



# TF202THC

## N-Channel JFET

20V, 140 to 350 $\mu$ A, 1.0mS, VTFP

ON Semiconductor®

<http://onsemi.com>

### Features

- Ultrasmall package facilitates miniaturization in end products
- Especially 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 Ta=25°C

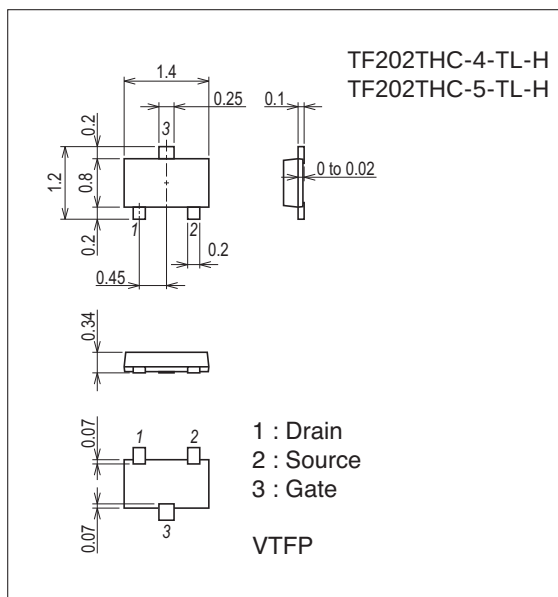
| Parameter                   | Symbol | Conditions | Ratings     | Unit |
|-----------------------------|--------|------------|-------------|------|
| Gate to Drain Voltage       | VGDO   |            | -20         | V    |
| Gate Current                | IG     |            | 10          | mA   |
| Drain Current               | ID     |            | 1           | mA   |
| Allowable Power Dissipation | PD     |            | 100         | mW   |
| Junction Temperature        | Tj     |            | 150         | °C   |
| Storage Temperature         | Tstg   |            | -55 to +150 | °C   |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

### Package Dimensions

unit : mm (typ)

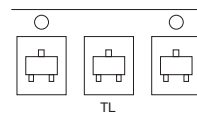
7031A-001



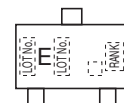
### Product & Package Information

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

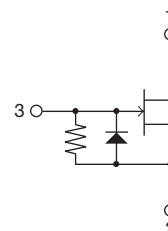
### Packing Type: TL



### Marking



### Electrical Connection



# TF202THC

## Electrical Characteristics at Ta=25°C

| Parameter                                                          | Symbol        | Conditions                                                | Ratings |      |      | Unit    |
|--------------------------------------------------------------------|---------------|-----------------------------------------------------------|---------|------|------|---------|
|                                                                    |               |                                                           | min     | typ  | max  |         |
| Gate to Drain Breakdown Voltage                                    | $V_{(BR)GDO}$ | $I_G = -100\mu A$                                         | -20     |      |      | V       |
| Cutoff Voltage                                                     | $V_{GS(off)}$ | $V_{DS} = 5V, I_D = 1\mu A$                               | -0.2    | -0.6 | -1.0 | V       |
| Drain Current                                                      | $I_{DSS}$     | $V_{DS} = 5V, V_{GS} = 0V$                                | 140*    |      | 350* | $\mu A$ |
| Forward Transfer Admittance                                        | $ y_{fs} $    | $V_{DS} = 5V, V_{GS} = 0V, f = 1kHz$                      | 0.5     | 1.0  |      | mS      |
| Input Capacitance                                                  | $C_{iss}$     | $V_{DS} = 5V, V_{GS} = 0V, f = 1MHz$                      |         | 3.5  |      | pF      |
| Reverse Transfer Capacitance                                       | $C_{rss}$     | $V_{DS} = 5V, V_{GS} = 0V, f = 1MHz$                      |         | 0.65 |      | pF      |
| [Ta=25°C, VCC=4.5V, RL=1kΩ, Cin=15pF, See specified Test Circuit.] |               |                                                           |         |      |      |         |
| Voltage Gain                                                       | GV            | $V_{IN} = 10mV, f = 1kHz$                                 |         | -3.0 |      | dB      |
| Reduced Voltage Characteristic                                     | $\Delta GV$   | $V_{IN} = 10mV, f = 1kHz, V_{CC} = 4.5V \rightarrow 1.5V$ |         | -1.2 | -3.5 | dB      |
| Frequency Characteristic                                           | $\Delta Gvf$  | $f = 1kHz \text{ to } 110Hz$                              |         |      | -1.0 | dB      |
| Input Impedance                                                    | $Z_{IN}$      | $f = 1kHz$                                                | 25      |      |      | MΩ      |
| Output Impedance                                                   | $Z_O$         | $f = 1kHz$                                                |         | 1000 |      | Ω       |
| Total Harmonic Distortion                                          | THD           | $V_{IN} = 30mV, f = 1kHz$                                 |         | 1.2  |      | %       |
| Output Noise Voltage                                               | $V_{NO}$      | $V_{IN} = 0V, A \text{ Curve}$                            |         |      | -110 | dB      |

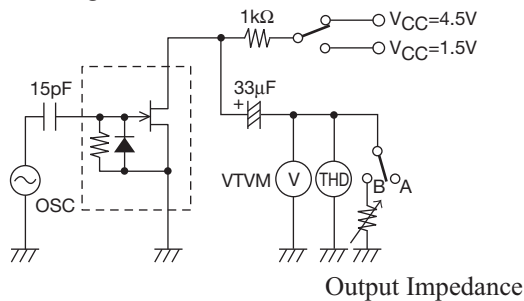
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

\* : The TF202THC is classified by  $I_{DSS}$  as follows : (unit :  $\mu A$ )

|           |            |            |
|-----------|------------|------------|
| Rank      | 4          | 5          |
| $I_{DSS}$ | 140 to 240 | 210 to 350 |

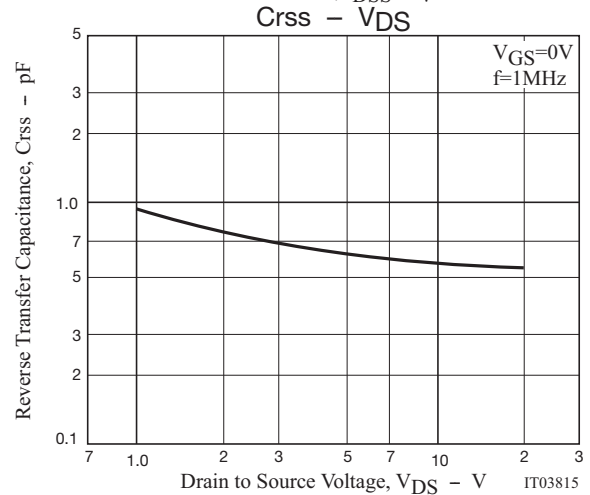
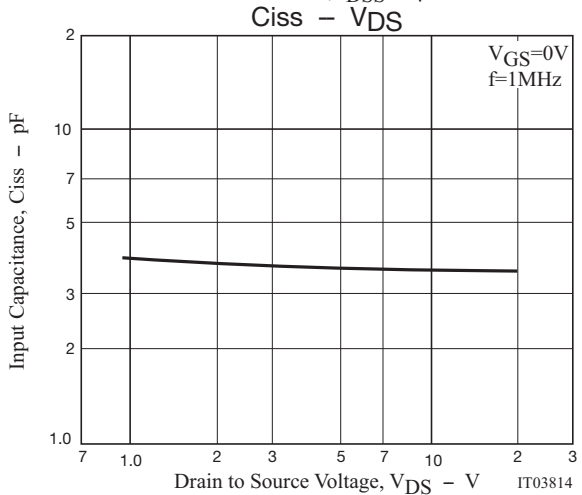
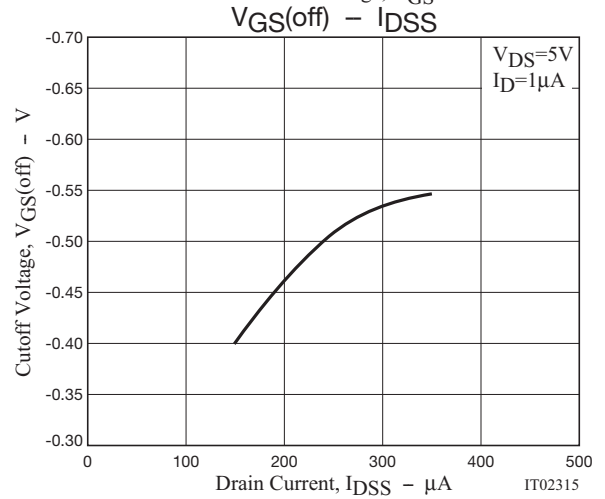
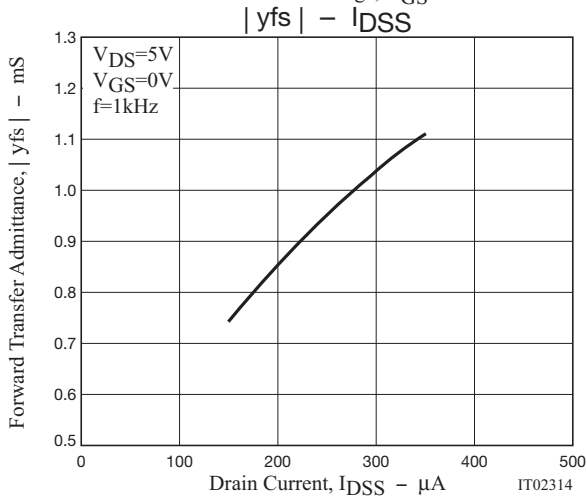
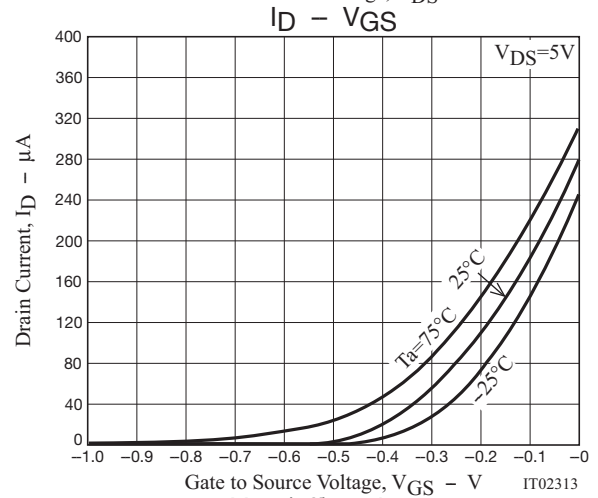
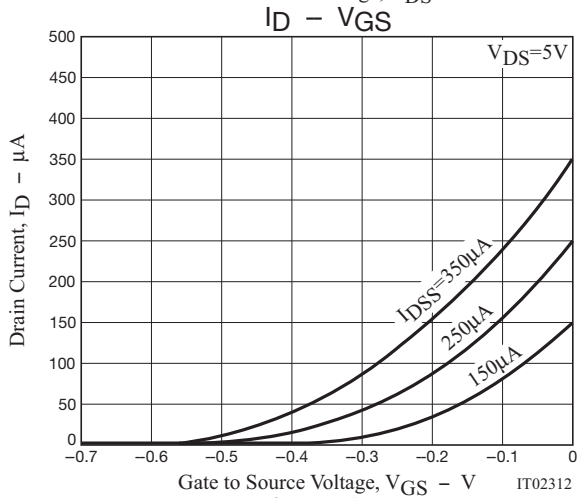
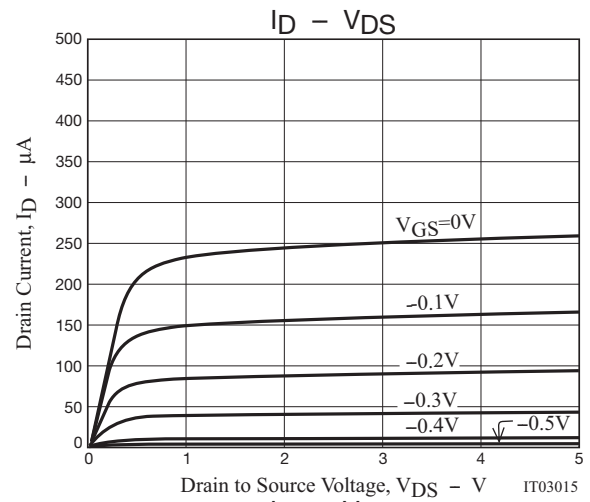
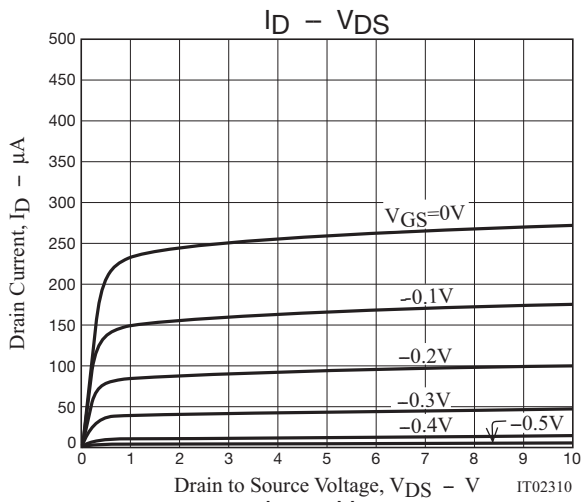
## Test Circuit

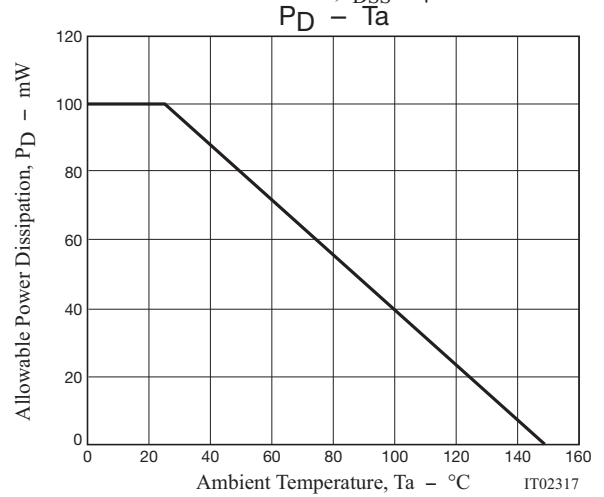
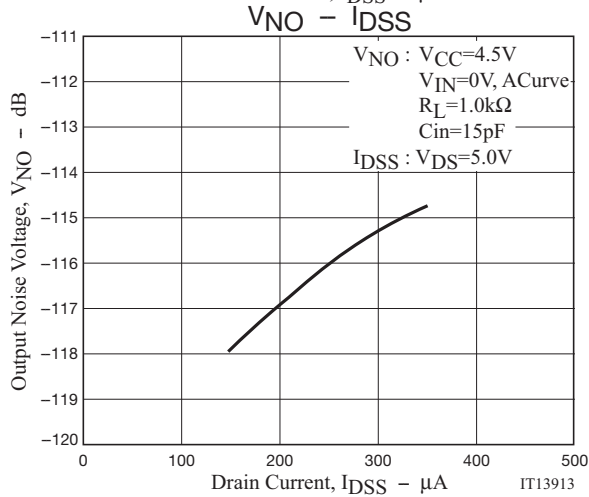
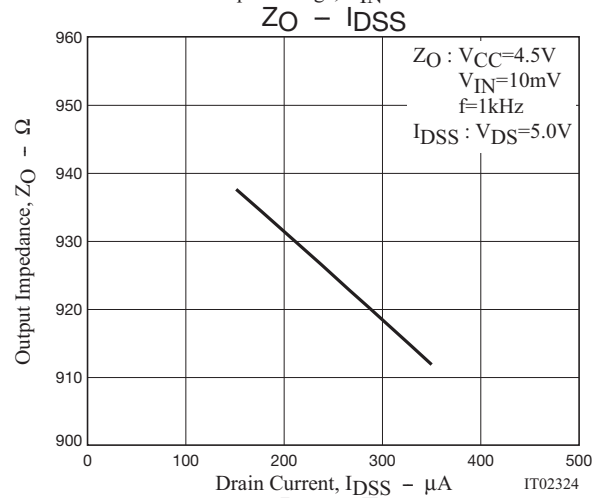
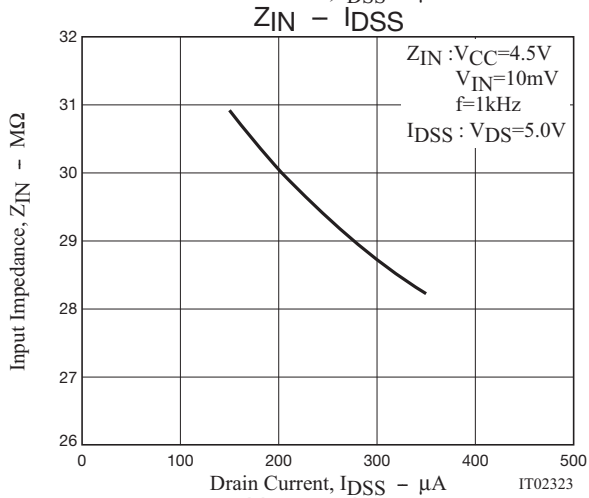
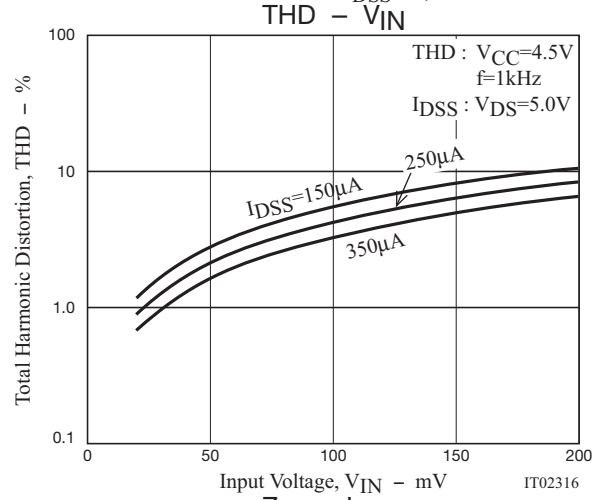
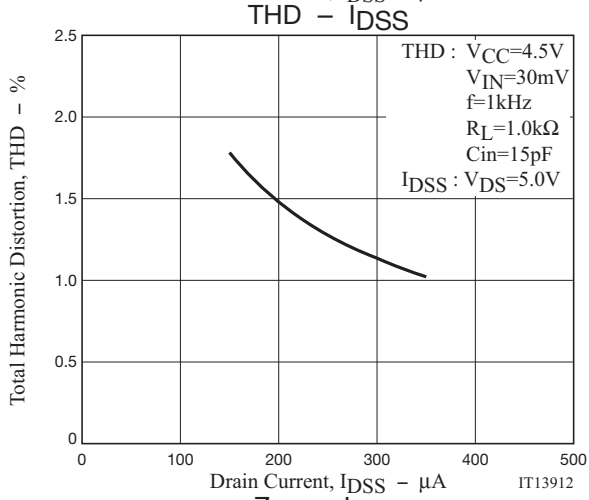
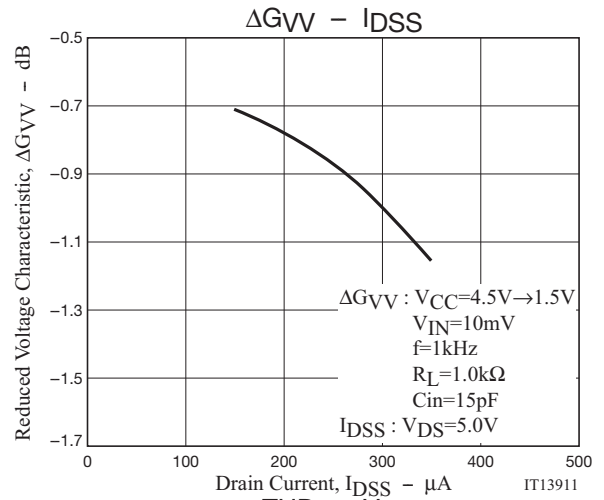
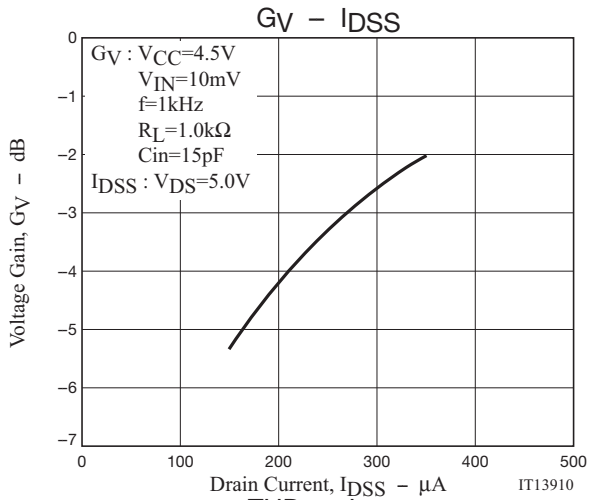
Voltage gain  
Frequency Characteristic  
Distortion  
Reduced Voltage Characteristic



## Ordering Information

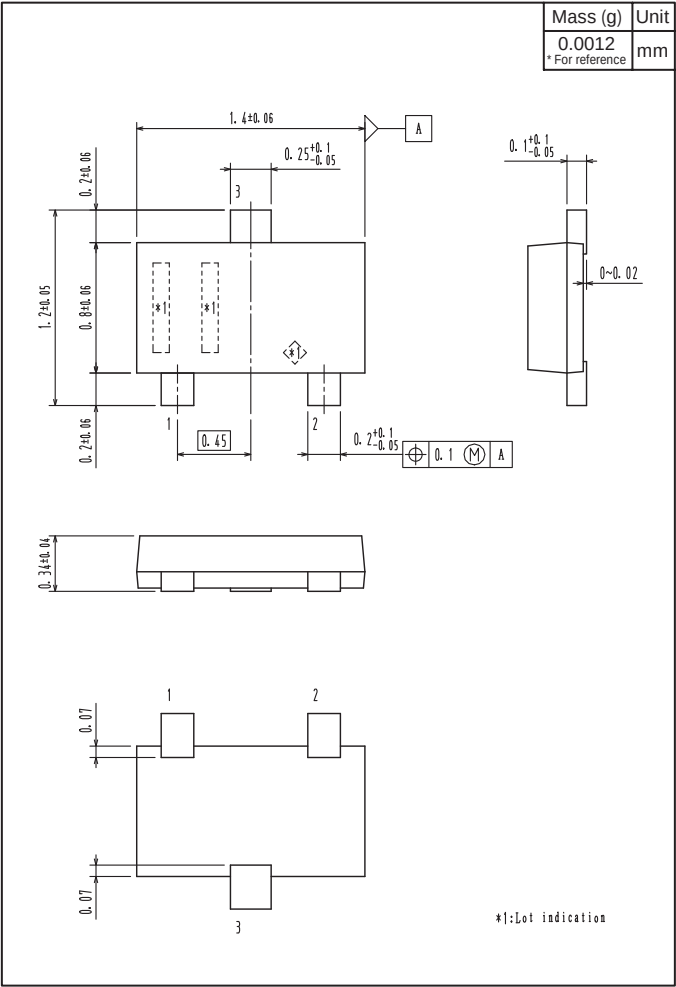
| Device          | Package | Shipping       | memo                     |
|-----------------|---------|----------------|--------------------------|
| TF202THC-4-TL-H | VTFP    | 8,000pcs./reel | Pb Free and Halogen Free |
| TF202THC-5-TL-H | VTFP    | 8,000pcs./reel |                          |



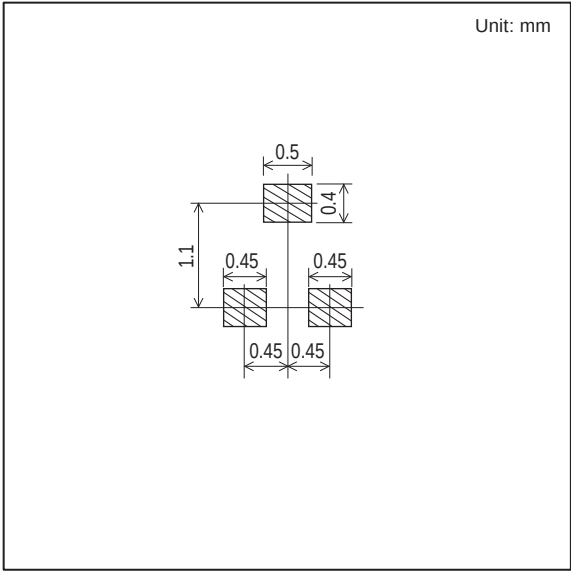


Outline Drawing

TF202THC-4-TL-H, TF202THC-5-TL-H



Land Pattern Example



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