



# FW217A

## N-Channel Power MOSFET 35V, 6A, 39mΩ, Dual SOIC8

**ON Semiconductor®**
<http://onsemi.com>

### Features

- On-state resistance  $R_{DS(on)1}=30m\Omega$  (typ.)
- 4.5V drive
- Halogen free compliance
- Protection Diode in

### Specifications

#### Absolute Maximum Ratings at $T_a=25^\circ C$

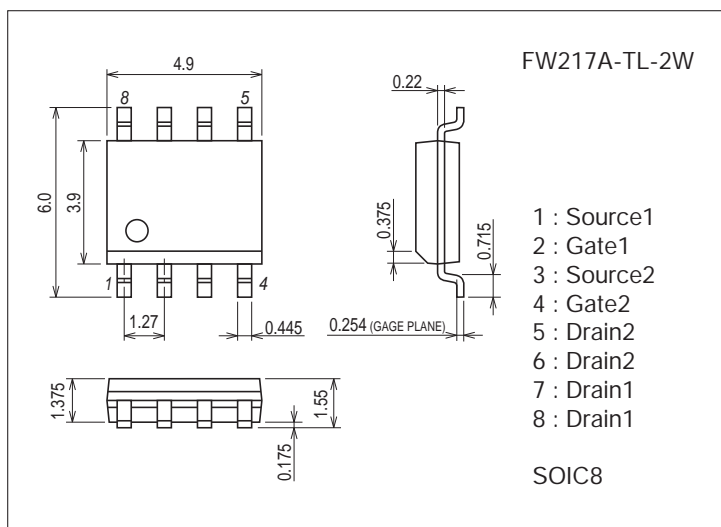
| Parameter                           | Symbol    | Conditions   | Ratings     | Unit       |
|-------------------------------------|-----------|--|-------------|------------|
| Drain-to-Source Voltage             | $V_{DSS}$ |  | 35          | V          |
| Gate-to-Source Voltage              | $V_{GSS}$ |  | $\pm 20$    | V          |
| Drain Current (DC)                  | $I_D$     |  | 6           | A          |
| Drain Current ( $PW \leq 10s$ )     | $I_{DP}$  | Duty cycle $\leq 1\%$  | 6.5         | A          |
| Drain Current ( $PW \leq 10\mu s$ ) | $I_{DP}$  | Duty cycle $\leq 1\%$  | 24          | A          |
| Allowable Power Dissipation         | $P_D$     | When mounted on ceramic substrate (2000mm <sup>2</sup> x 0.8mm) 1unit, $PW \leq 10s$ | 1.8         | W          |
| Total Dissipation                   | $P_T$     | When mounted on ceramic substrate (2000mm <sup>2</sup> x 0.8mm), $PW \leq 10s$       | 2.2         | W          |
| Channel Temperature                 | $T_{ch}$  |  | 150         | $^\circ C$ |
| Storage Temperature                 | $T_{stg}$ |  | -55 to +150 | $^\circ C$ |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

### Package Dimensions

unit : mm (typ)

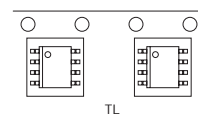
7072-001



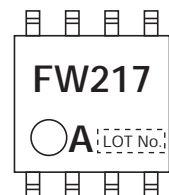
### Product & Package Information

- Package : SOIC8
- JEITA, JEDEC : SC-87, SOT-96
- Minimum Packing Quantity : 2,500 pcs./reel

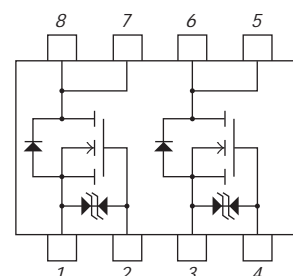
### Packing Type : TL



### Marking



### Electrical Connection

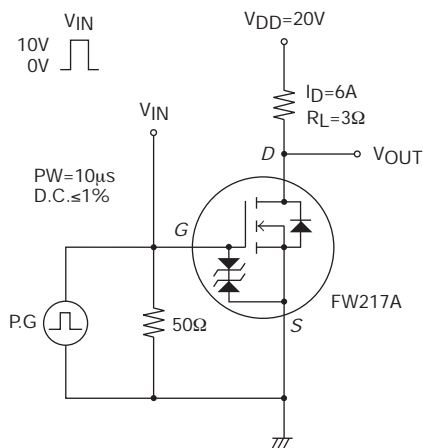


# FW217A

## Electrical Characteristics at Ta=25°C

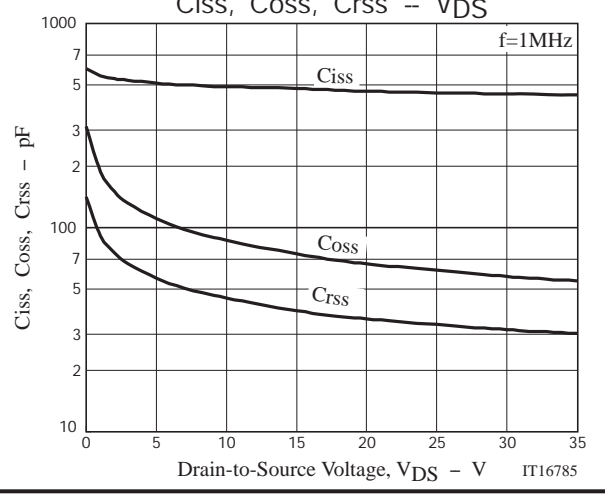
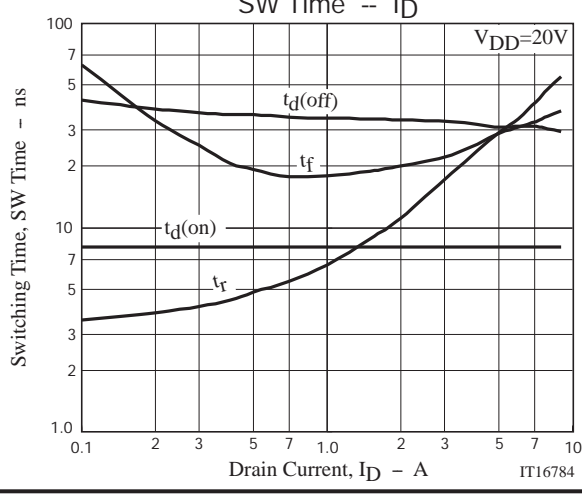
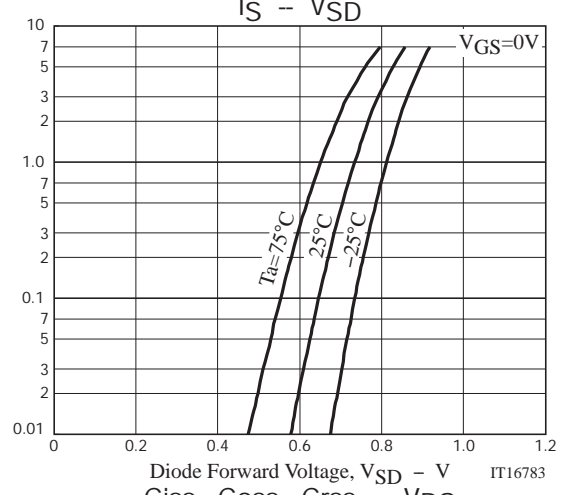
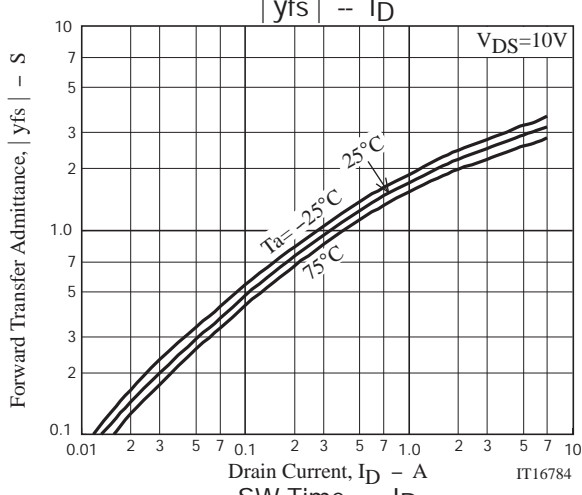
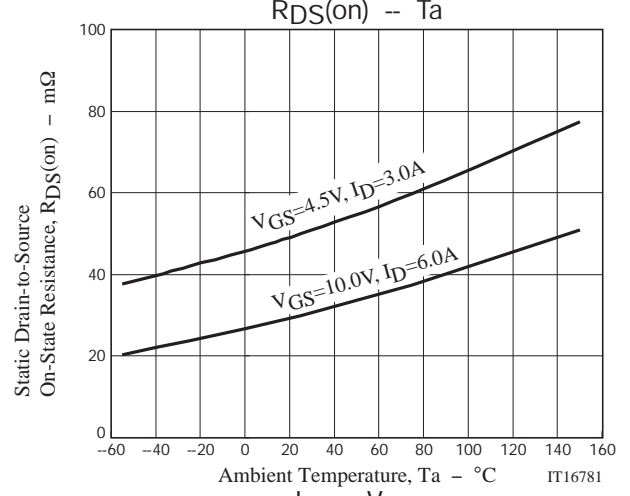
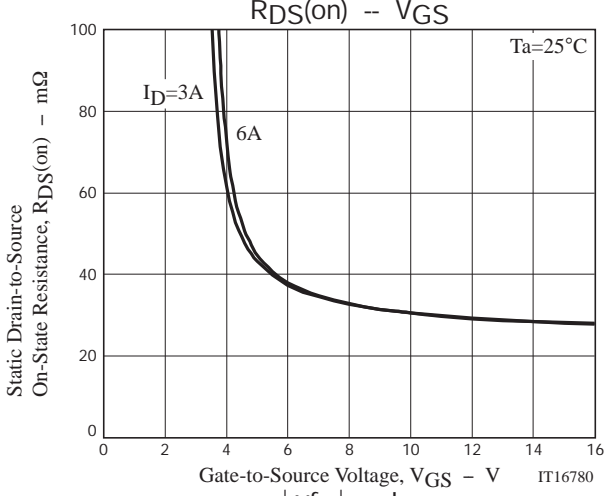
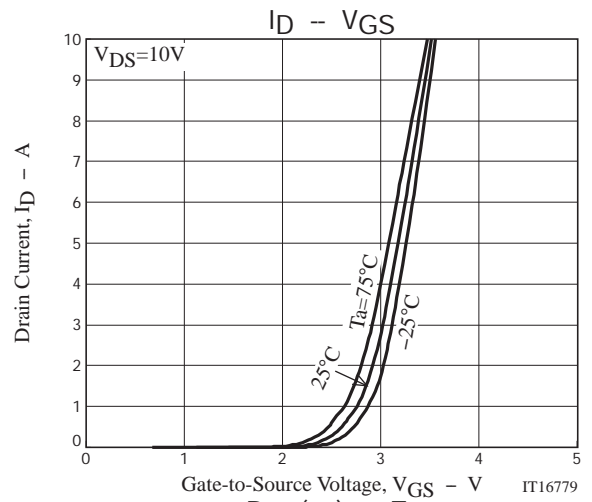
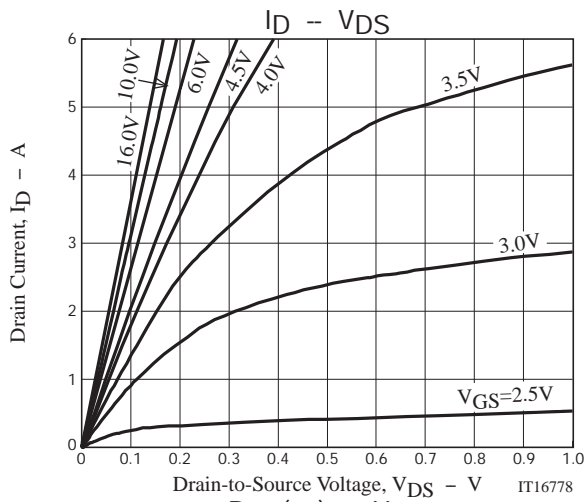
| Parameter                                  | Symbol               | Conditions   | Ratings                                 |     |      | Unit |
|--|----------------------|--|---|-----|------|------|
|  |                      |  | min                                     | typ | max  |      |
| Drain-to-Source Breakdown Voltage          | V(BR)DSS             | I <sub>D</sub> =1mA, V <sub>GS</sub> =0V                       | 35                                      |     |      | V    |
| Zero-Gate Voltage Drain Current            | I <sub>DSS</sub>     | V <sub>DS</sub> =35V, 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                      | 1.7                                     |     | 2.6  | V    |
| Forward Transfer Admittance                | y <sub>fs</sub>      | V <sub>DS</sub> =10V, I <sub>D</sub> =6A                       |   | 3   |      | S    |
| Static Drain-to-Source On-State Resistance | R <sub>DS(on)1</sub> | I <sub>D</sub> =6A, V <sub>GS</sub> =10V                       |   | 30  | 39   | mΩ   |
|  | R <sub>DS(on)2</sub> | I <sub>D</sub> =3A, V <sub>GS</sub> =4.5V                      |   | 50  | 70   | mΩ   |
| Input Capacitance                          | C <sub>iss</sub>     | V <sub>DS</sub> =20V, f=1MHz                                   |   | 470 |      | pF   |
| Output Capacitance                         | C <sub>oss</sub>     |  |   | 70  |      | pF   |
| Reverse Transfer Capacitance               | C <sub>rss</sub>     |  |   | 35  |      | pF   |
| Turn-ON Delay Time                         | t <sub>d(on)</sub>   |  |   | 8   |      | ns   |
| Rise Time                                  | t <sub>r</sub>       | See specified Test Circuit.                                    |   | 34  |      | ns   |
| Turn-OFF Delay Time                        | t <sub>d(off)</sub>  |  |   | 31  |      | ns   |
| Fall Time                                  | t <sub>f</sub>       |  |   | 30  |      | ns   |
| Total Gate Charge                          | Q <sub>g</sub>       |  |   | 10  |      | nC   |
| Gate-to-Source Charge                      | Q <sub>gs</sub>      | V <sub>DS</sub> =20V, V <sub>GS</sub> =10V, I <sub>D</sub> =6A |   | 2   |      | nC   |
| Gate-to-Drain "Miller" Charge              | Q <sub>gd</sub>      |  |   | 2   |      | nC   |
| Diode Forward Voltage                      | V <sub>SD</sub>      |  | I <sub>S</sub> =6A, V <sub>GS</sub> =0V |     | 0.84 | 1.2  |

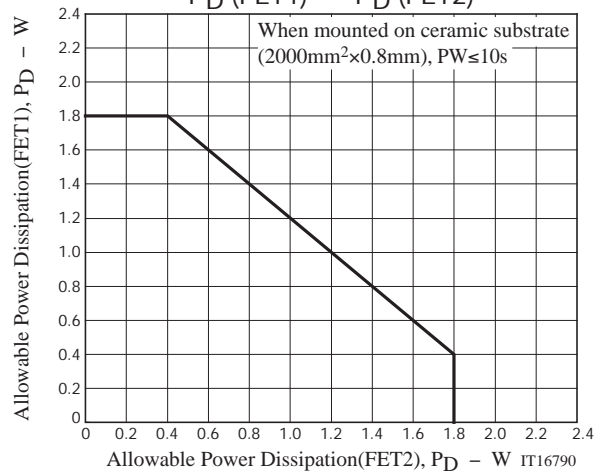
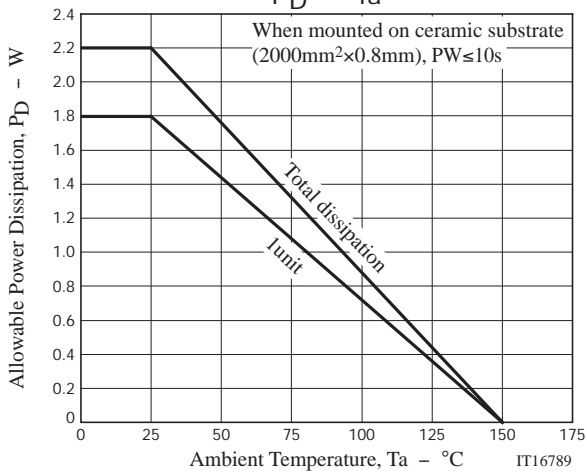
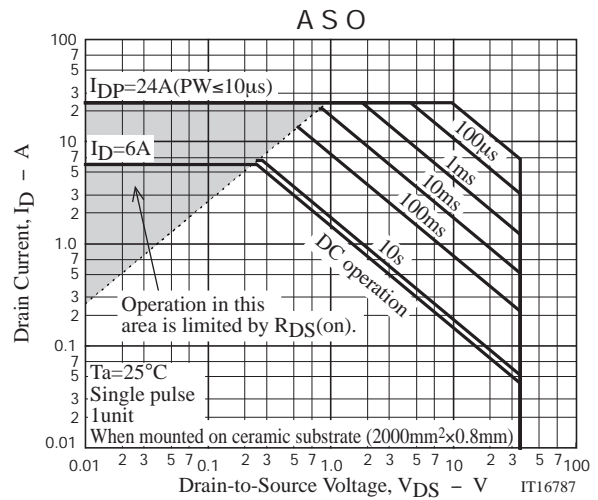
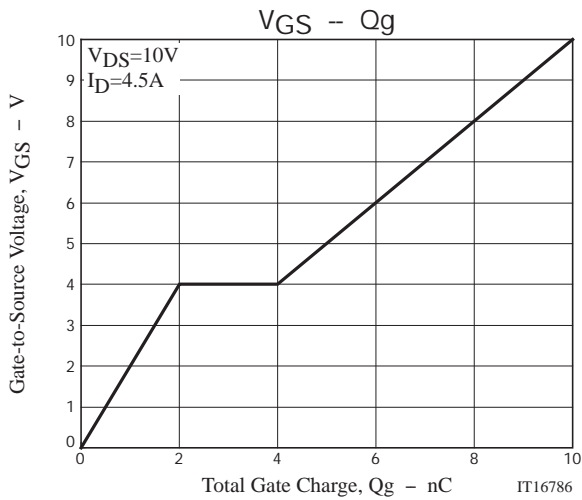
## Switching Time Test Circuit



## Ordering Information

| Device       | Package | Shipping       | memo                     |
|--------------|---------|----------------|--------------------------|
| FW217A-TL-2W | SOIC8   | 2,500pcs./reel | Pb Free and Halogen Free |





**Taping Specification**  
 FW217A-TL-2W

**1. Packing Format**

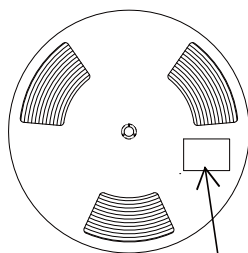
| Package Name | Carrier Tape Type | Maximum Number of devices contained (pcs) |           |           | Packing format  |  |
|--------------|-------------------|---|-----------|-----------|---|--|
|              |                   | Reel                                      | Inner box | Outer box | Inner BOX W206-112  | Outer BOX W207-124   |
| SOIC8        | B202-101          | 2,500                                     | 12,500    | 25,000    | 5 reels contained<br>Dimensions :mm(external)<br>340×95×340 | 2 inner boxes contained<br>Dimensions :mm(external)<br>360×210×375 |

**Packing method**

**Reel label, Inner box label**  
 (unit: mm)

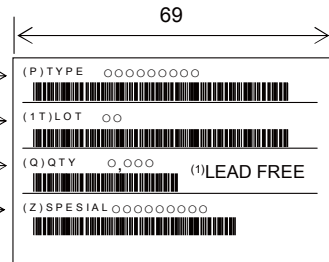
**Outer box label**

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

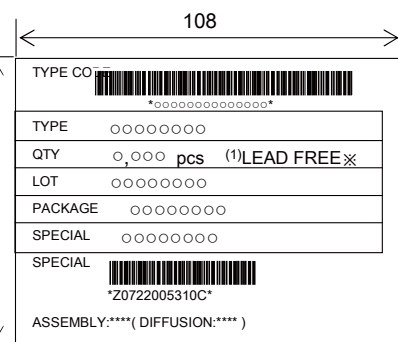


Type No. →  
 LOT No. →  
 Quantity →  
 Origin →

Reel label



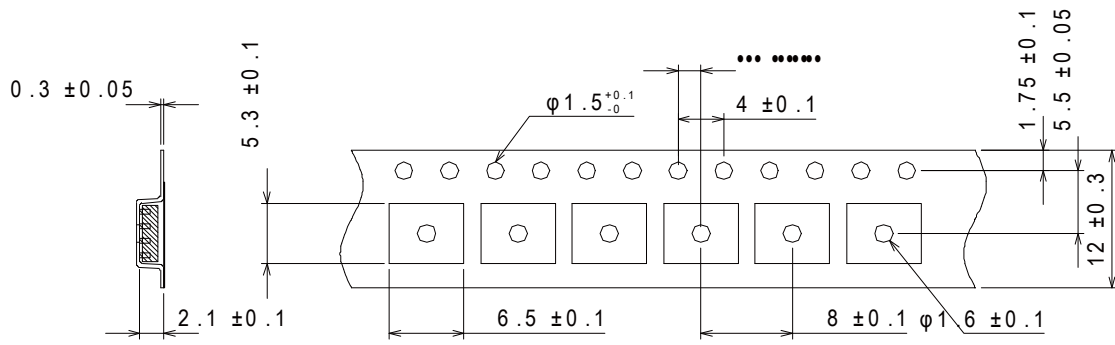
NOTE(1)  
 The LEAD FREE 4 description shows that it is complete lead free.



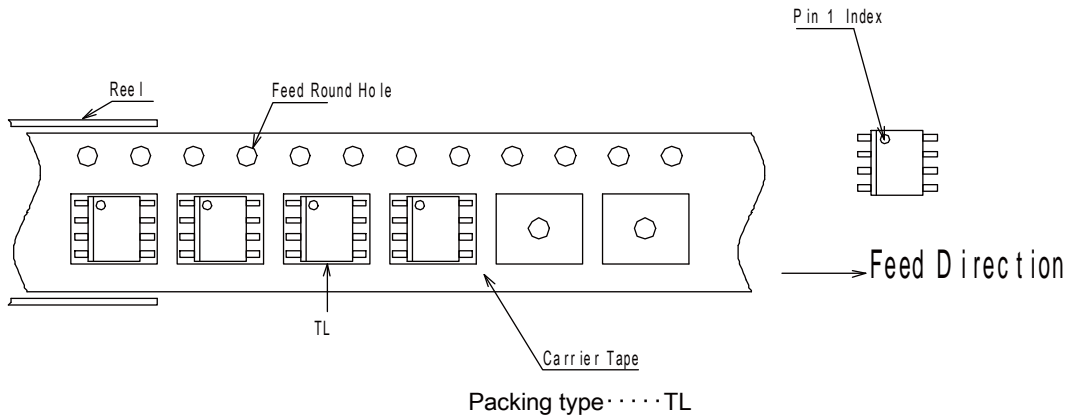
|             |               |
|-------------|---------------|
| Label       | JEITA Phase   |
| LEAD FREE 4 | JEITA Phase 3 |

2. Taping configuration

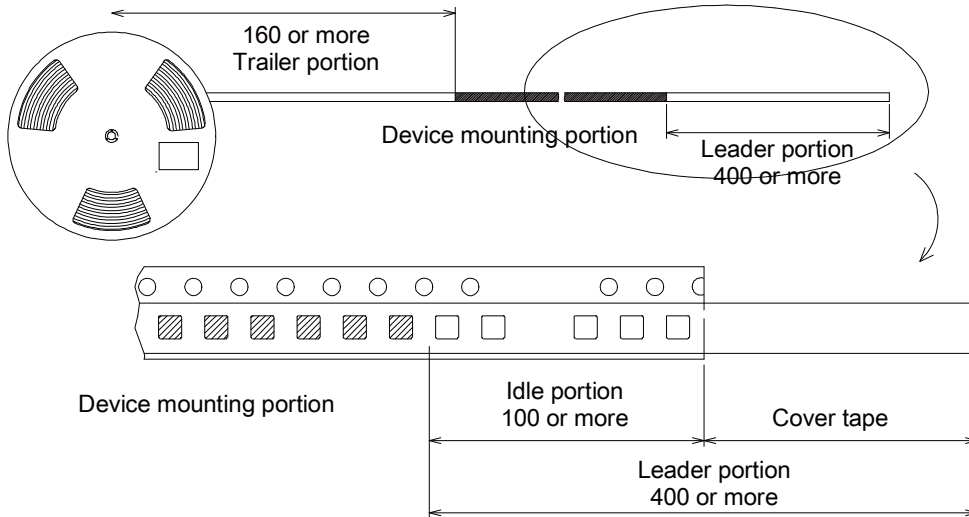
2-1. Carrier tape size (unit: mm)



2-2. Device placement direction



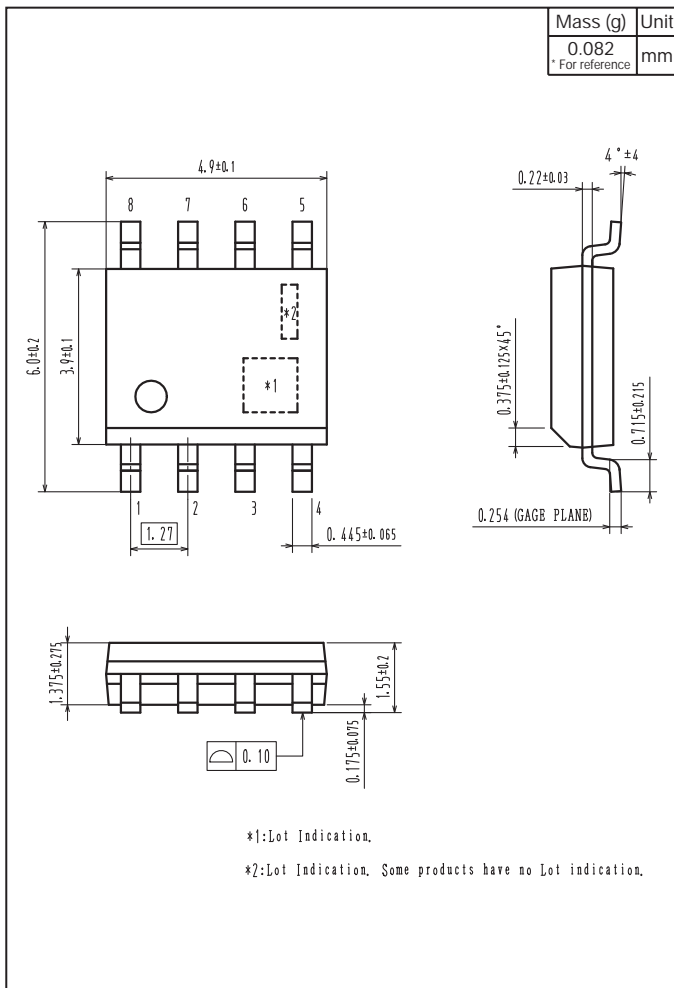
2-3. Leader portion and trailer portion (unit: mm)



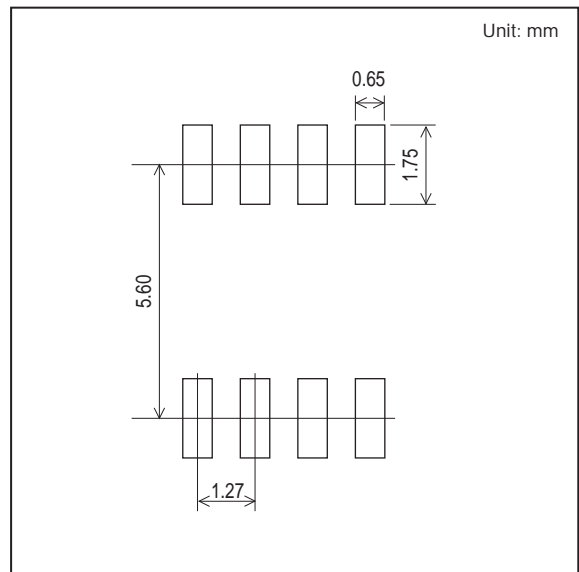
# FW217A

## Outline Drawing

FW217A-TL-2W



## Land Pattern Example



Note on usage : Since the FW217A is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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