No.  
Quantity  
Origin



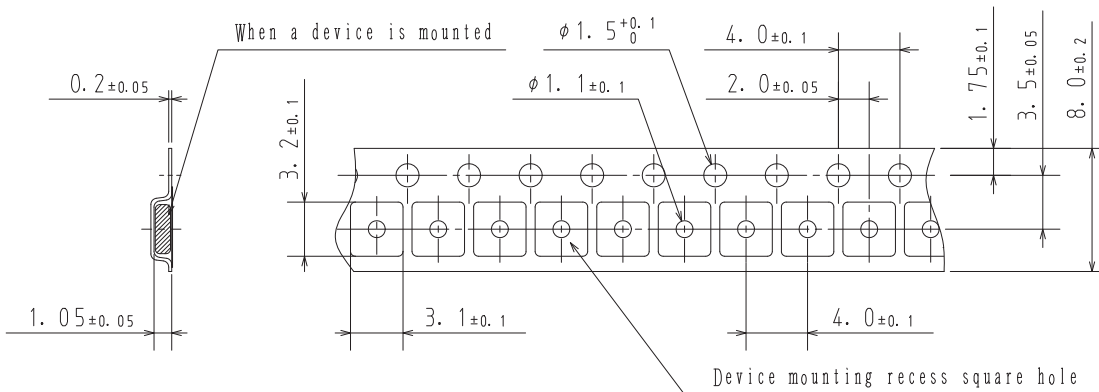
NOTE (1)

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

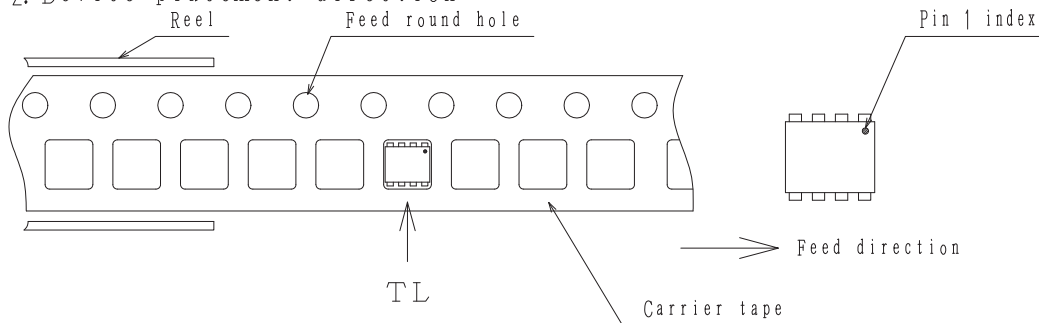
| Label       | JEITA Phase    |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3  |

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

# ECH8315

## Outline Drawing ECH8315-TL-H



## Land Pattern Example



Note on usage : Since the ECH8315 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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