



TF252TH

N-Channel JFET 20V, 140 to 350 μ A, 1.4mS, VTFP

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
- 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

Specifications

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

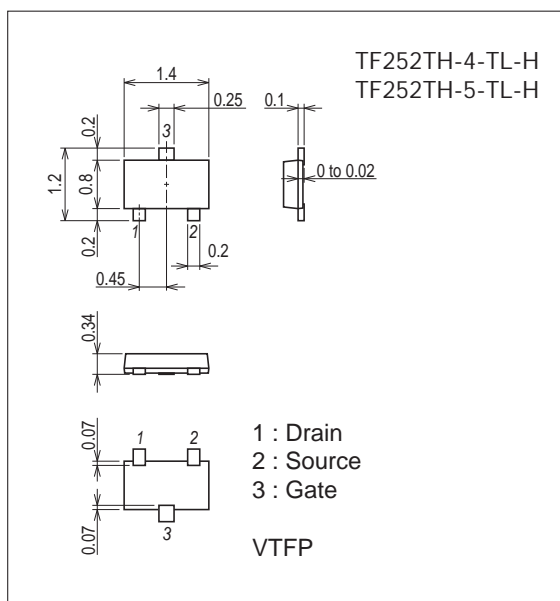
| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|-----------|------------|-------------|------------------|
| Gate-to-Drain Voltage | V_{GDO} | | -20 | V |
| Gate Current | I_G | | 10 | mA |
| Drain Current | I_D | | 1 | mA |
| Allowable Power Dissipation | P_D | | 100 | 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)

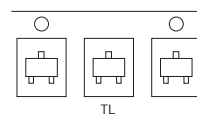
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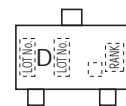
Product & Package Information

- Package : VTFP
- JEITA, JEDEC : SC-106A
- Minimum Packing Quantity : 8,000 pcs./reel

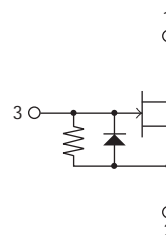
Packing Type: TL



Marking



Electrical Connection



TF252TH

Electrical Characteristics at Ta=25°C

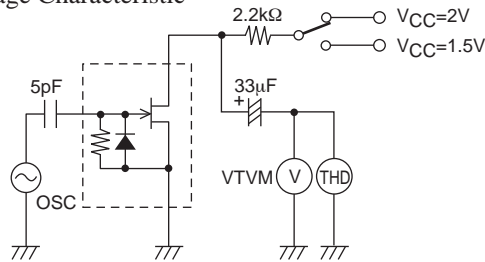
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|----------------------|---|---------|------|------|------|
| | | | min | typ | max | |
| Gate-to-Drain Breakdown Voltage | V(BR)GDO | I _G =-100μA | -20 | | | V |
| Cutoff Voltage | V _{GS(off)} | V _{DS} =2V, I _D =1μA | -0.1 | -0.4 | -1.0 | V |
| Drain Current | I _{DSS} | V _{DS} =2V, V _{GS} =0V | 140* | | 350* | μA |
| Forward Transfer Admittance | y _{fs} | V _{DS} =2V, V _{GS} =0V, f=1kHz | 0.8 | 1.4 | | mS |
| Input Capacitance | C _{iss} | V _{DS} =2V, V _{GS} =0V, f=1MHz | | 3.1 | | pF |
| Reverse Transfer Capacitance | C _{rss} | | | 0.95 | | pF |
| [Ta=25°C, V _{CC} =2.0V, R _L =2.2kΩ, C _{in} =5pF, See specified Test Circuit.] | | | | | | |
| Voltage Gain | G _V | V _{IN} =10mV, f=1kHz | | 1.0 | | dB |
| Reduced Voltage Characteristic | ΔG _{VV} | V _{IN} =10mV, f=1kHz, V _{CC} =2.0V → 1.5V | | -0.6 | -2.0 | dB |
| Frequency Characteristic | ΔG _{Vf} | f=1kHz to 110Hz | | | -1.0 | dB |
| Total Harmonic Distortion | THD | V _{IN} =30mV, f=1kHz | | 0.65 | | % |
| Output Noise Voltage | V _{NO} | V _{IN} =0V, A curve | | -106 | -102 | dB |

* : The TF252TH is classified by I_{DSS} as follows : (unit : μA)

| Rank | 4 | 5 |
|------------------|------------|------------|
| I _{DSS} | 140 to 240 | 210 to 350 |

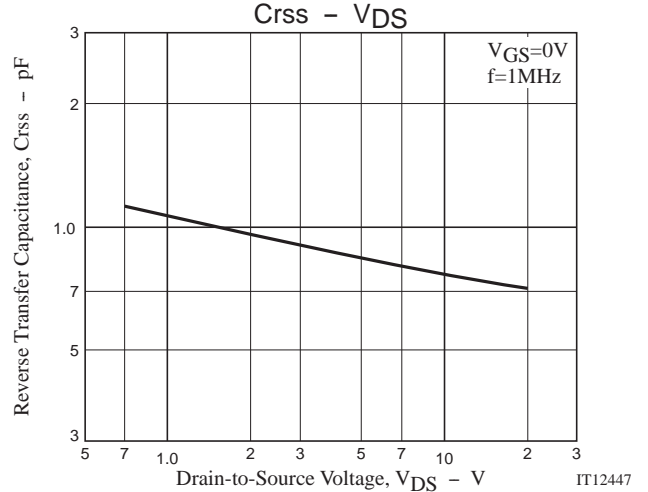
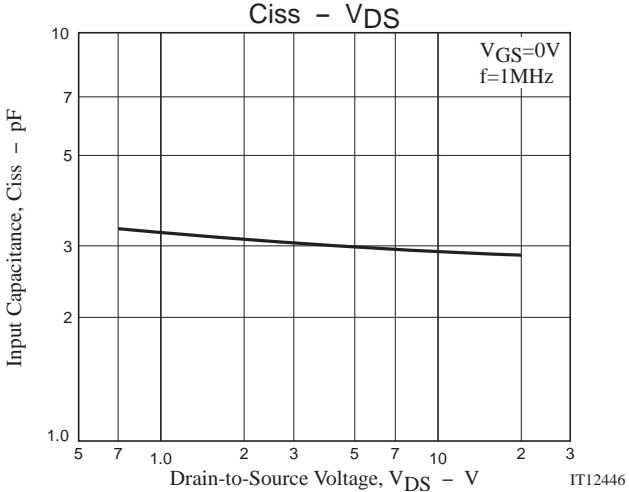
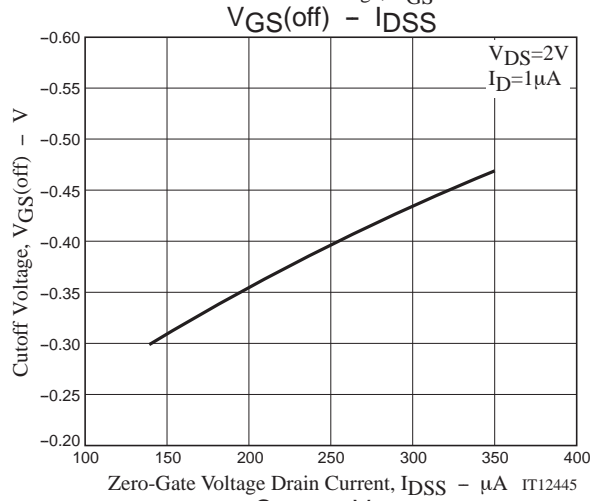
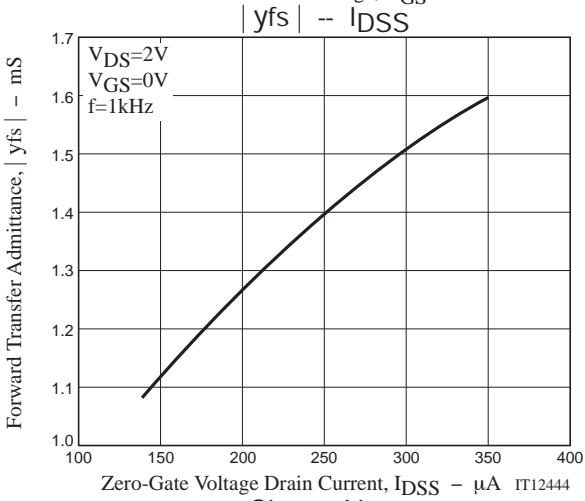
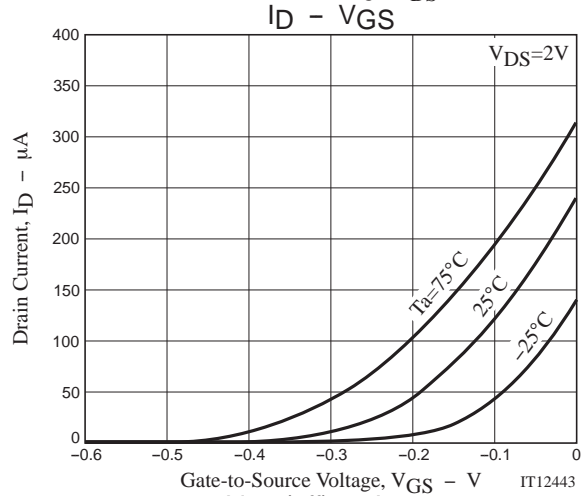
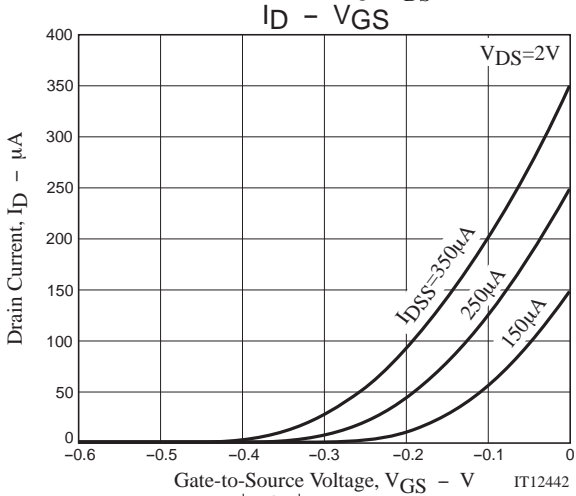
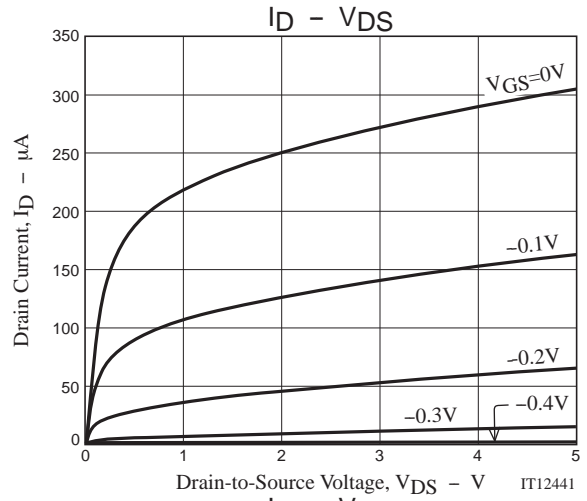
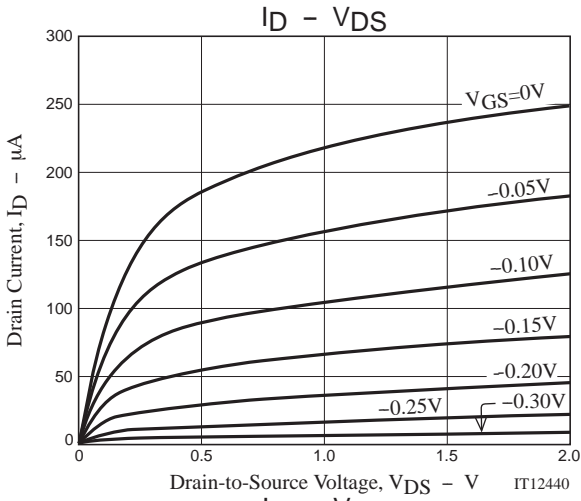
Test Circuit

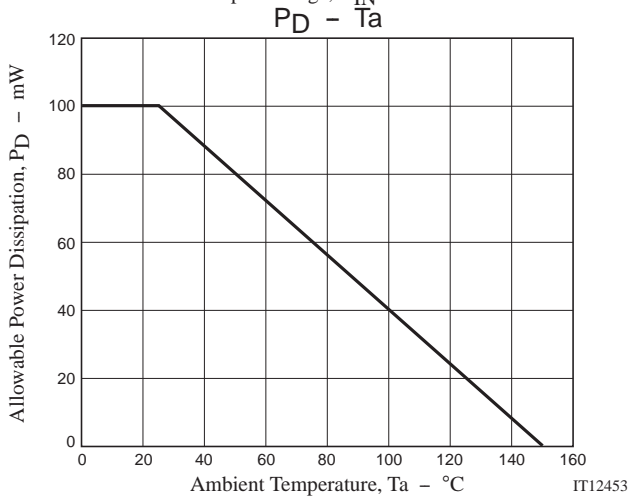
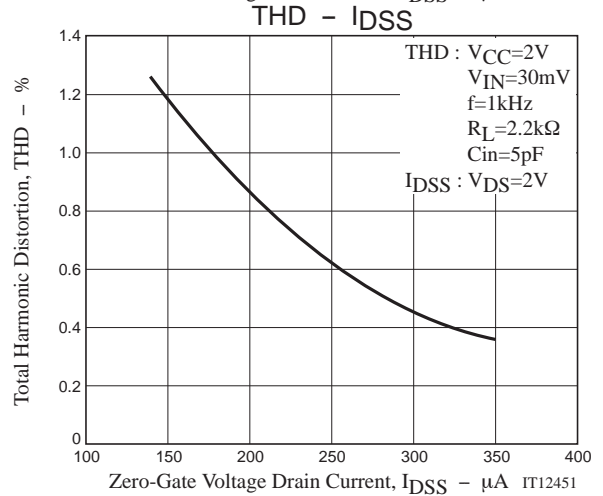
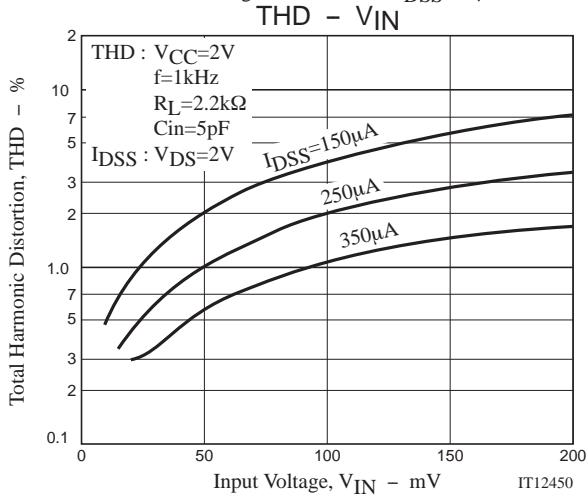
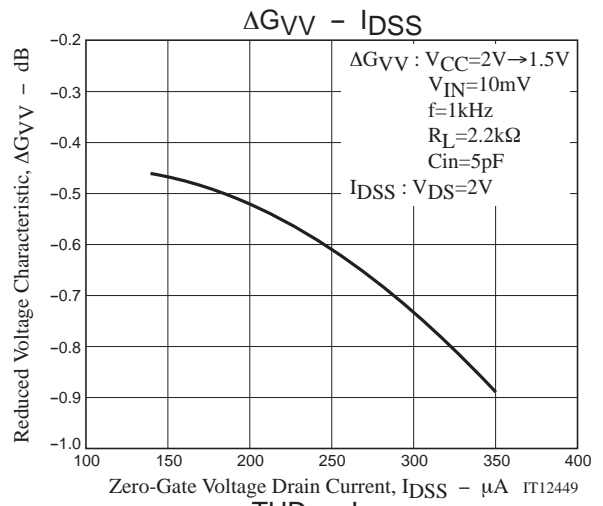
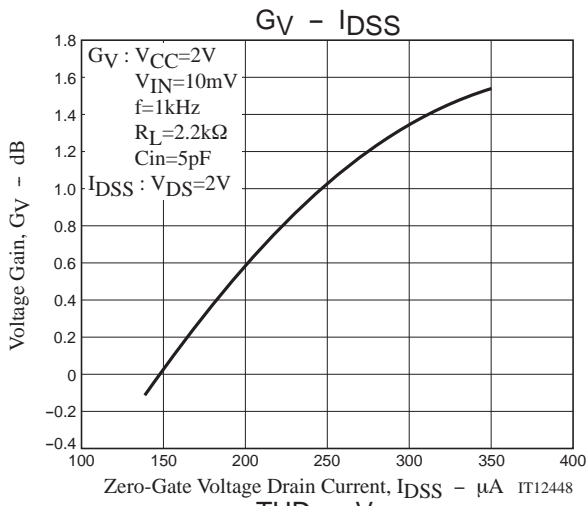
- Voltage gain
- Frequency Characteristic
- Distortion
- Reduced Voltage Characteristic



Ordering Information

| Device | Package | Shipping | memo |
|----------------|---------|----------------|--------------------------|
| TF252TH-4-TL-H | VTFP | 8,000pcs./reel | Pb Free and Halogen Free |
| TF252TH-5-TL-H | VTFP | 8,000pcs./reel | |





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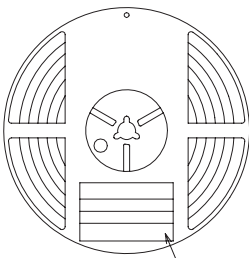
Taping Specification

TF252TH-4-TL-H, TF252TH-5-TL-H

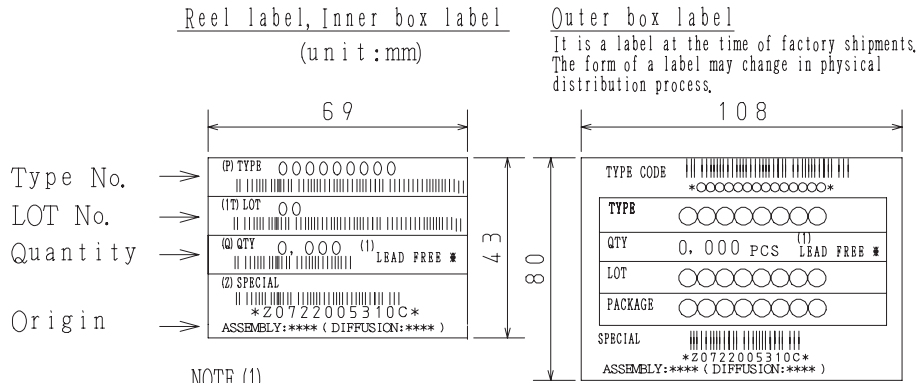
1. Packing Format

| 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) |
| VTFP | VSFP | 8,000 | 40,000 | 240,000 | 5 reels contained Dimensions:mm (external) 183×72×185 | 6 inner boxes contained Dimensions:mm (external) 440×195×210 |

Packing method



Reel label



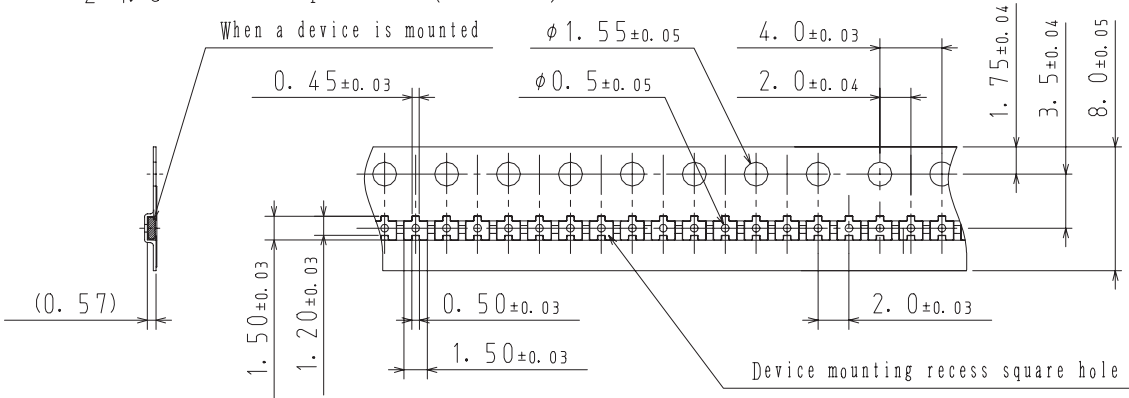
NOTE (1)

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

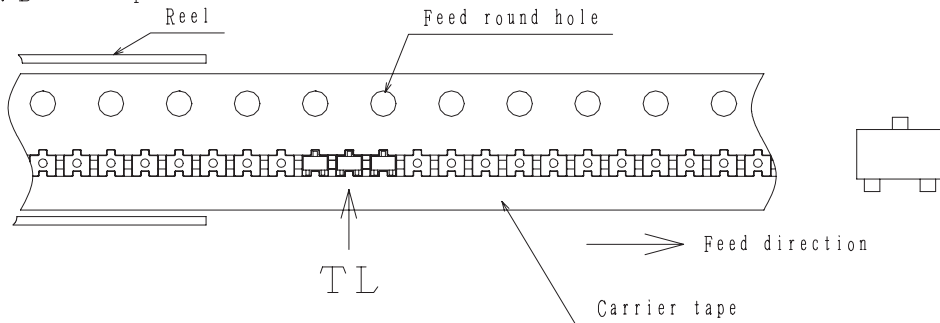
| Label | JEITA Phase |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3 |

2. Taping configuration

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



2-2. Device placement direction

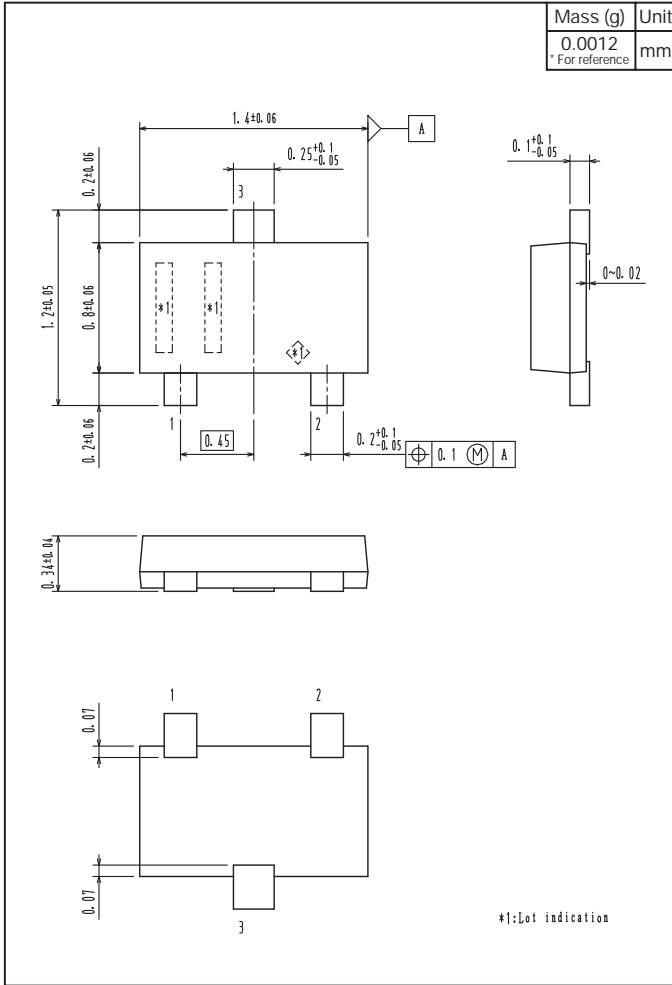


Those with oen electrode terminal on the feed hole side.....TL

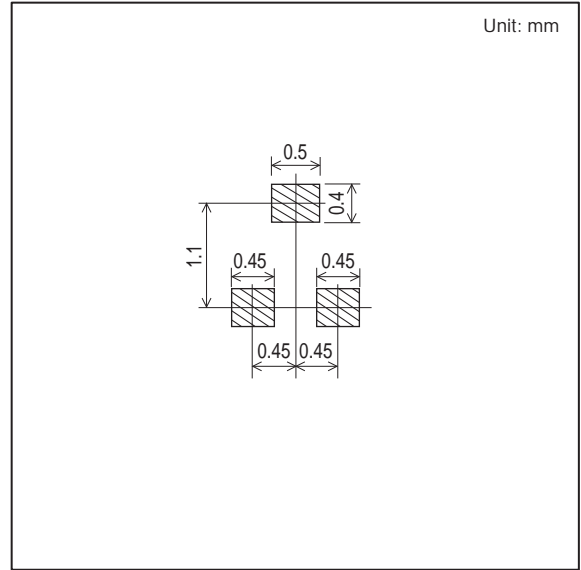
TF252TH

Outline Drawing

TF252TH-4-TL-H, TF252TH-5-TL-H



Land Pattern Example



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