



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## MCH3474 — N-Channel Silicon MOSFET — General-Purpose Switching Device Applications

### Features

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

### Specifications

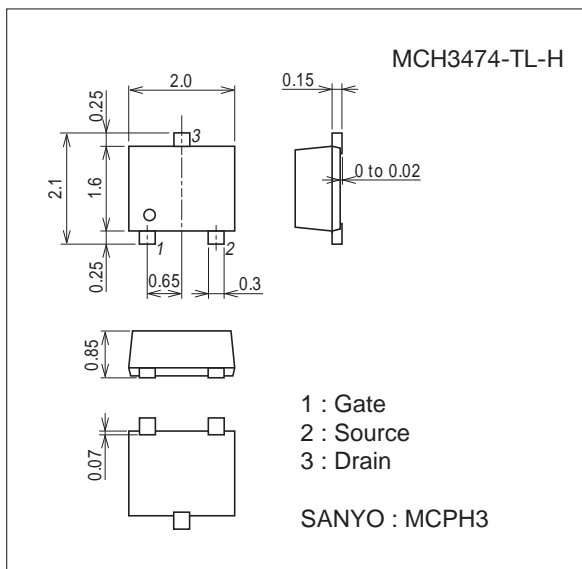
**Absolute Maximum Ratings** at Ta=25°C

| Parameter                   | Symbol           | Conditions  | Ratings     | Unit |
|-----------------------------|------------------|---|-------------|------|
| Drain-to-Source Voltage     | V <sub>DSS</sub> |   | 30          | V    |
| Gate-to-Source Voltage      | V <sub>GSS</sub> |   | ±12         | V    |
| Drain Current (DC)          | I <sub>D</sub>   |   | 4           | A    |
| Drain Current (Pulse)       | I <sub>DP</sub>  | PW≤10μs, duty cycle≤1%  | 16          | A    |
| Allowable Power Dissipation | P <sub>D</sub>   | When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm) | 1           | W    |
| Channel Temperature         | T <sub>ch</sub>  |   | 150         | °C   |
| Storage Temperature         | T <sub>stg</sub> |   | -55 to +150 | °C   |

### Package Dimensions

unit : mm (typ)

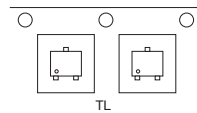
7019A-003



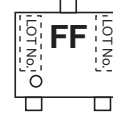
### Product & Package Information

- Package : MCPH3
- JEITA, JEDEC : SC-70, SOT-323
- Minimum Packing Quantity : 3,000 pcs./reel

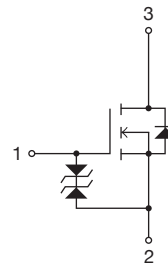
### Packing Type : TL



### Marking



### Electrical Connection

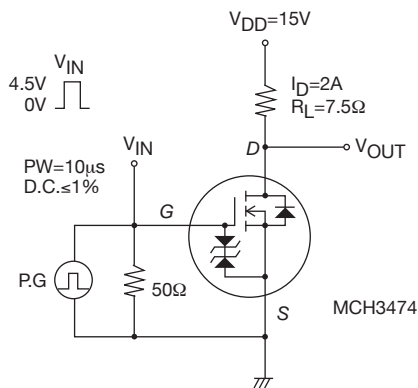


# MCH3474

## Electrical Characteristics at $T_a=25^\circ\text{C}$

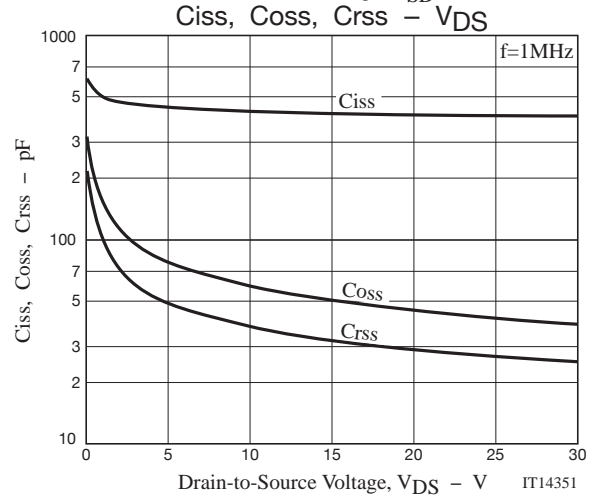
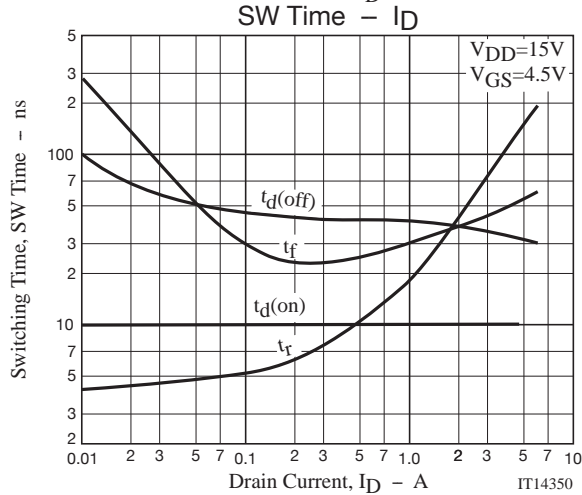
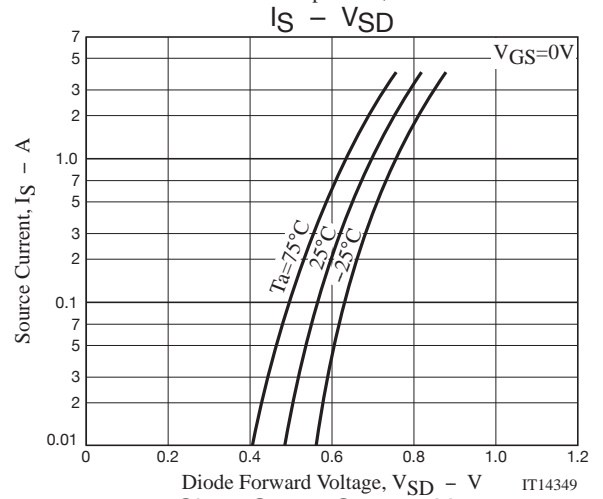
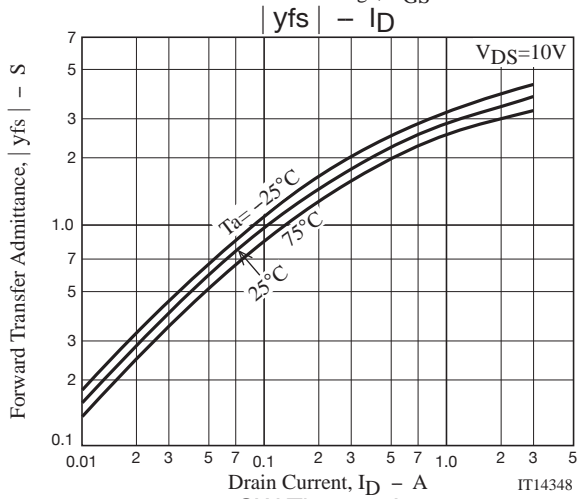
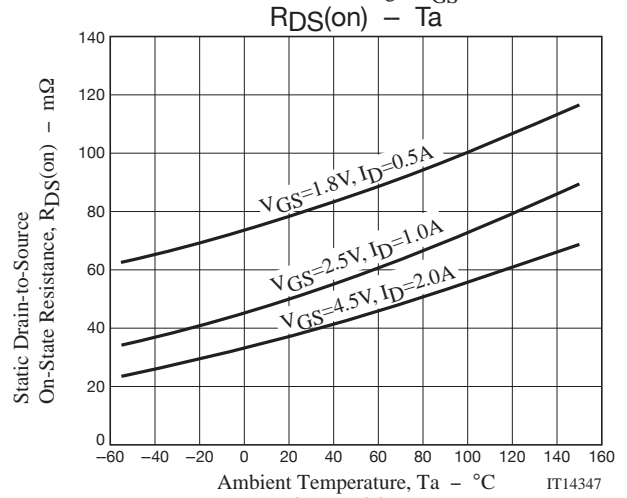
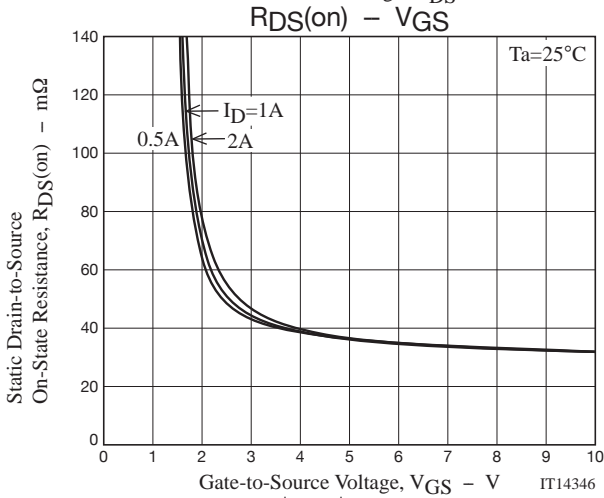
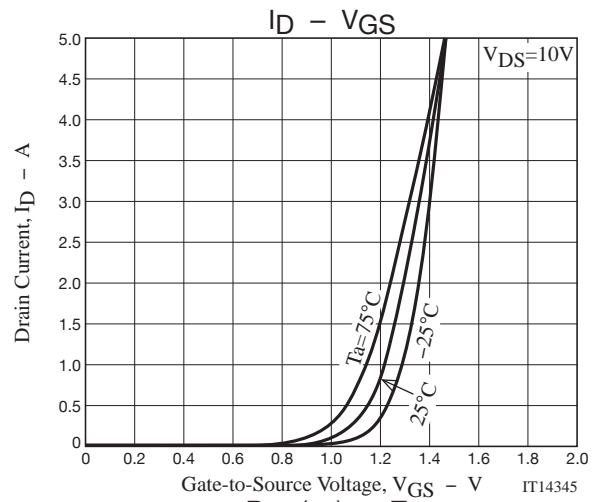
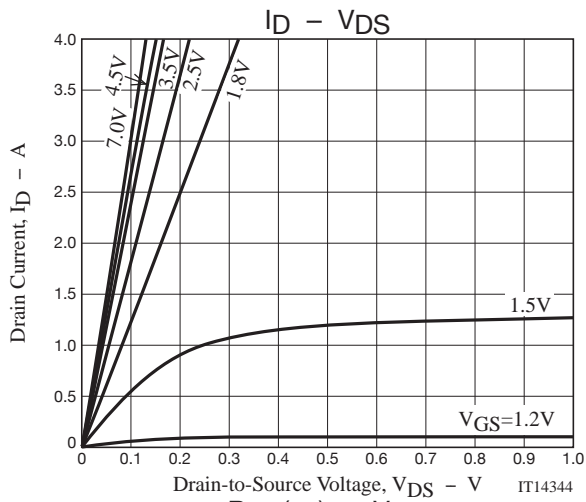
| Parameter                                  | Symbol        | Conditions   | Ratings |      |          | Unit             |
|--|---------------|--|---------|------|----------|------------------|
|  |               |  | min     | typ  | max      |                  |
| Drain-to-Source Breakdown Voltage          | $V_{(BR)DSS}$ | $I_D=1\text{mA}, V_{GS}=0\text{V}$                     | 30      |      |          | V                |
| Zero-Gate Voltage Drain Current            | $I_{DSS}$     | $V_{DS}=30\text{V}, V_{GS}=0\text{V}$                  |         |      | 1        | $\mu\text{A}$    |
| Gate-to-Source Leakage Current             | $I_{GSS}$     | $V_{GS}=\pm 8\text{V}, V_{DS}=0\text{V}$               |         |      | $\pm 10$ | $\mu\text{A}$    |
| Cutoff Voltage                             | $V_{GS(off)}$ | $V_{DS}=10\text{V}, I_D=1\text{mA}$                    | 0.4     |      | 1.3      | V                |
| Forward Transfer Admittance                | $ y_{fs} $    | $V_{DS}=10\text{V}, I_D=2\text{A}$                     | 2.0     | 3.4  |          | S                |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D=2\text{A}, V_{GS}=4.5\text{V}$                    |         | 38   | 50       | $\text{m}\Omega$ |
|  | $R_{DS(on)2}$ | $I_D=1\text{A}, V_{GS}=2.5\text{V}$                    |         | 51   | 72       | $\text{m}\Omega$ |
|  | $R_{DS(on)3}$ | $I_D=0.5\text{A}, V_{GS}=1.8\text{V}$                  |         | 80   | 130      | $\text{m}\Omega$ |
| Input Capacitance                          | $C_{iss}$     |  |         | 430  |          | pF               |
| Output Capacitance                         | $C_{oss}$     | $V_{DS}=10\text{V}, f=1\text{MHz}$                     |         | 59   |          | pF               |
| Reverse Transfer Capacitance               | $C_{rss}$     |  |         | 38   |          | pF               |
| Turn-ON Delay Time                         | $t_{d(on)}$   | See specified Test Circuit.                            |         | 10   |          | ns               |
| Rise Time                                  | $t_r$         |  |         | 41   |          | ns               |
| Turn-OFF Delay Time                        | $t_{d(off)}$  |  |         | 36   |          | ns               |
| Fall Time                                  | $t_f$         |  |         | 37   |          | ns               |
| Total Gate Charge                          | $Q_g$         |  |         |      | 4.7      |                  |
| Gate-to-Source Charge                      | $Q_{gs}$      | $V_{DS}=15\text{V}, V_{GS}=4.5\text{V}, I_D=4\text{A}$ |         | 0.8  |          | nC               |
| Gate-to-Drain "Miller" Charge              | $Q_{gd}$      |  |         | 1.1  |          | nC               |
| Diode Forward Voltage                      | $V_{SD}$      | $I_S=4\text{A}, V_{GS}=0\text{V}$                      |         | 0.82 | 1.2      | V                |

## Switching Time Test Circuit

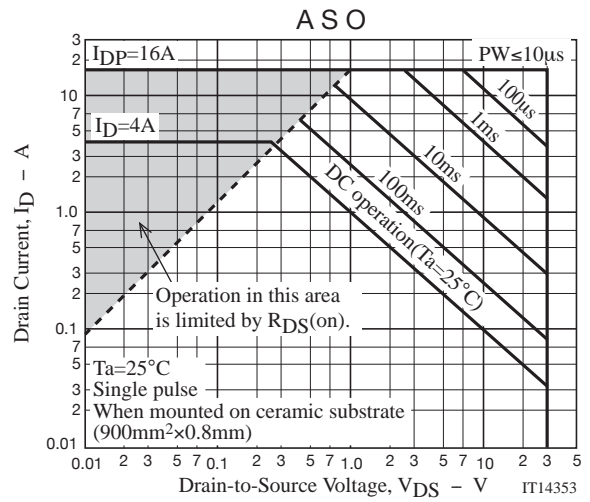
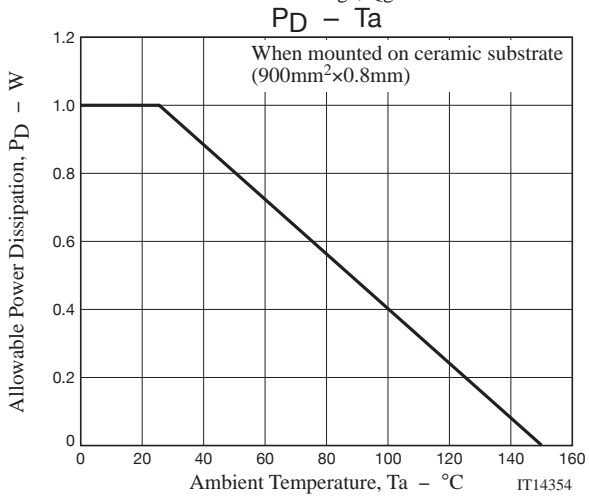
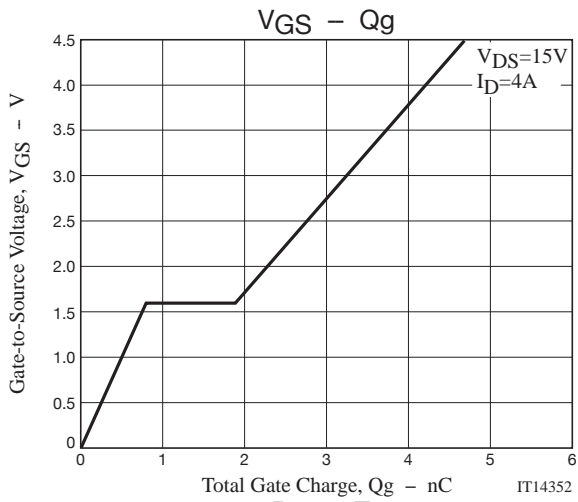


## Ordering Information

| Device       | Package | Shipping       | memo                     |
|--------------|---------|----------------|--------------------------|
| MCH3474-TL-H | MCPH3   | 3,000pcs./reel | Pb Free and Halogen Free |



# MCH3474



# MCH3474

## Taping Specification

MCH3474-TL-H

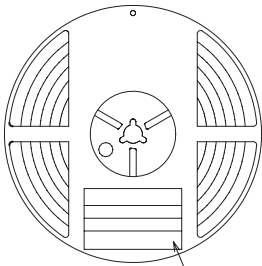
### 1. Packing Format

| 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)  |
| MCPH3        | MCPH3             | 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)

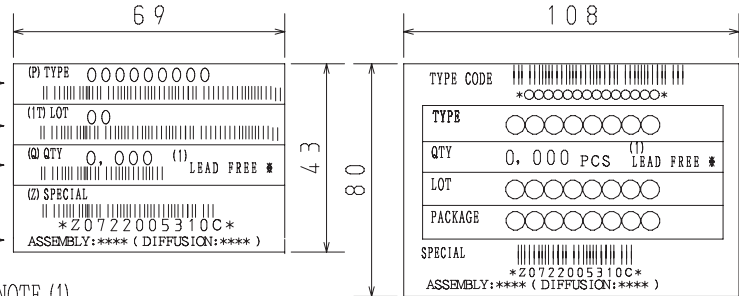
Outer box label  
It is a label at the time of factory shipments.  
The form of a label may change in physical distribution process.

#### Packing method



Type No.  
LOT No.  
Quantity  
Origin

Reel label



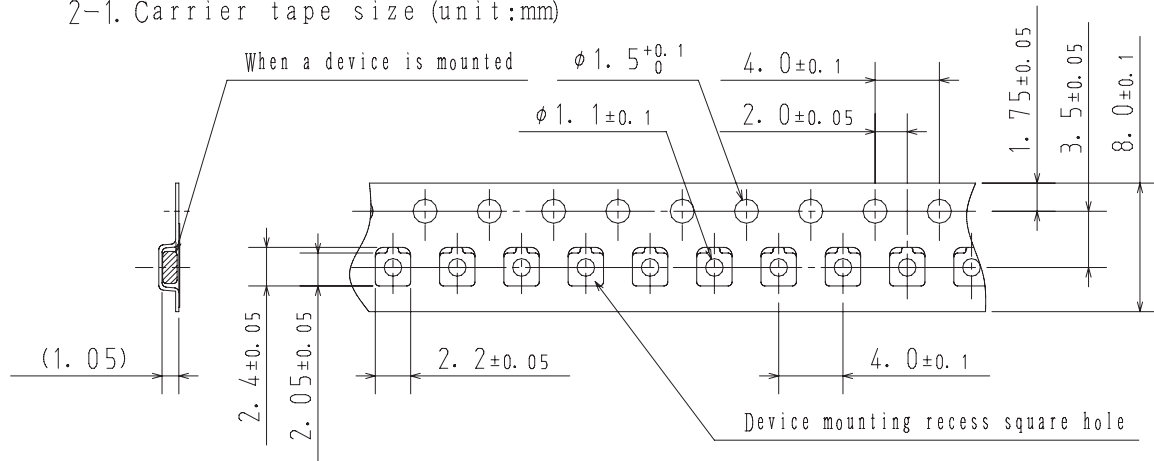
#### NOTE (1)

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

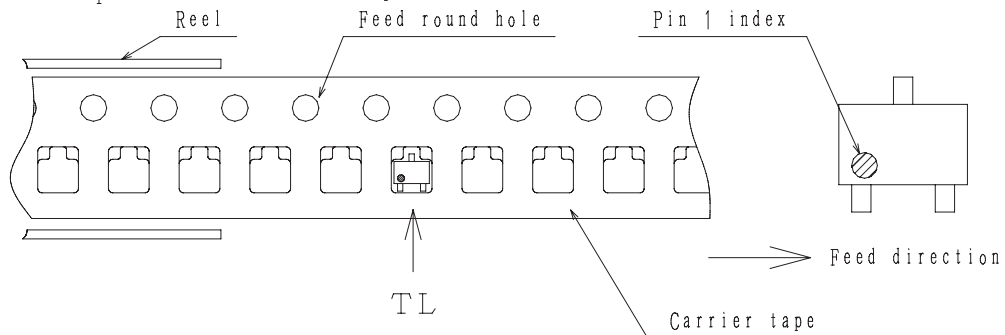
| Label       | JEITA Phase    |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3  |

### 2. Taping configuration

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



#### 2-2. Device placement direction

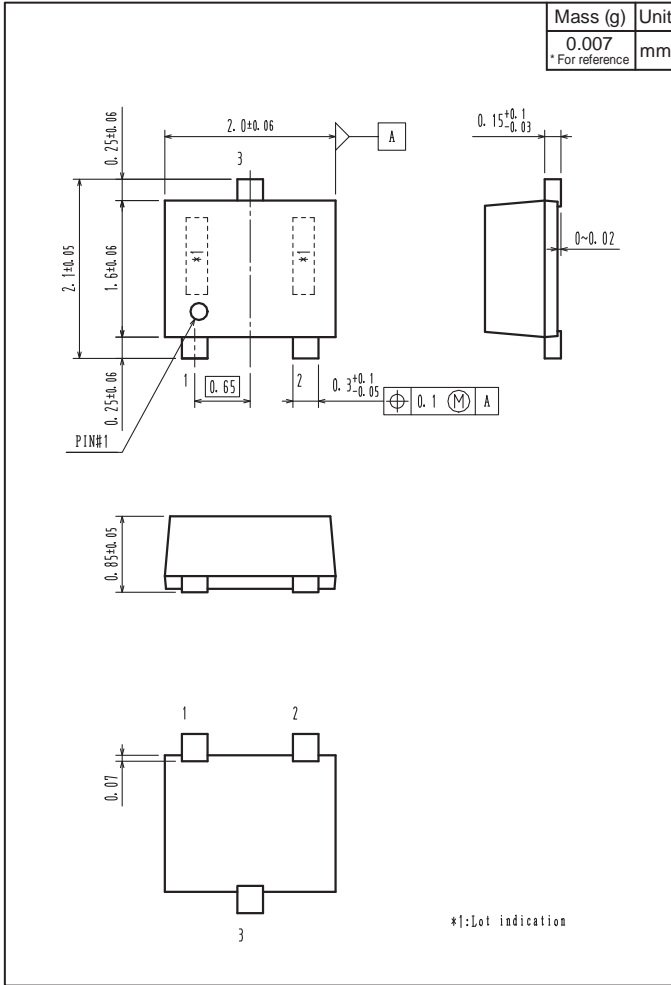


Those with pin 1 index on the feed hole side.....TL

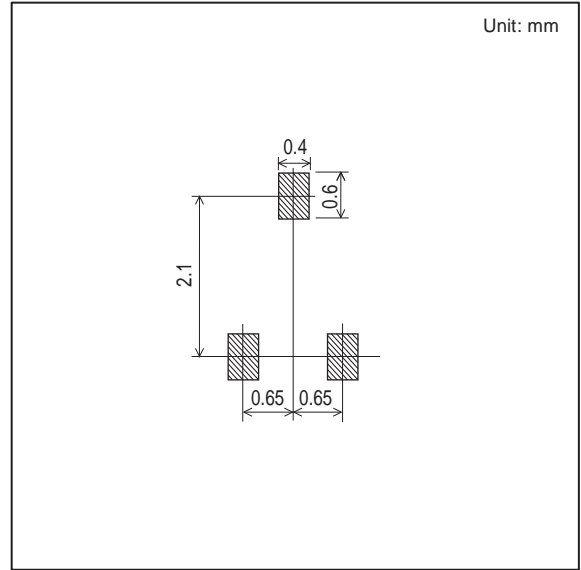
# MCH3474

## Outline Drawing

MCH3474-TL-H



## Land Pattern Example



Note on usage : Since the MCH3474 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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