



# TF252TH — N-channel Silicon Junction FET Electret Condenser Microphone Applications

## Features

- High gain :  $G_V=1.0\text{dB}$  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

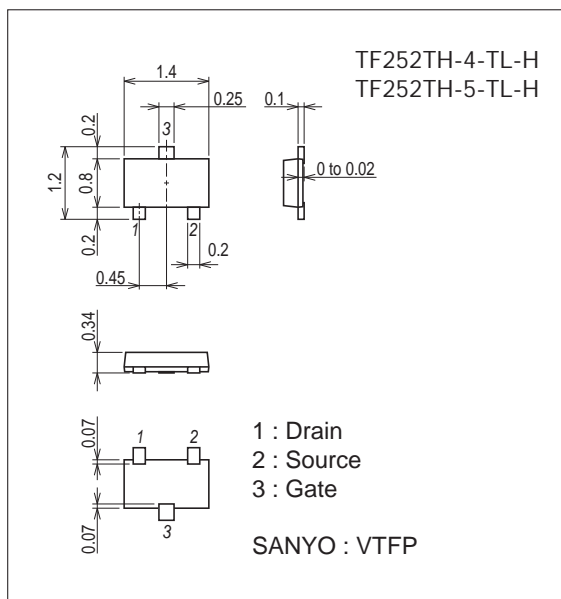
Absolute Maximum Ratings at  $T_a=25^\circ\text{C}$

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	$^\circ\text{C}$

## Package Dimensions

unit : mm (typ)

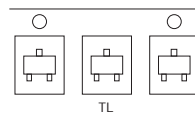
7031A-001



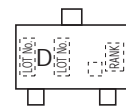
## Product & Package Information

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

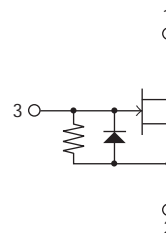
## Packing Type: TL



## Marking



## Electrical Connection



# TF252TH

## Electrical Characteristics at Ta=25°C

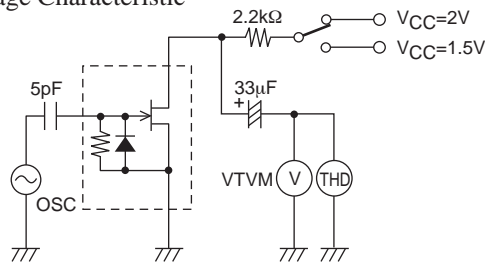
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Drain Breakdown Voltage	V(BR)GDO	I <sub>G</sub> =-100μA	-20			V
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =2V, I <sub>D</sub> =1μA	-0.1	-0.4	-1.0	V
Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =2V, V <sub>GS</sub> =0V	140*		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

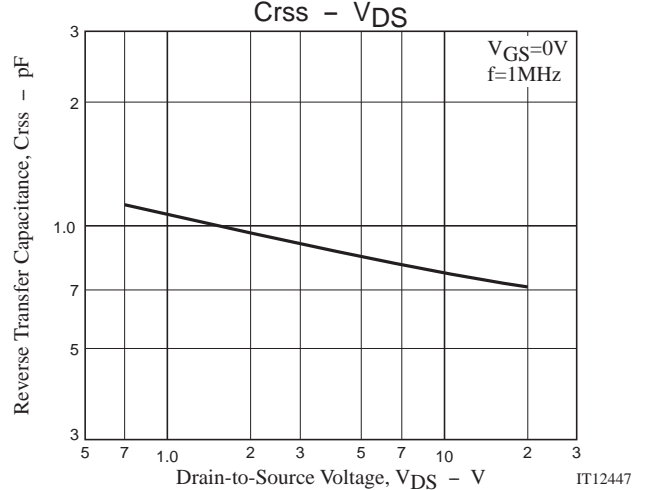
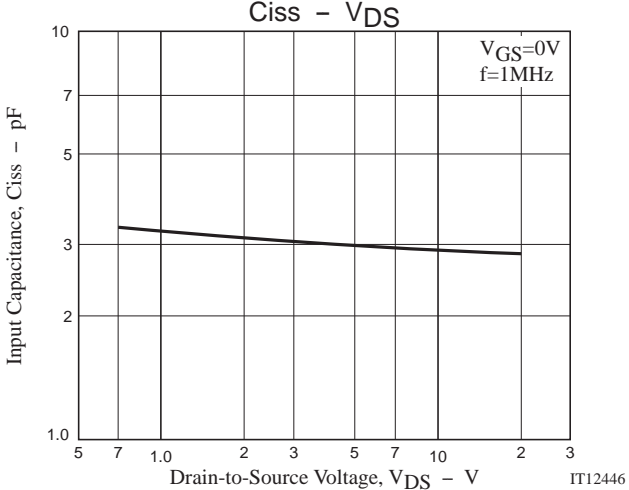
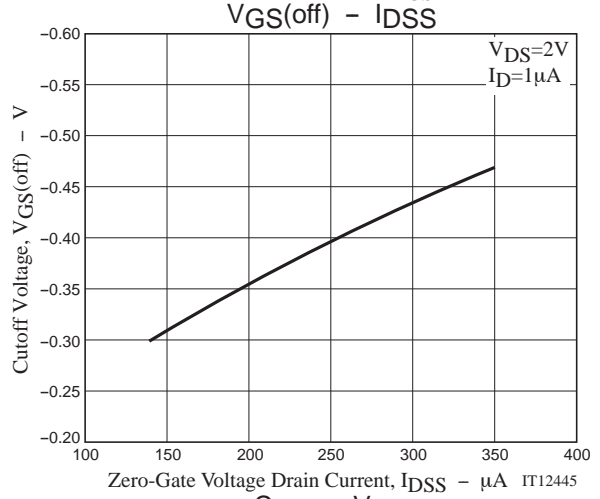
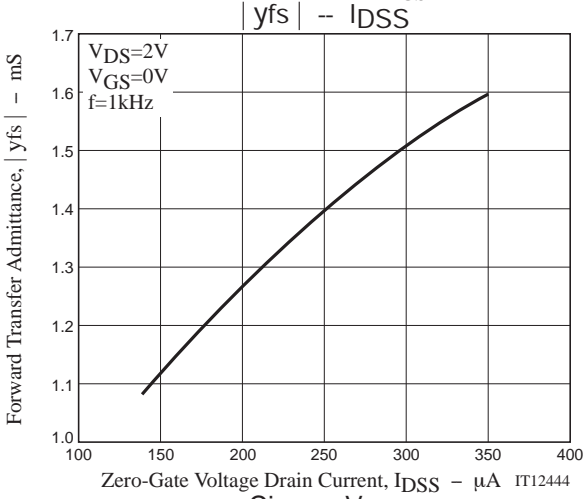
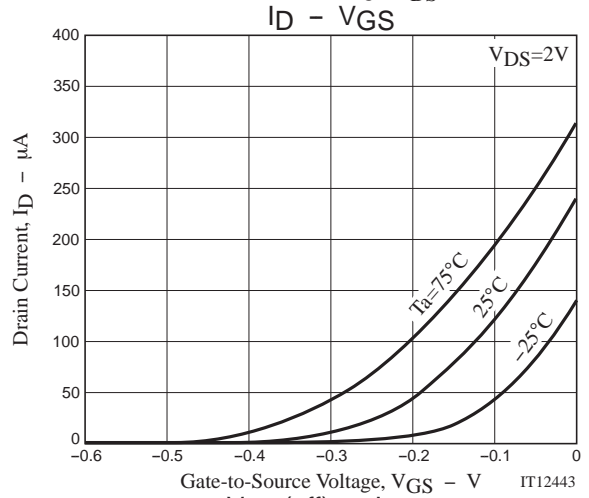
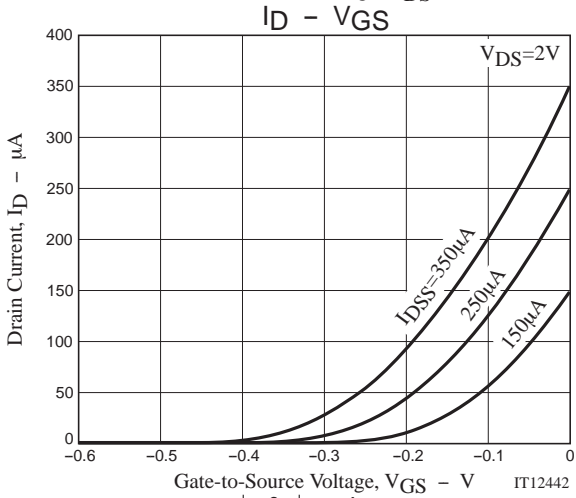
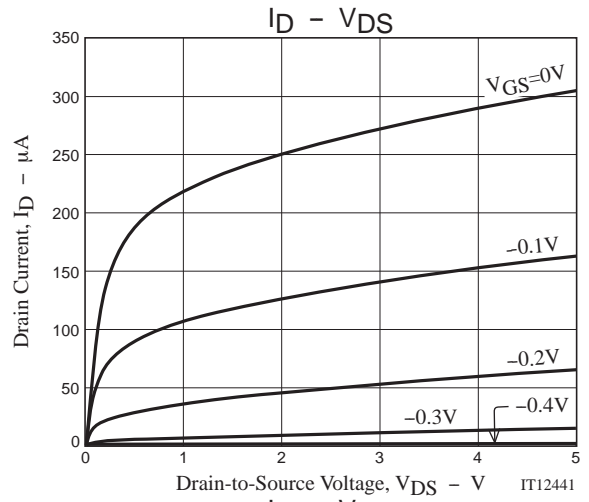
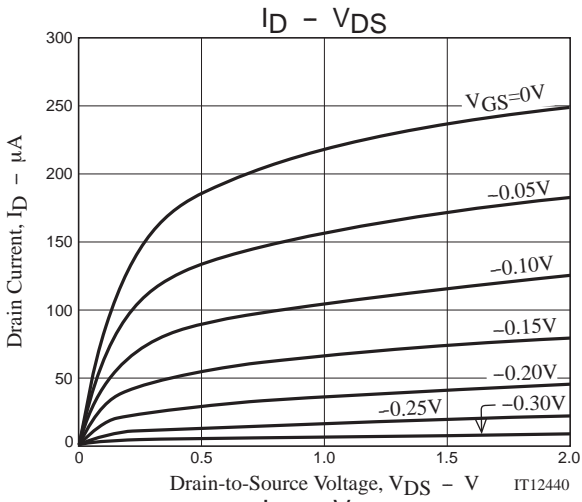
## Test Circuit

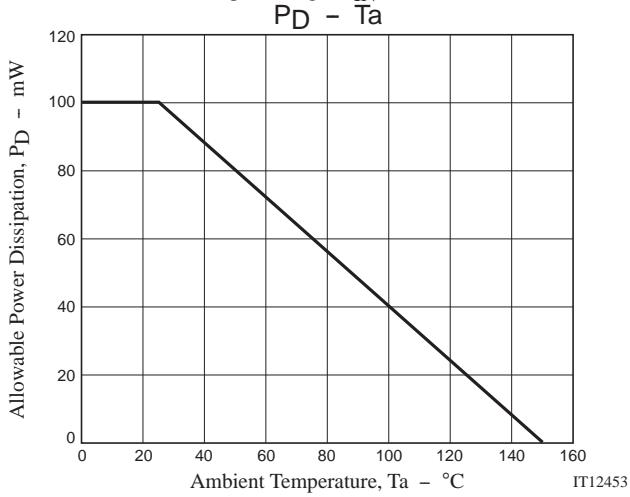
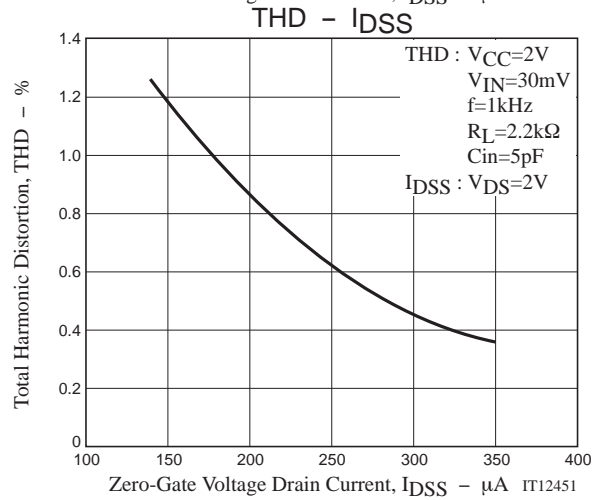
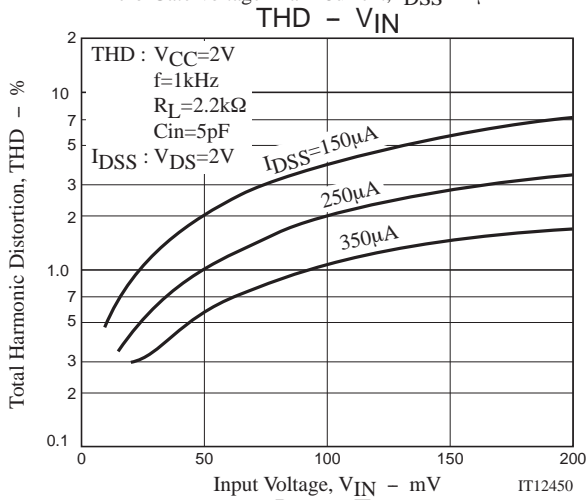
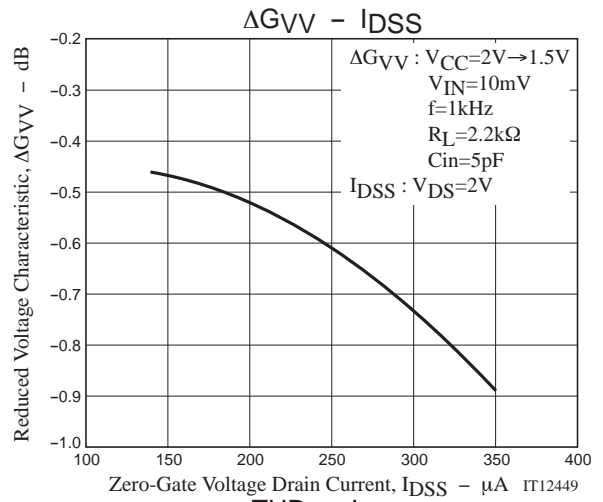
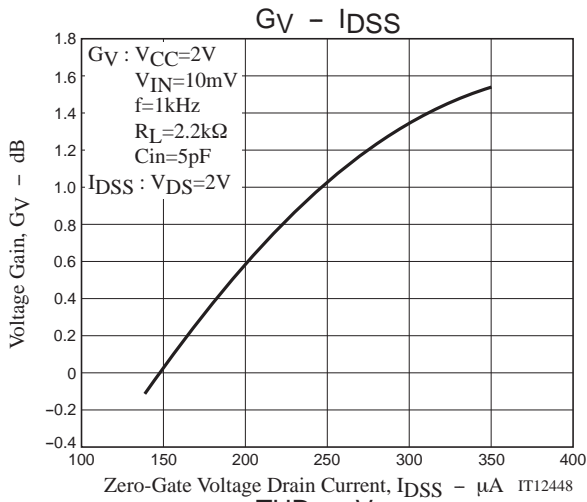
- Voltage gain
- Frequency Characteristic
- Distortion
- Reduced Voltage Characteristic



## 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

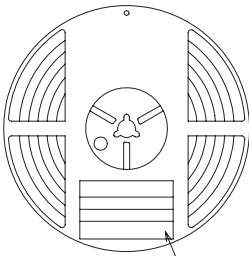
## Taping Specification

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

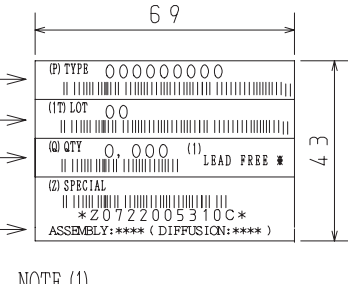
#### Packing method



Reel label

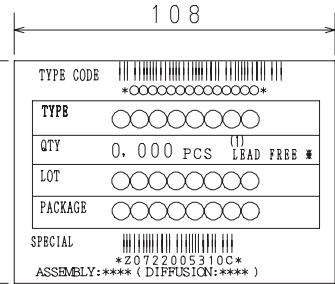
Type No.  
LOT No.  
Quantity  
Origin

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.



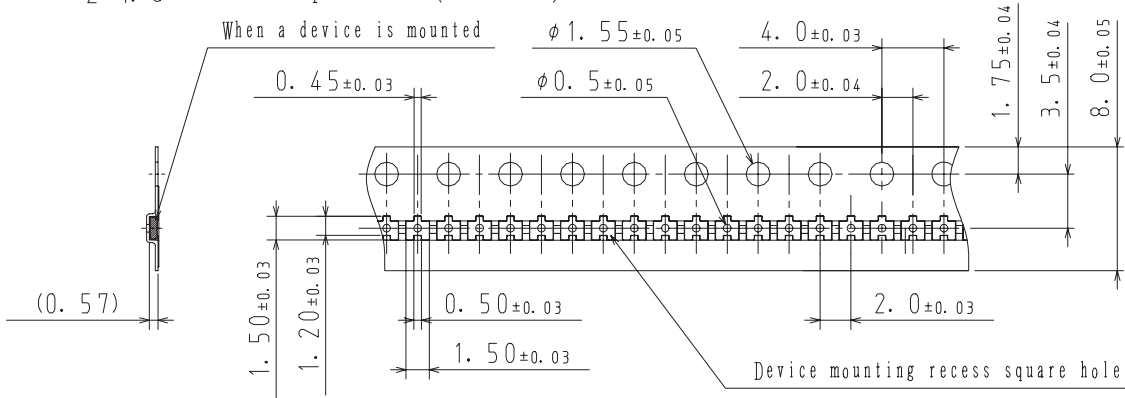
NOTE (1)

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

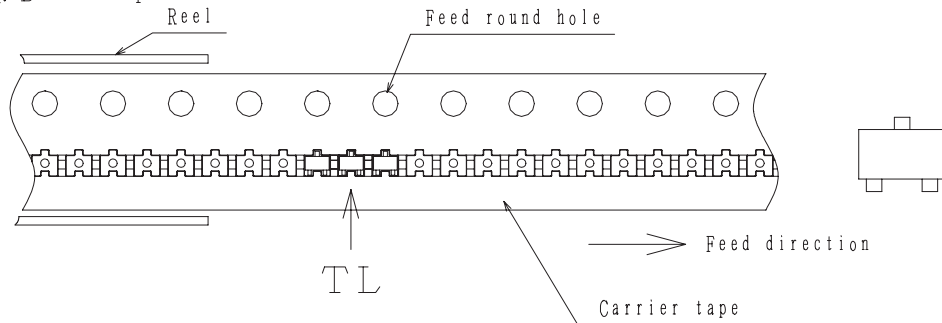
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

### 2. Taping configuration

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



#### 2-2. Device placement direction

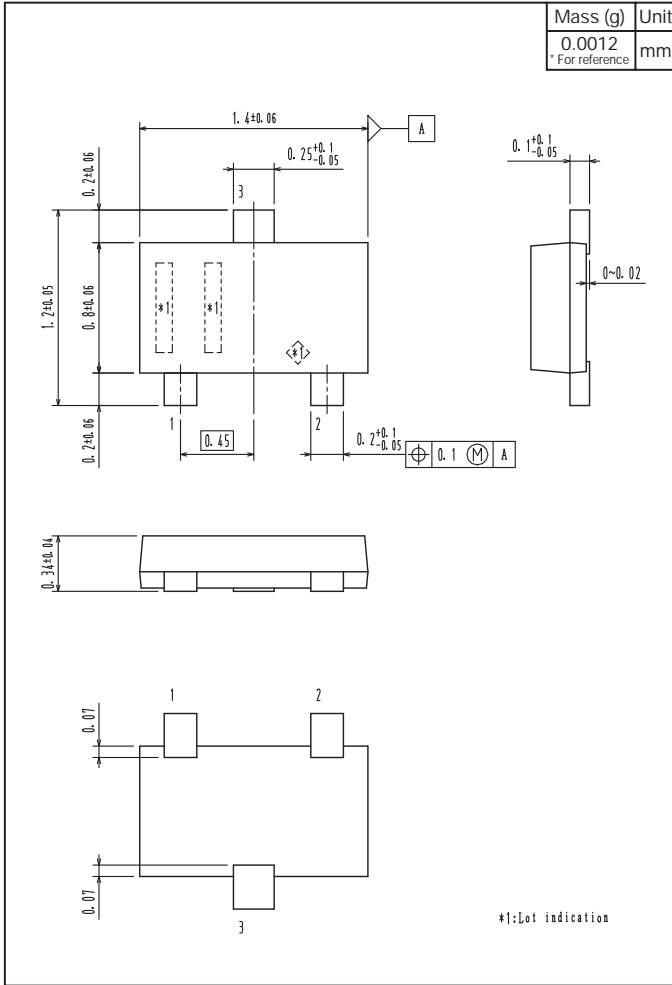


Those with oen electrode terminal on the feed hole side.....TL

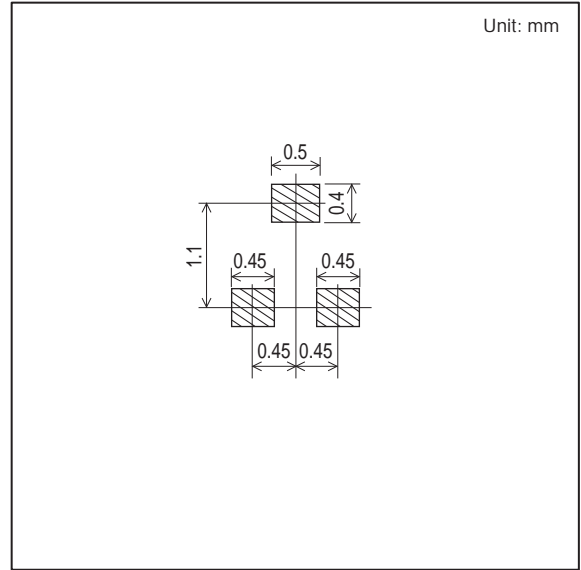
# TF252TH

## Outline Drawing

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



## Land Pattern Example



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