



# TF252

## N-Channel JFET 20V, 140 to 350 $\mu$ A, 1.4mS, USFP

ON Semiconductor®

<http://onsemi.com>

### Features

- High gain :  $GV=1.0\text{dB typ}$  ( $V_{CC}=2\text{V}$ ,  $R_L=2.2\text{k}\Omega$ ,  $C_{in}=5\text{pF}$ ,  $V_{IN}=10\text{mV}$ ,  $f=1\text{kHz}$ )
- Ultrasmall package facilitates miniaturization in end products [1.0mm $\times$ 0.6mm $\times$ 0.27mm (max 0.3mm)]
- Best suited for use in Electret Condenser Microphone for audio equipments and telephones
- Excellent voltage characteristics
- Excellent transient characteristics
- Adoption of FBET process
- Halogen free compliance
- Protection diode in

### Specifications

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

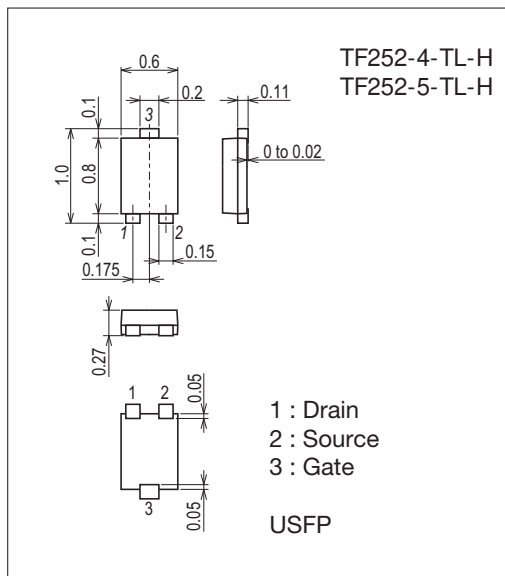
| Parameter                   | Symbol    | Conditions | Ratings     | Unit             |
|-----------------------------|-----------|------------|-------------|------------------|
| Gate-to-Drain Voltage       | $V_{GDO}$ |            | -20         | V                |
| Gate Current                | $I_G$     |            | 10          | mA               |
| Drain Current               | $I_D$     |            | 1           | mA               |
| Allowable Power Dissipation | $P_D$     |            | 30          | mW               |
| Junction Temperature        | $T_j$     |            | 150         | $^\circ\text{C}$ |
| Storage Temperature         | $T_{stg}$ |            | -55 to +150 | $^\circ\text{C}$ |

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)

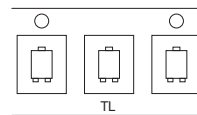
7055-001



### Product & Package Information

- Package : USFP
- JEITA, JEDEC : -
- Minimum Packing Quantity : 10,000 pcs./reel

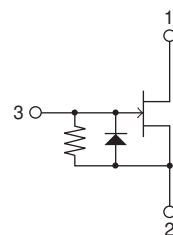
### Packing Type: TL



### Marking



### Electrical Connection



# TF252

## Electrical Characteristics at Ta=25°C

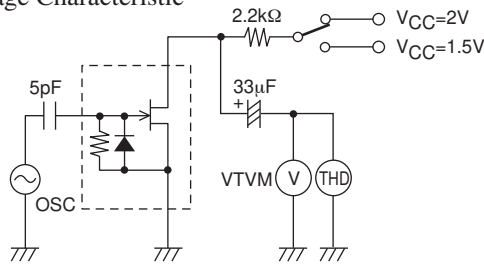
| Parameter   | Symbol   | Conditions                        | Ratings |      |      | Unit |
|---|----------|-----------------------------------|---------|------|------|------|
|   |          |                                   | min     | typ  | max  |      |
| Gate-to-Drain Breakdown Voltage                                   | V(BR)GDO | IG=-100μA                         | -20     |      |      | V    |
| Cutoff Voltage  | VGS(off) | VDS=2V, ID=1μA                    | -0.1    | -0.4 | -1.0 | V    |
| Drain Current   | IDSS     | VDS=2V, VGS=0V                    | 140*    |      | 350* | μA   |
| Forward Transfer Admittance                                       | yfs      | VDS=2V, VGS=0V, f=1kHz            | 0.8     | 1.4  |      | mS   |
| Input Capacitance   | Ciss     | VDS=2V, VGS=0V, f=1MHz            |         | 3.1  |      | pF   |
| Reverse Transfer Capacitance                                      | Crss     |                                   |         | 0.95 |      | pF   |
| [Ta=25°C, VCC=2V, RL=2.2kΩ, Cin=5pF, See specified Test Circuit.] |          |                                   |         |      |      |      |
| Voltage Gain  | GV       | VIN=10mV, f=1kHz                  |         | 1.0  |      | dB   |
| Reduced Voltage Characteristic                                    | ΔGVV     | VIN=10mV, f=1kHz, VCC=2.0V → 1.5V | -0.6    |      | -2.0 | dB   |
| Frequency Characteristic  | ΔGvf     | f=1kHz to 110Hz                   |         |      | -1.0 | dB   |
| Total Harmonic Distortion   | THD      | VIN=30mV, f=1kHz                  |         | 0.65 |      | %    |
| Output Noise Voltage  | VNO      | VIN=0V, A curve                   |         | -106 | -102 | dB   |

\* : The TF252 is classified by IDSS as follows : (unit : μA)

| Rank | 4          | 5          |
|------|------------|------------|
| IDSS | 140 to 240 | 210 to 350 |

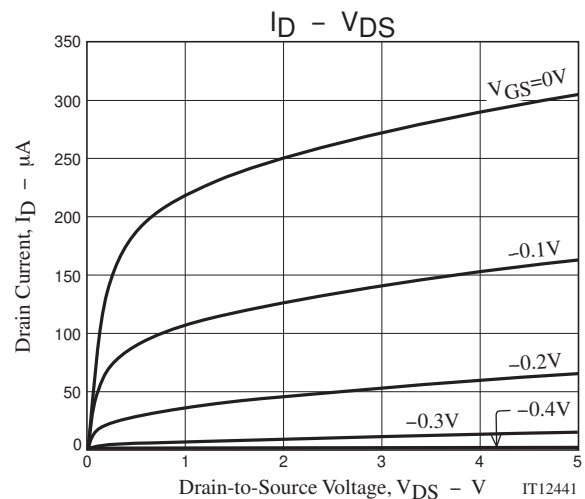
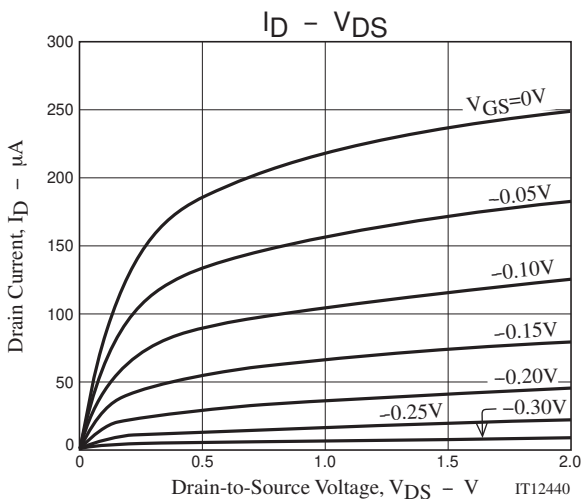
## Test Circuit

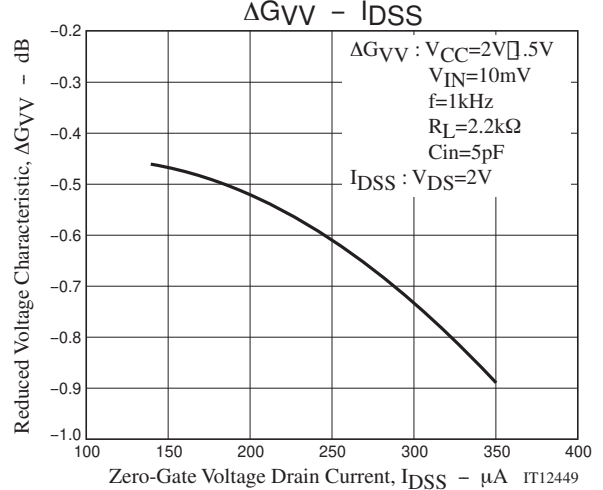
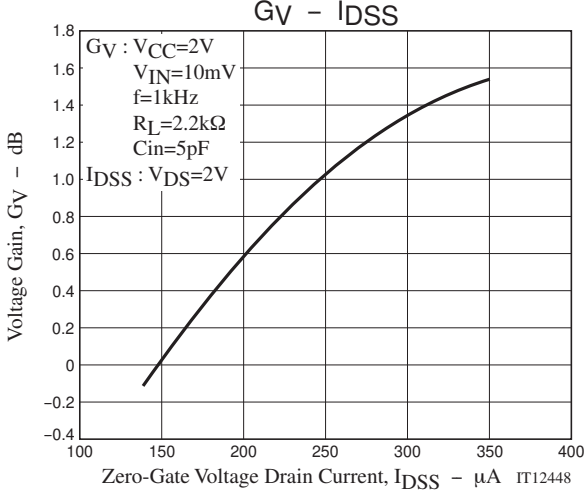
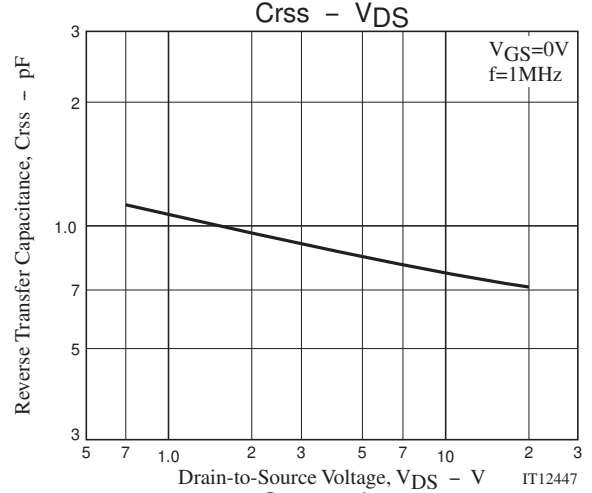
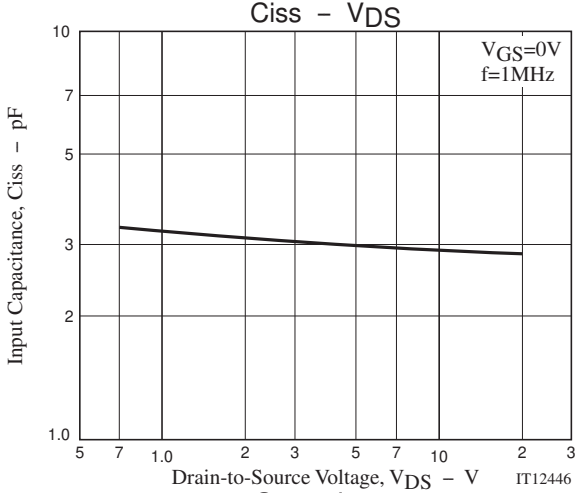
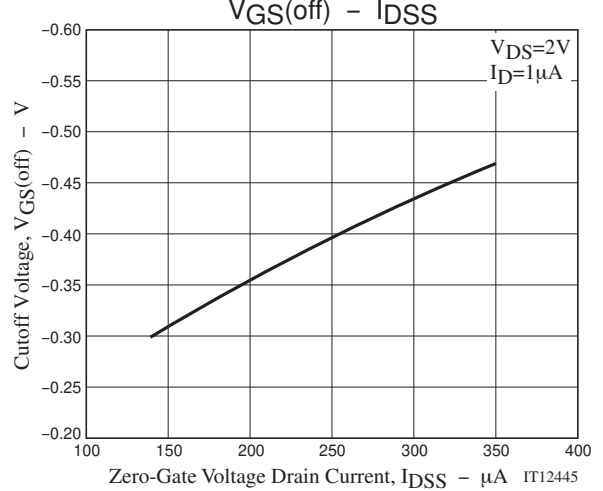
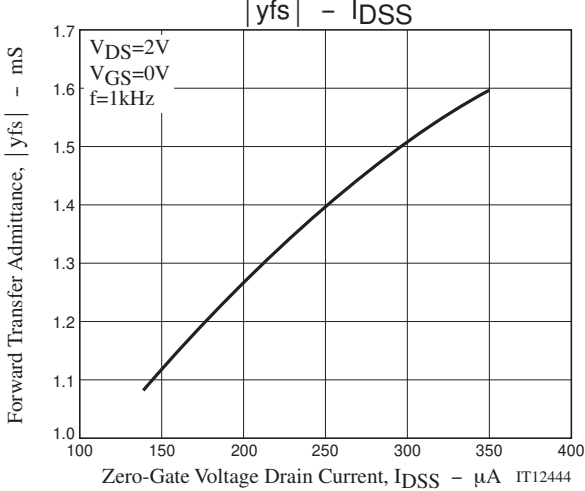
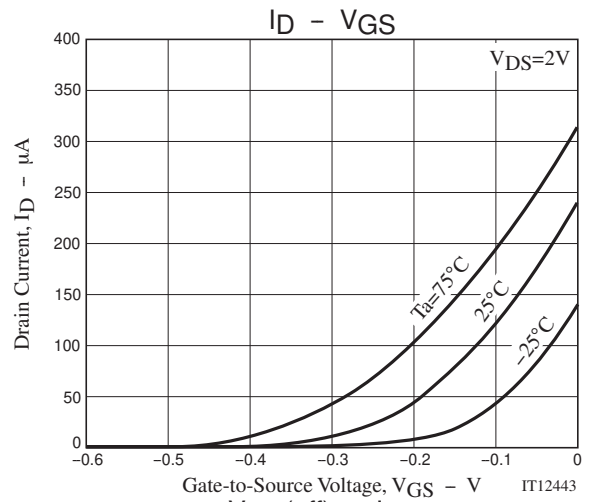
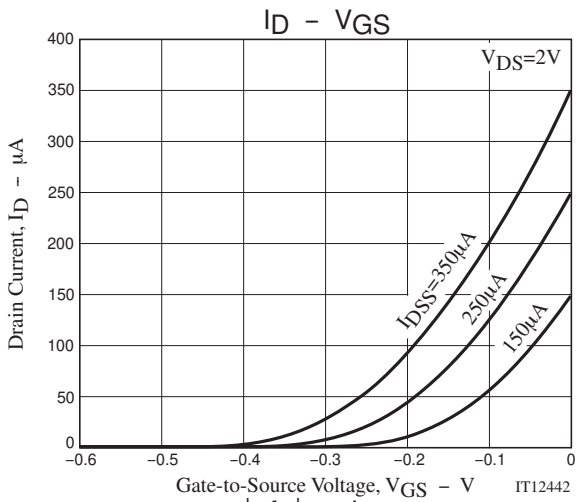
- Voltage gain
- Frequency Characteristic
- Distortion
- Reduced Voltage Characteristic

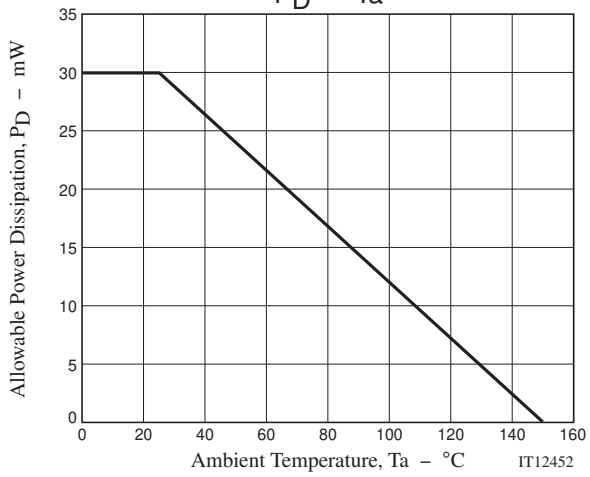
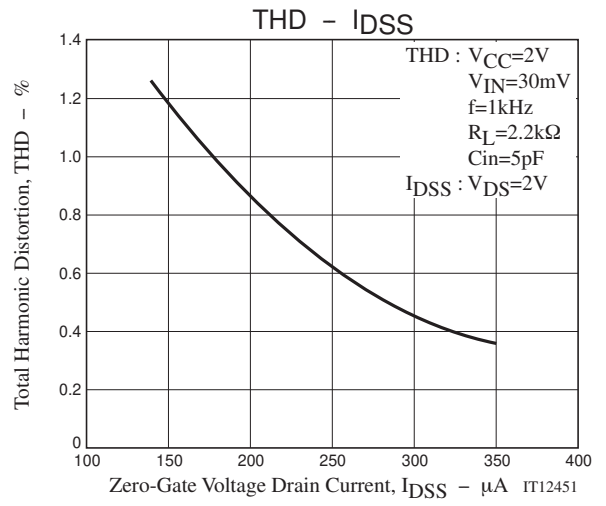
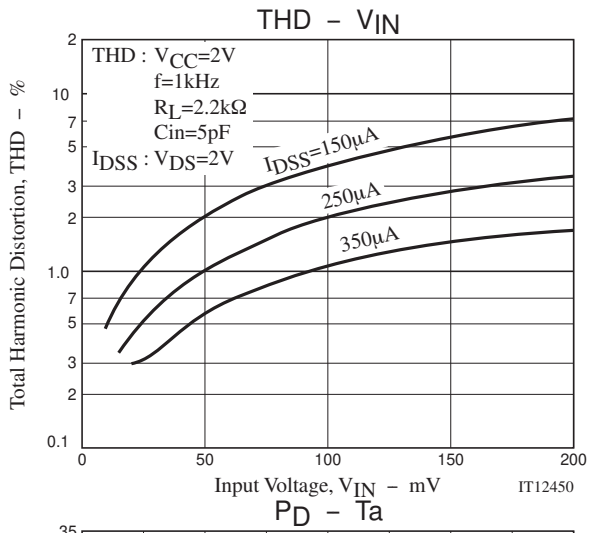


## Ordering Information

| Device       | Package | Shipping        | memo                     |
|--------------|---------|-----------------|--------------------------|
| TF252-4-TL-H | USFP    | 10,000pcs./reel | Pb Free and Halogen Free |
| TF252-5-TL-H | USFP    | 10,000pcs./reel |                          |







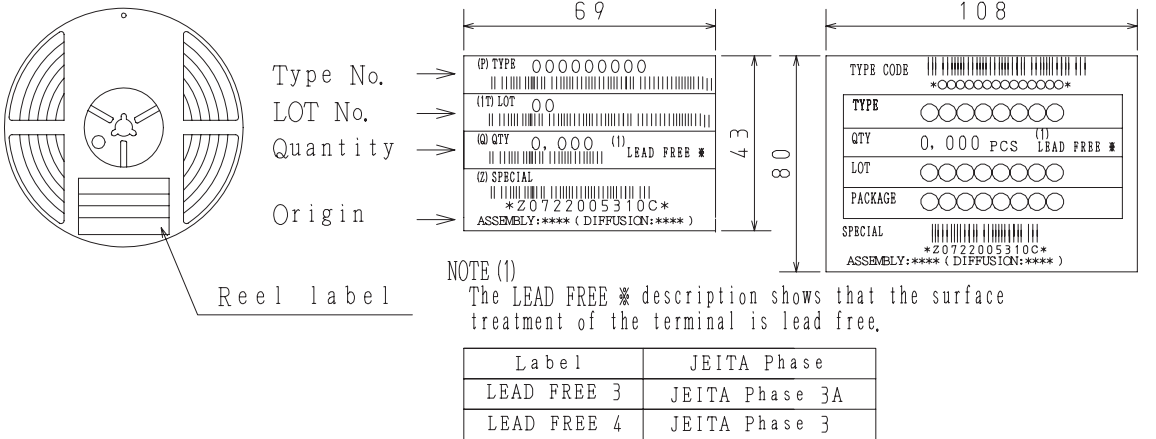
Taping Specification

TF252-4-TL-H, TF252-5-TL-H

1. Packing Format

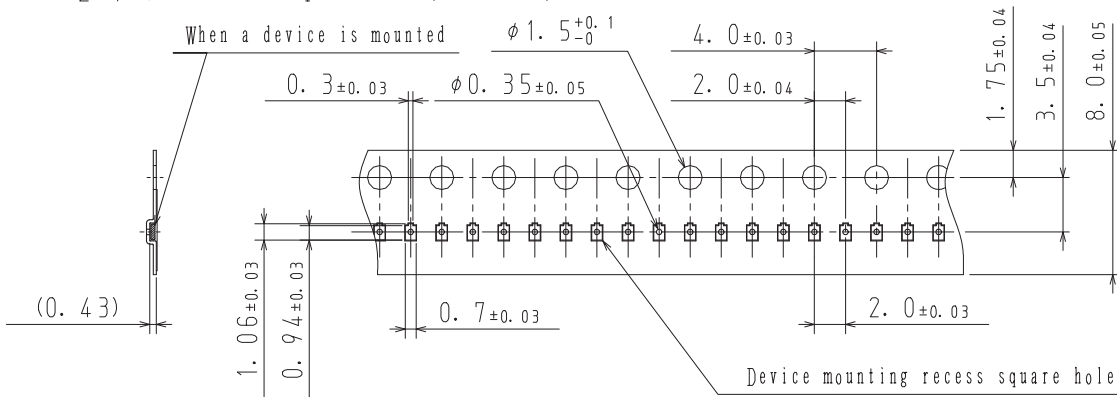
| Package Name | Carrier Tape Type | Maximum Number of devices contained (pcs) |           |           | Packing format  |  |
|--------------|-------------------|---|-----------|-----------|---|--|
|              |                   | Reel                                      | Inner box | Outer box | Inner BOX (C-1)   | Outer BOX (A-7)  |
| USFP         | USFP              | 10,000                                    | 50,000    | 300,000   | 5 reels contained<br>Dimensions:mm (external)<br>183×72×185 | 6 inner boxes contained<br>Dimensions:mm (external)<br>440×195×210 |

Packing method

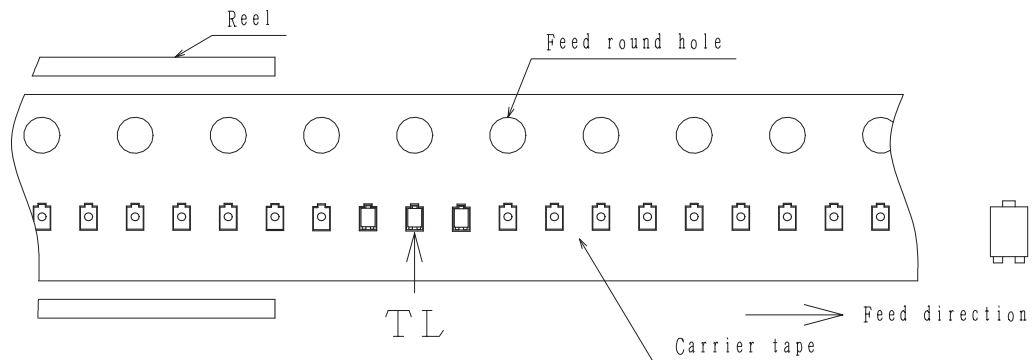


2. Taping configuration

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



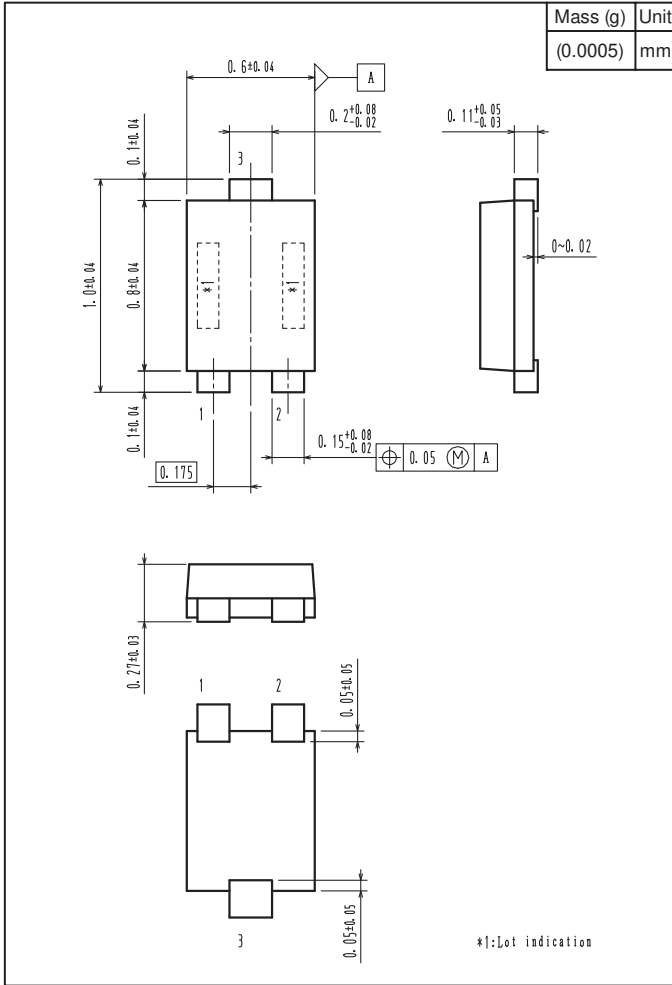
2-2. Device placement direction



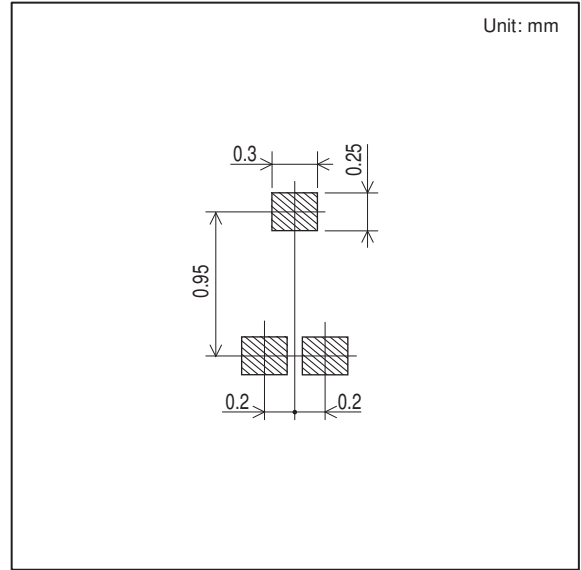
Those with one electrode terminal on the feed hole side.....TL

Outline Drawing

TF252-4-TL-H, TF252-5-TL-H



Land Pattern Example



Unit: mm

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