



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

ECH8320 — P-Channel Silicon MOSFET General-Purpose Switching Device Applications

Features

- Low ON-resistance
- 1.8V drive
- Halogen free compliance
- Protection diode in

Specifications

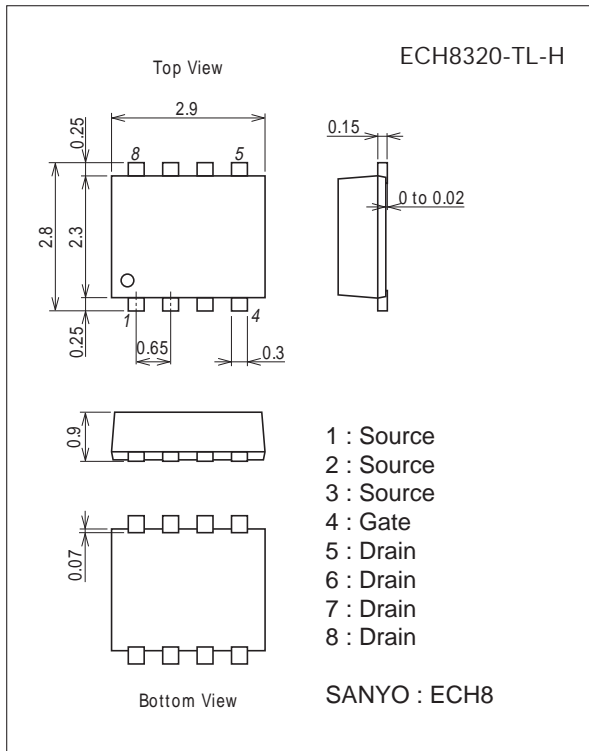
Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|------------------|---|-------------|------|
| Drain-to-Source Voltage | V _{DSS} | | -20 | V |
| Gate-to-Source Voltage | V _{GSS} | | ±10 | V |
| Drain Current (DC) | I _D | | -9.5 | A |
| Drain Current (Pulse) | I _{DP} | PW≤10μs, duty cycle≤1% | -40 | A |
| Allowable Power Dissipation | P _D | When mounted on ceramic substrate (900mm ² ×0.8mm) | 1.6 | W |
| Channel Temperature | T _{ch} | | 150 | °C |
| Storage Temperature | T _{stg} | | -55 to +150 | °C |

Package Dimensions

unit : mm (typ)

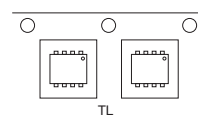
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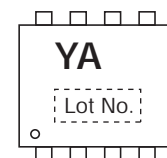
Product & Package Information

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

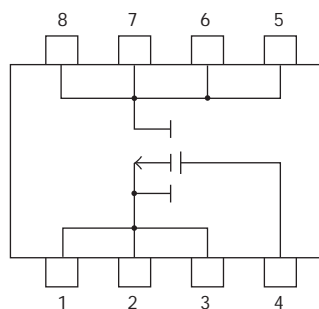
Packing Type : TL



Marking



Electrical Connection

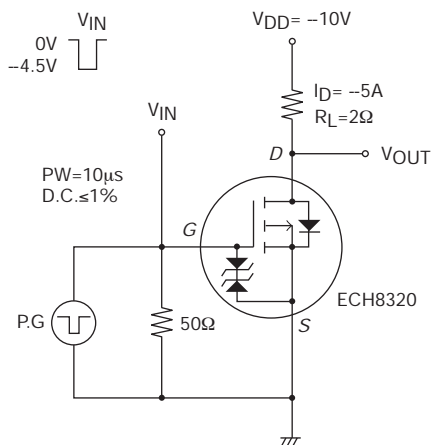


ECH8320

Electrical Characteristics at Ta=25°C

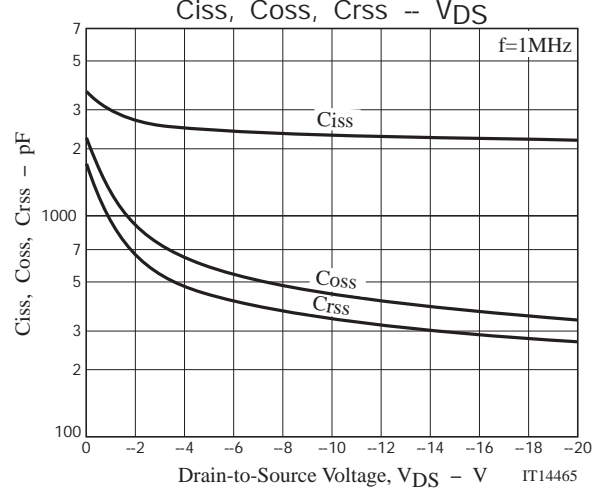
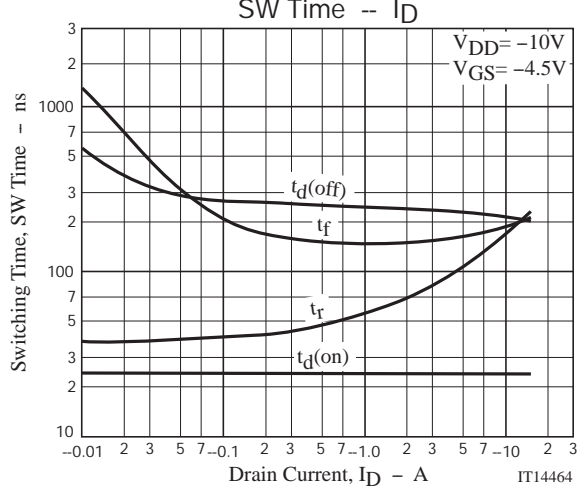
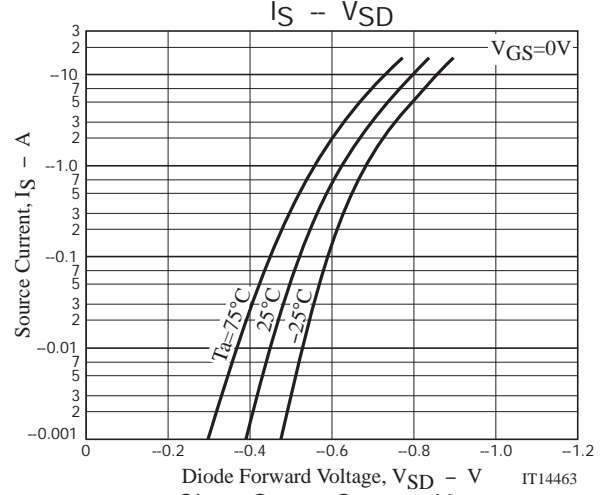
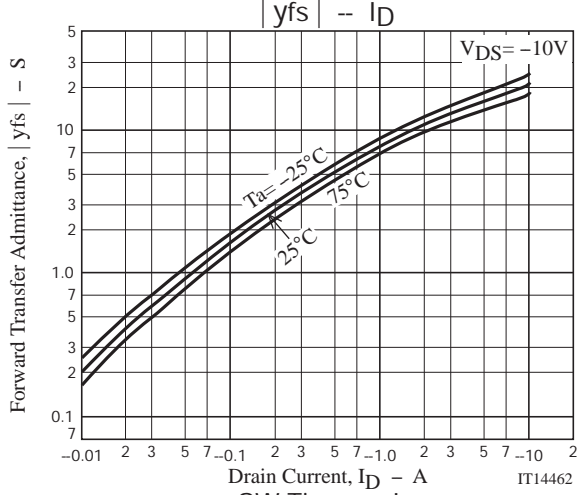
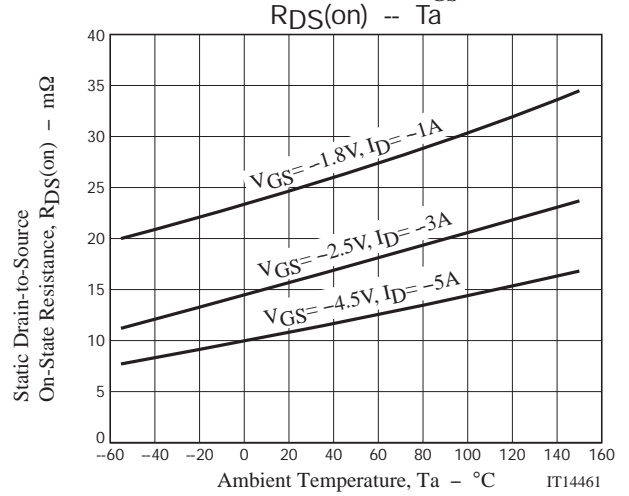
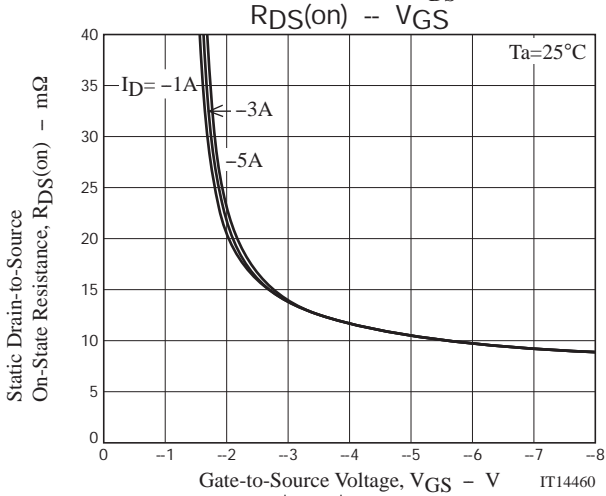
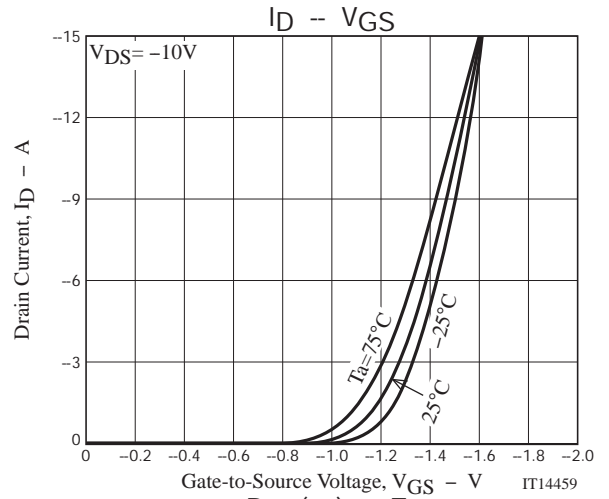
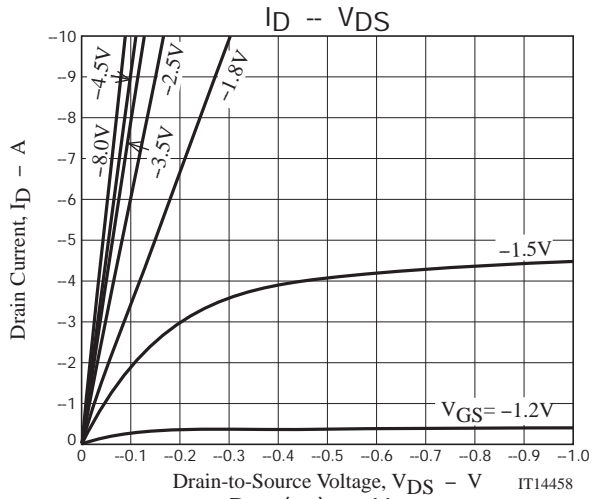
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|----------|-------------------------------|---------|-------|------|------|
| | | | min | typ | max | |
| Drain-to-Source Breakdown Voltage | V(BR)DSS | ID=-1mA, VGS=0V | -20 | | | V |
| Zero-Gate Voltage Drain Current | IDSS | VDS=-20V, VGS=0V | | | -1 | μA |
| Gate-to-Source Leakage Current | IGSS | VGS=±8V, VDS=0V | | | ±10 | μA |
| Cutoff Voltage | VGS(off) | VDS=-10V, ID=-1mA | -0.4 | | -1.3 | V |
| Forward Transfer Admittance | yfs | VDS=-10V, ID=-5A | | 16 | | S |
| Static Drain-to-Source On-State Resistance | RDS(on)1 | ID=-5A, VGS=-4.5V | | 11 | 14.5 | mΩ |
| | RDS(on)2 | ID=-3A, VGS=-2.5V | | 16 | 23 | mΩ |
| | RDS(on)3 | ID=-1A, VGS=-1.8V | | 25 | 39 | mΩ |
| Input Capacitance | Ciss | VDS=-10V, f=1MHz | | 2300 | | pF |
| Output Capacitance | Coss | VDS=-10V, f=1MHz | | 440 | | pF |
| Reverse Transfer Capacitance | Crss | VDS=-10V, f=1MHz | | 340 | | pF |
| Turn-ON Delay Time | td(on) | See specified Test Circuit. | | 24 | | ns |
| Rise Time | tr | See specified Test Circuit. | | 100 | | ns |
| Turn-OFF Delay Time | td(off) | See specified Test Circuit. | | 230 | | ns |
| Fall Time | tf | See specified Test Circuit. | | 163 | | ns |
| Total Gate Charge | Qg | VDS=-10V, VGS=-4.5V, ID=-9.5A | | 25 | | nC |
| Gate-to-Source Charge | Qgs | VDS=-10V, VGS=-4.5V, ID=-9.5A | | 3.6 | | nC |
| Gate-to-Drain "Miller" Charge | Qgd | VDS=-10V, VGS=-4.5V, ID=-9.5A | | 7.6 | | nC |
| Diode Forward Voltage | VSD | IS=-9.5A, VGS=0V | | -0.79 | -1.2 | V |

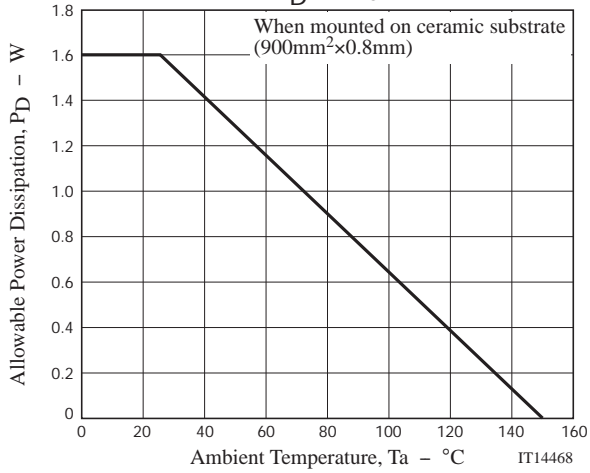
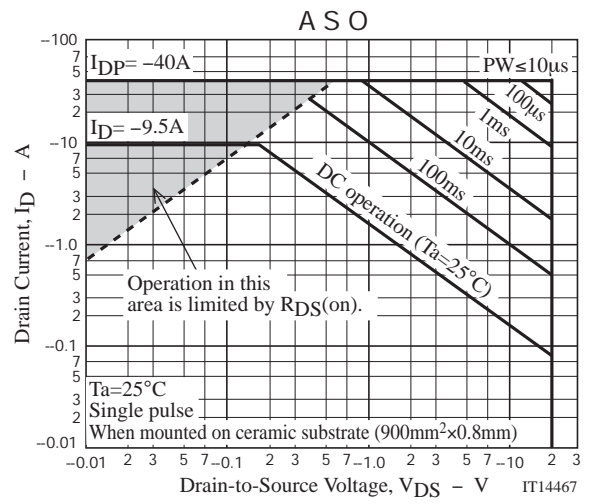
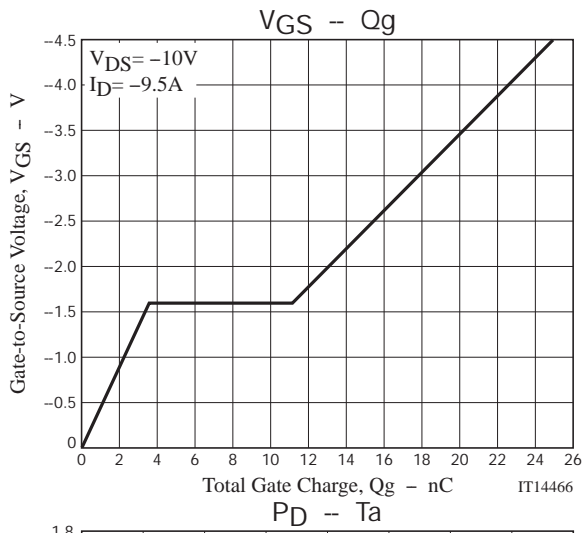
Switching Time Test Circuit



Ordering Information

| Device | Package | Shipping | memo |
|--------------|---------|----------------|--------------------------|
| ECH8320-TL-H | ECH8 | 3,000pcs./reel | Pb Free and Halogen Free |





Embossed Taping Specification

ECH8320-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)

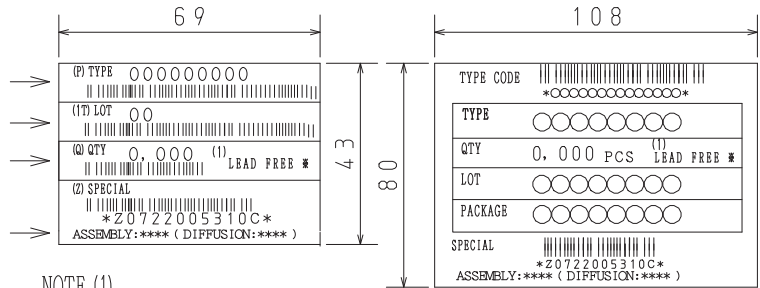
Outer box label
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.

Packing method



Reel label

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)



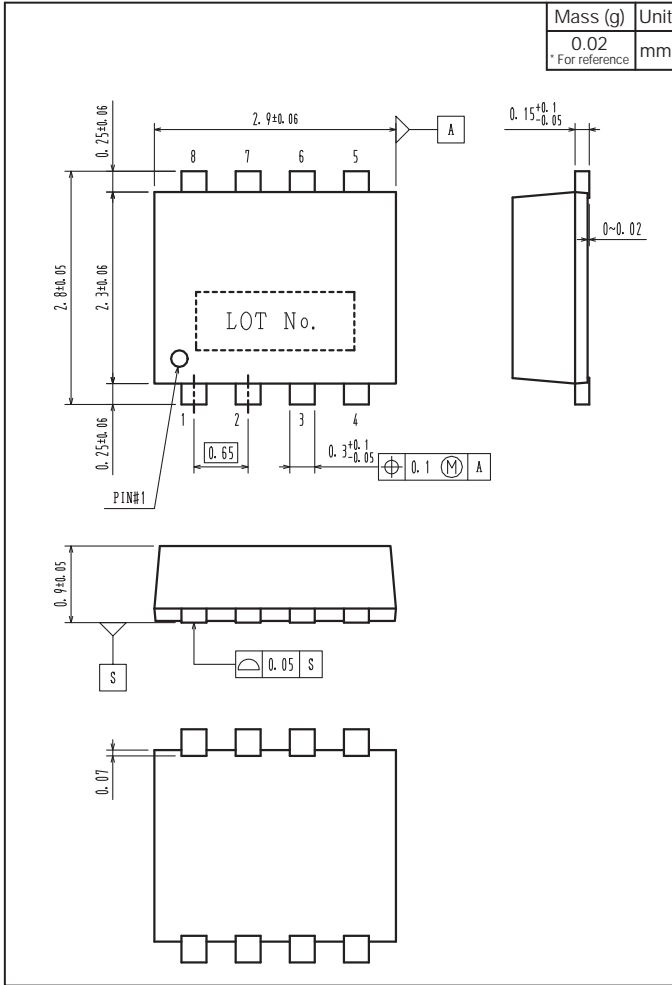
2-2. Device placement direction



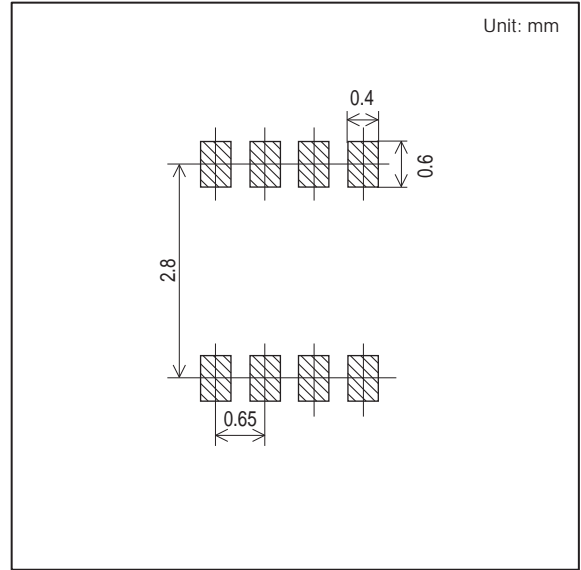
Those with pin 1 index on the feed hole side.....TL

ECH8320

Outline Drawing ECH8320-TL-H



Land Pattern Example



Note on usage : Since the ECH8320 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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