



# TF252TH

## N-Channel JFET 20V, 140 to 350 $\mu$ 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 $T_a=25^\circ\text{C}$

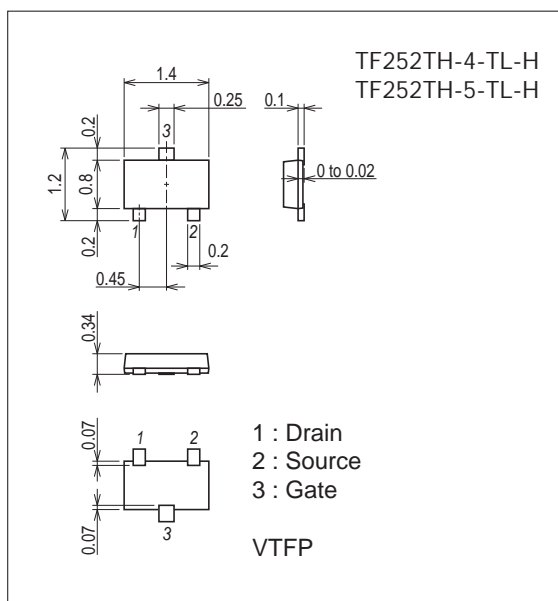
Parameter	Symbol	Conditions	Ratings	Unit
Gate-to-Drain Voltage	$V_{GDO}$		-20	V
Gate Current	$I_G$		10	mA
Drain Current	$I_D$		1	mA
Allowable Power Dissipation	$P_D$		100	mW
Junction Temperature	$T_j$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

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)

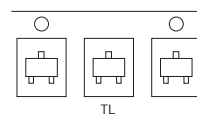
7031A-001



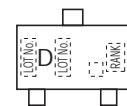
### Product & Package Information

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

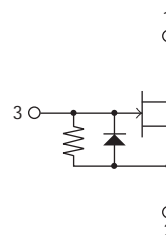
### Packing Type: TL



### Marking



### Electrical Connection



# TF252TH

## Electrical Characteristics at Ta=25°C

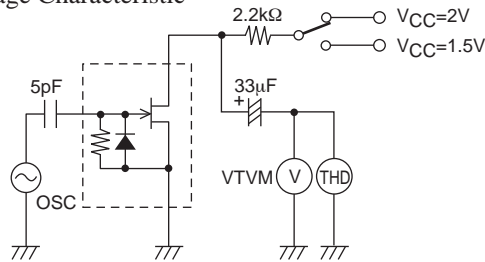
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Drain Breakdown Voltage	V(BR)GDO	I <sub>G</sub> =-100μA	-20			V
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =2V, I <sub>D</sub> =1μA	-0.1	-0.4	-1.0	V
Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =2V, V <sub>GS</sub> =0V	140*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

\* : The TF252TH is classified by I<sub>DSS</sub> as follows : (unit : μA)

Rank	4	5
I <sub>DSS</sub>	140 to 240	210 to 350

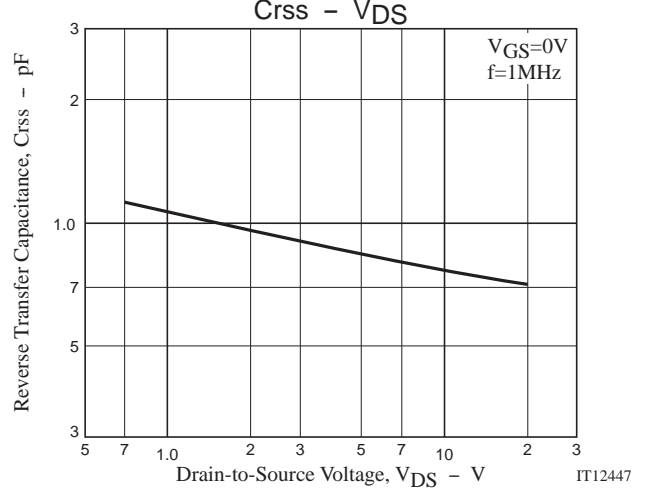
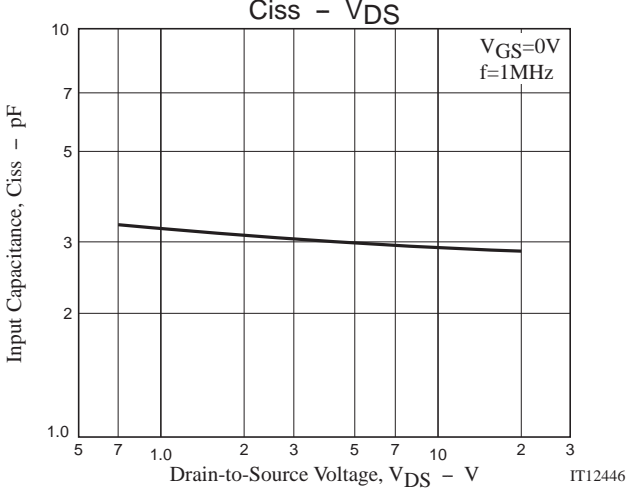
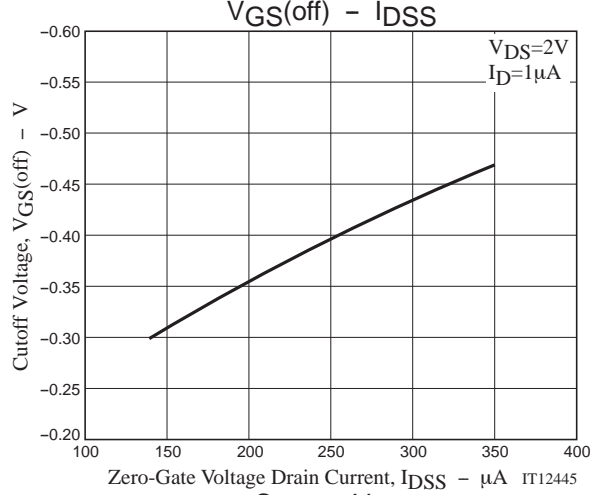
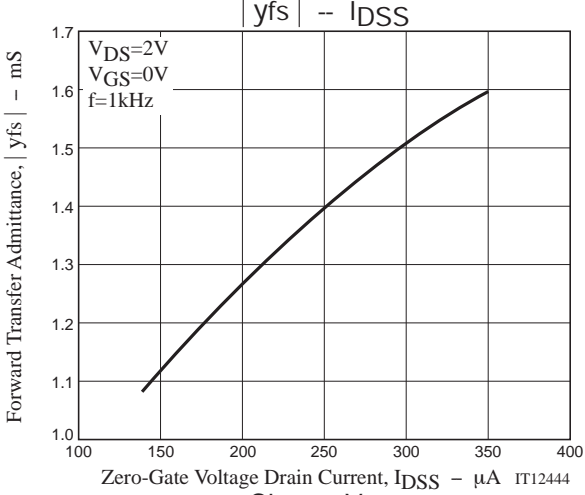
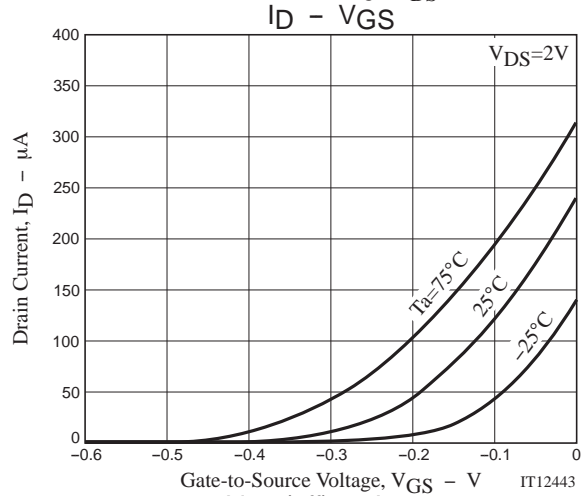
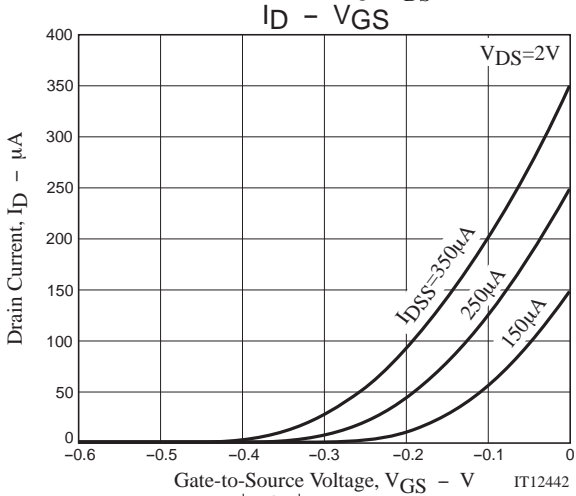
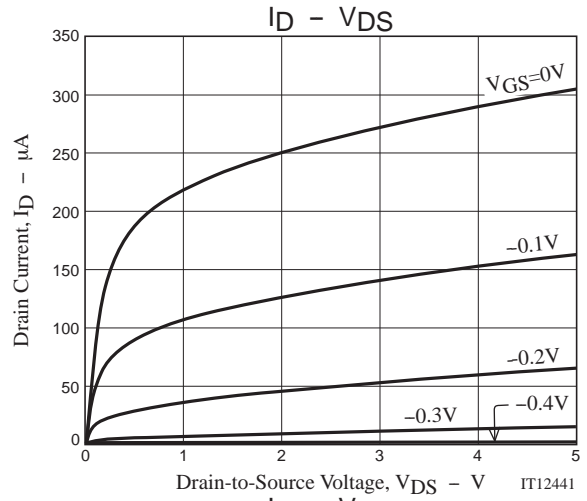
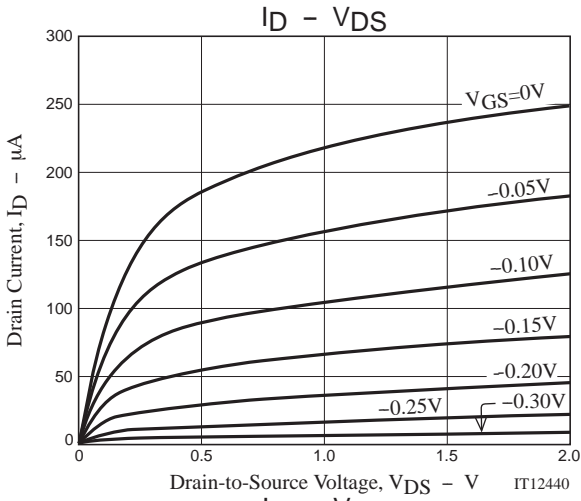
## Test Circuit

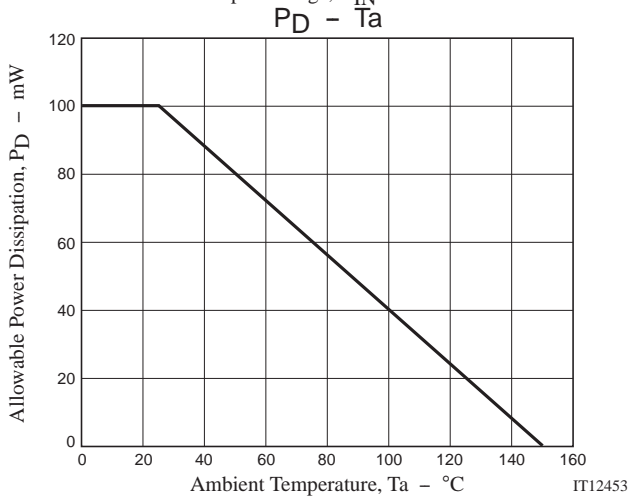
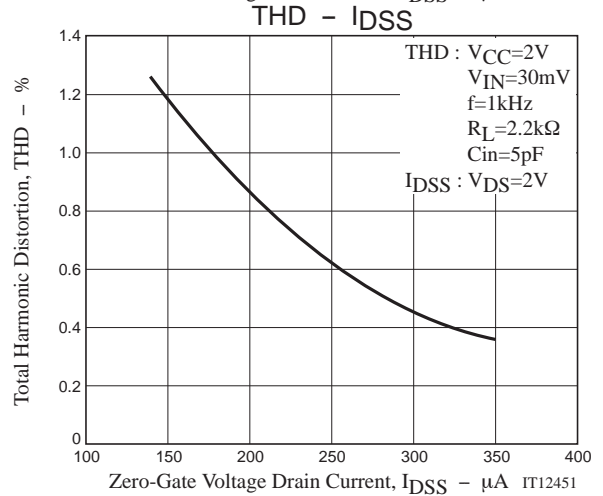
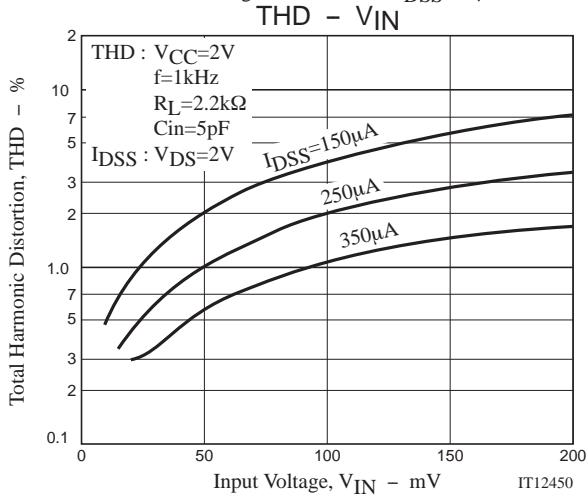
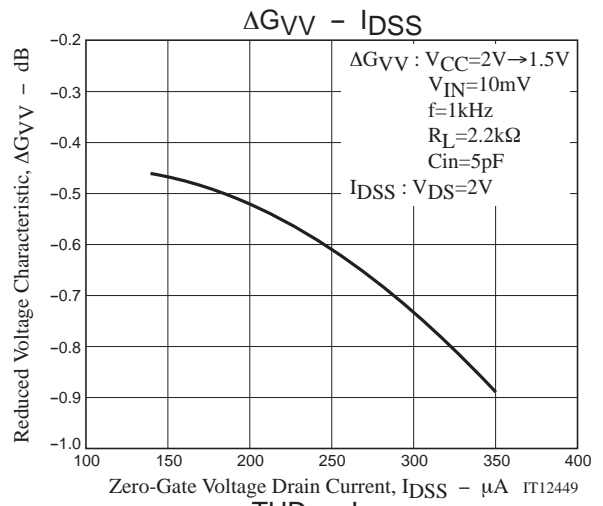
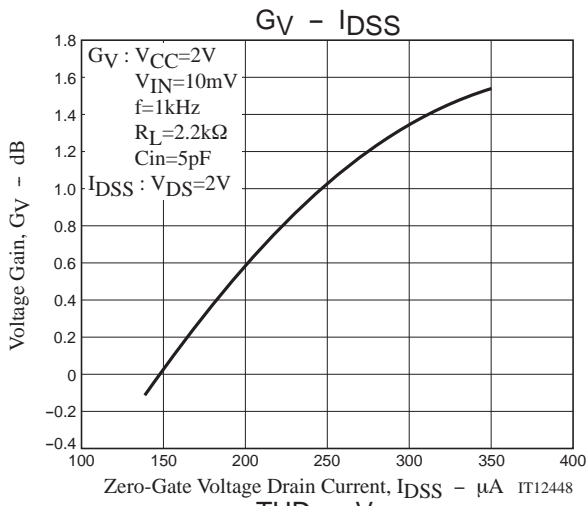
- Voltage gain
- Frequency Characteristic
- Distortion
- Reduced Voltage Characteristic



## 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	





# TF252TH

## Taping Specification

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

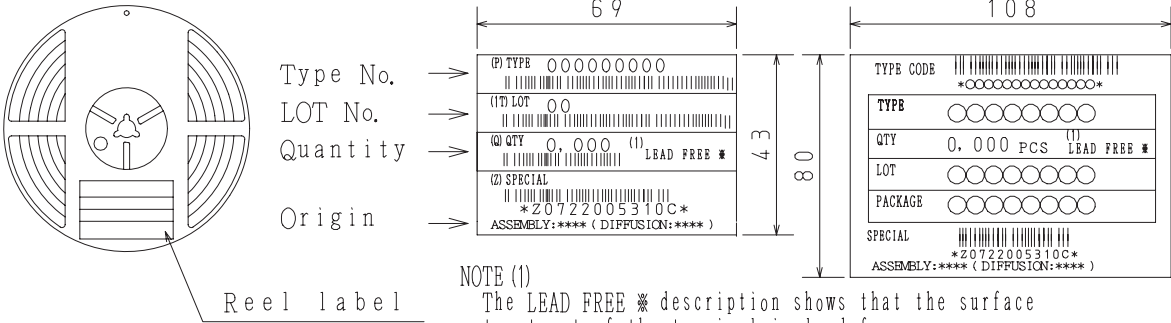
### 1. Packing Format

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

Reel label, Inner box label
Outer box label

(unit :mm)
It is a label at the time of factory shipments.  
The form of a label may change in physical distribution process.

#### Packing method

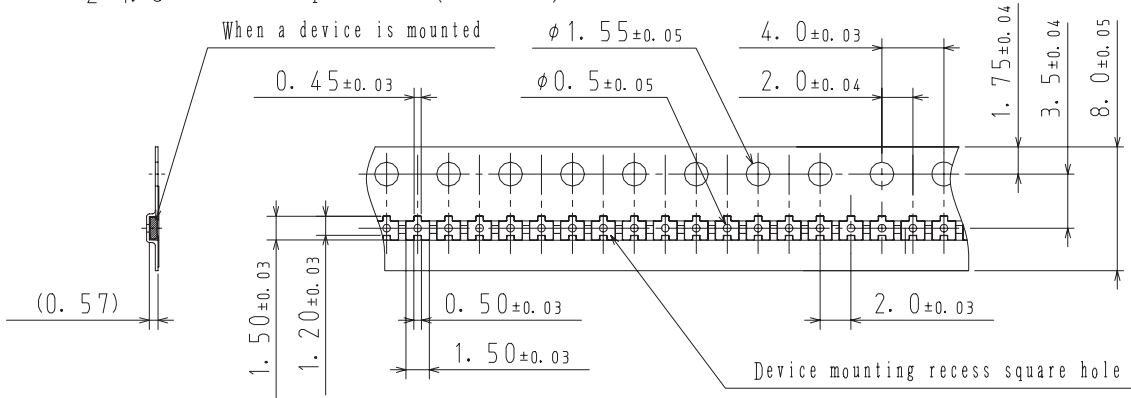


NOTE (1)  
The LEAD FREE \* description shows that the surface treatment of the terminal is lead free.

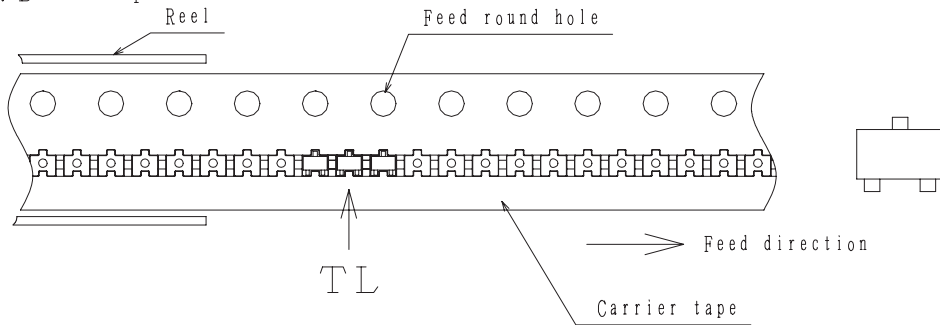
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

### 2. Taping configuration

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



#### 2-2. Device placement direction

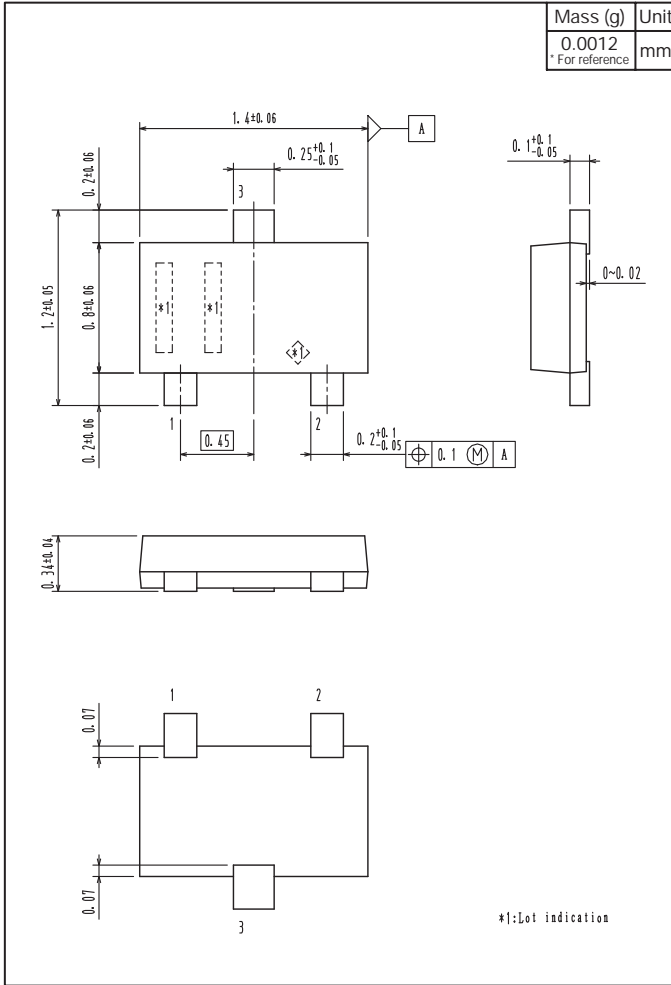


Those with oen electrode terminal on the feed hole side.....TL

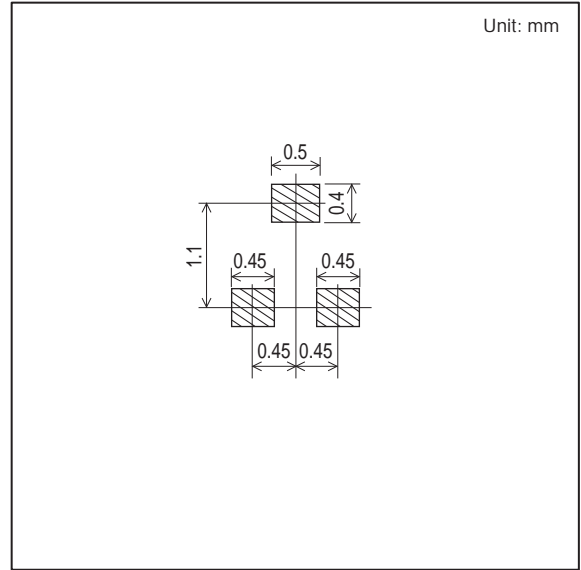
# TF252TH

## Outline Drawing

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



## Land Pattern Example



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