



SANYO Semiconductors

## DATA SHEET

An ON Semiconductor Company

# TF252 — 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 [1.0mm×0.6mm×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

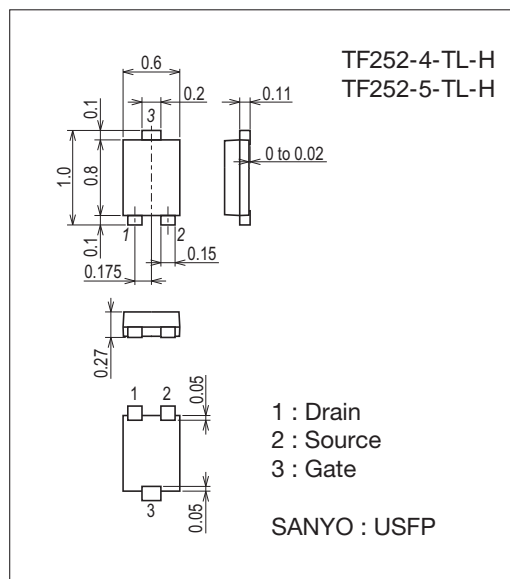
Absolute Maximum Ratings at  $T_a=25^\circ\text{C}$ 

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	$^\circ\text{C}$

### Package Dimensions

unit : mm (typ)

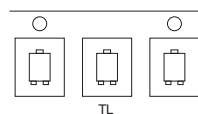
7055-001



### Product & Package Information

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

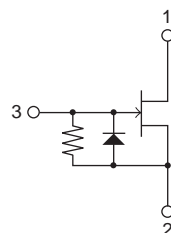
### Packing Type: TL



### Marking



### Electrical Connection



# TF252

## Electrical Characteristics at Ta=25°C

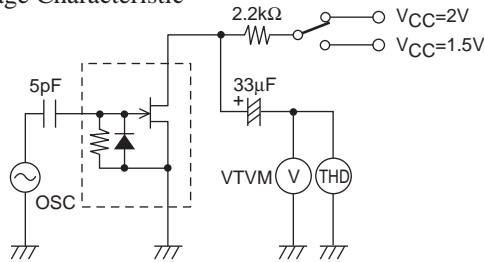
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Drain Breakdown Voltage	V(BR)GDO	IG=−100μA	−20			V
Cutoff Voltage	VGS(off)	VDS=2V, ID=1μA	−0.1	−0.4	−1.0	V
Drain Current	IDSS	VDS=2V, VGS=0V	140*		350*	μA
Forward Transfer Admittance	yfs	VDS=2V, VGS=0V, f=1kHz	0.8	1.4		mS
Input Capacitance	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  $I_{DSS}$  as follows : (unit :  $\mu A$ )

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

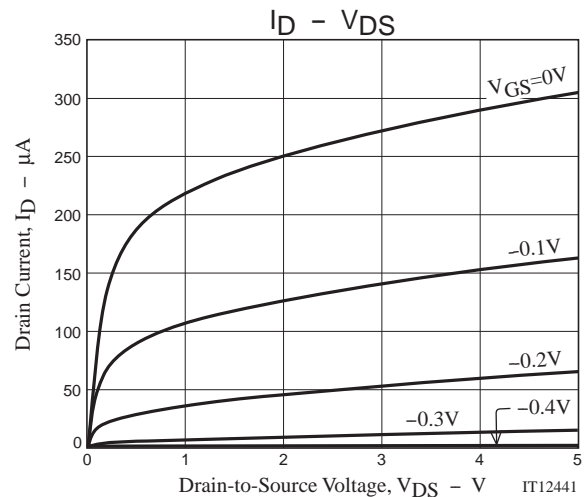
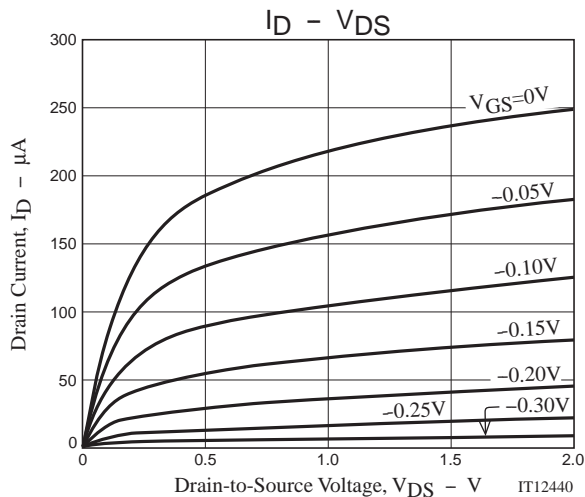
## Test Circuit

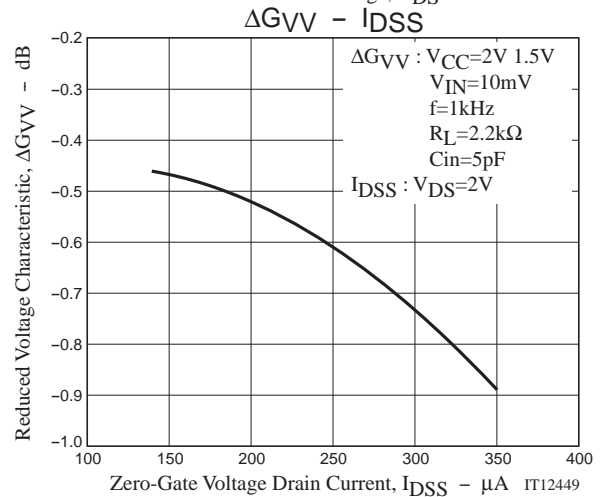
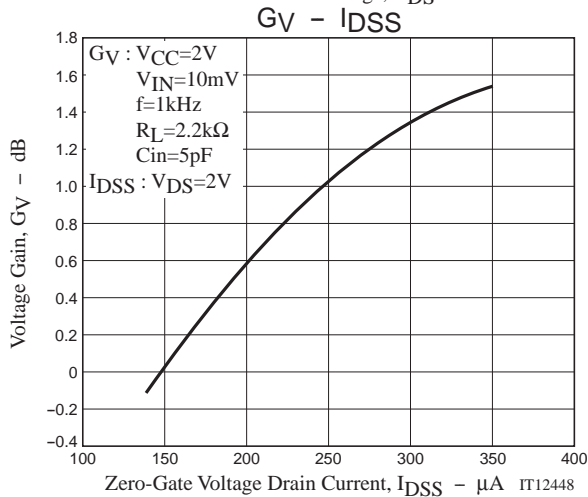
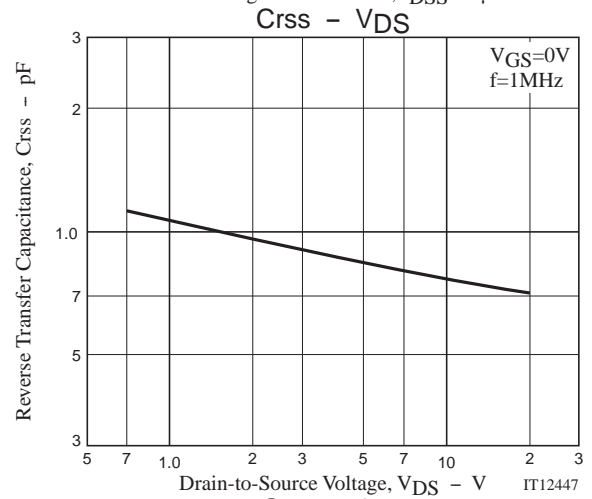
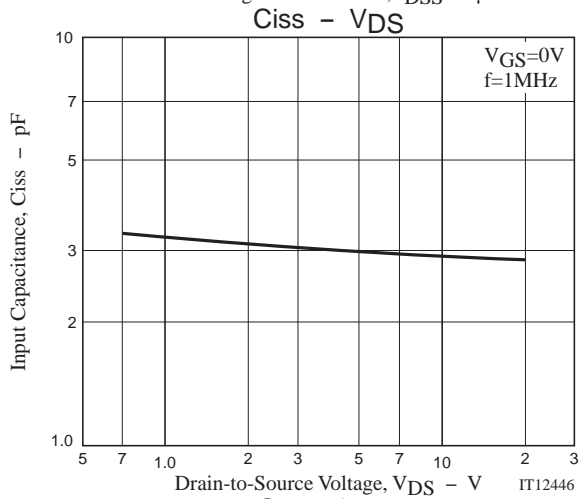
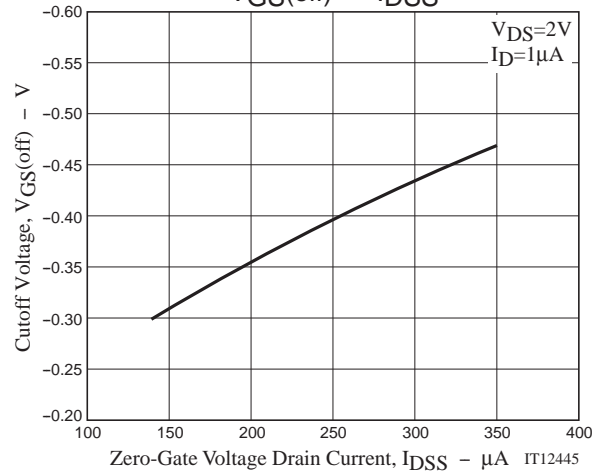
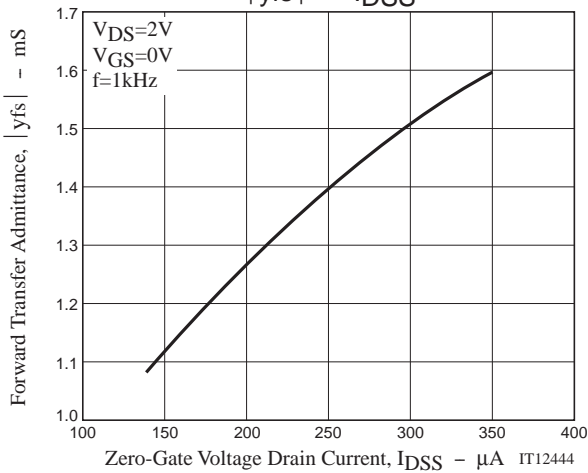
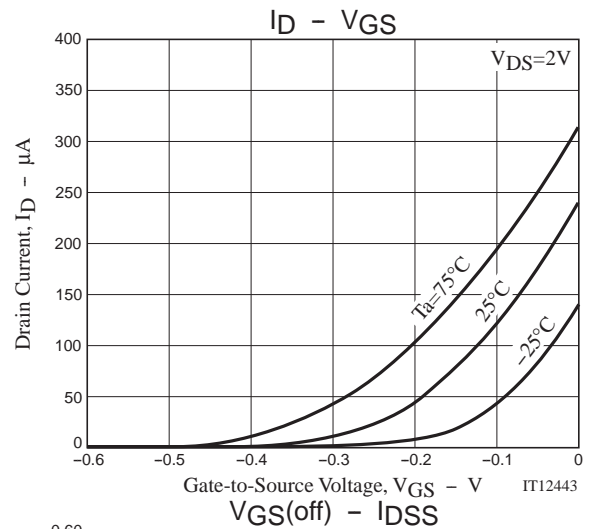
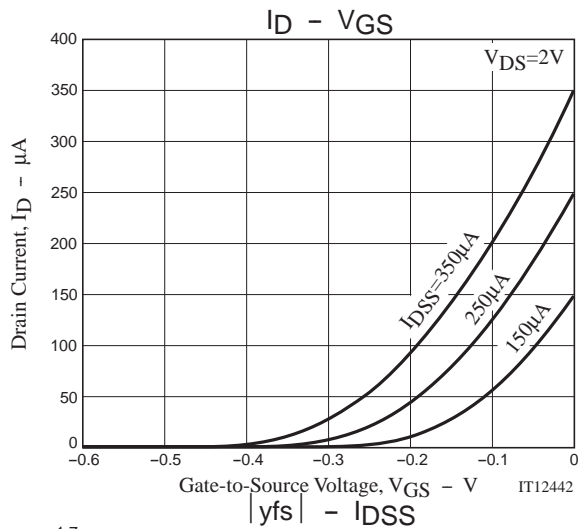
Voltage gain  
Frequency Characteristic  
Distortion  
Reduced Voltage Characteristic

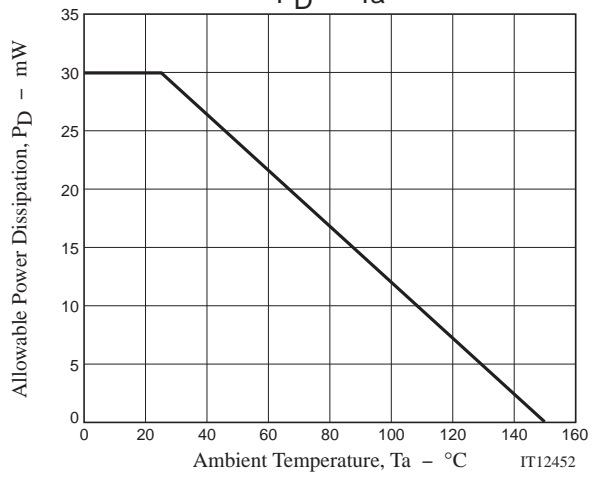
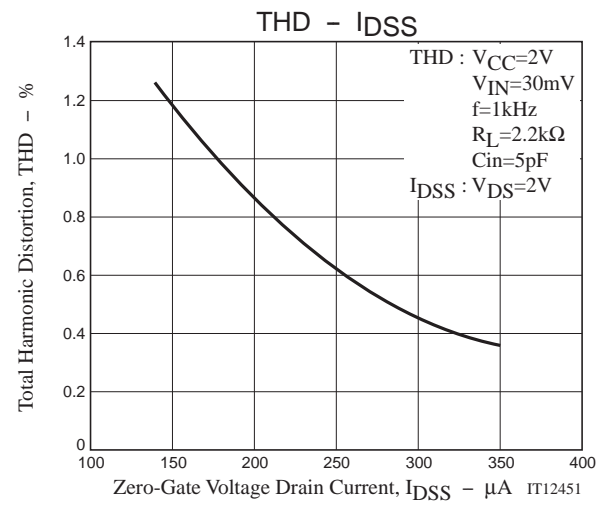
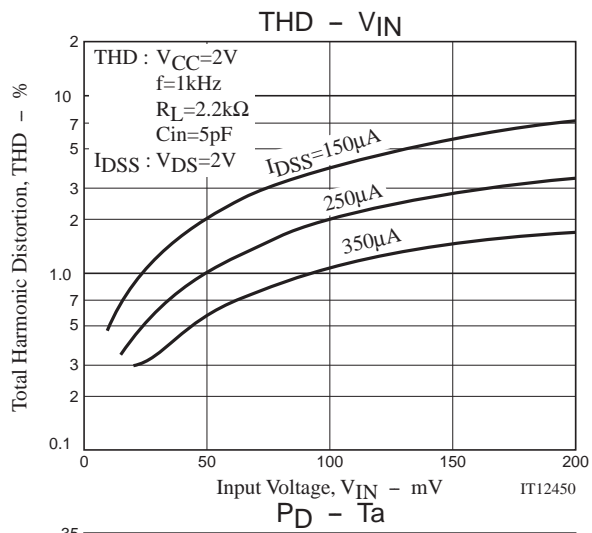


## Ordering Information

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







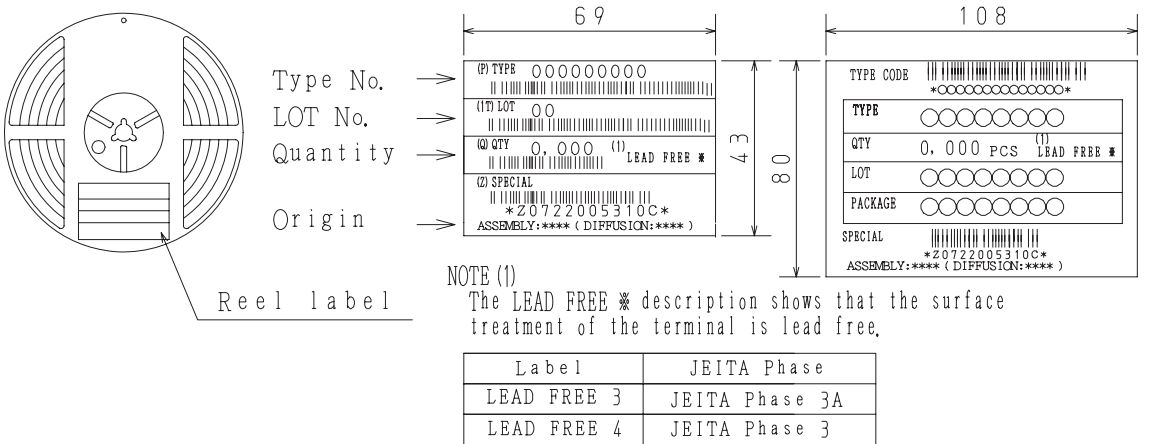
## Taping Specification

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

## 1. Packing Format

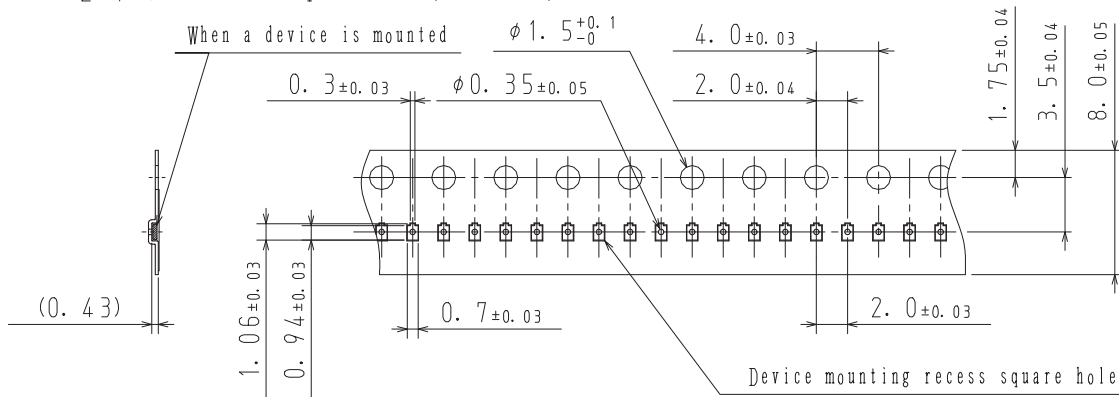
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
USFP	USFP	10,000	50,000	300,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

## Packing method

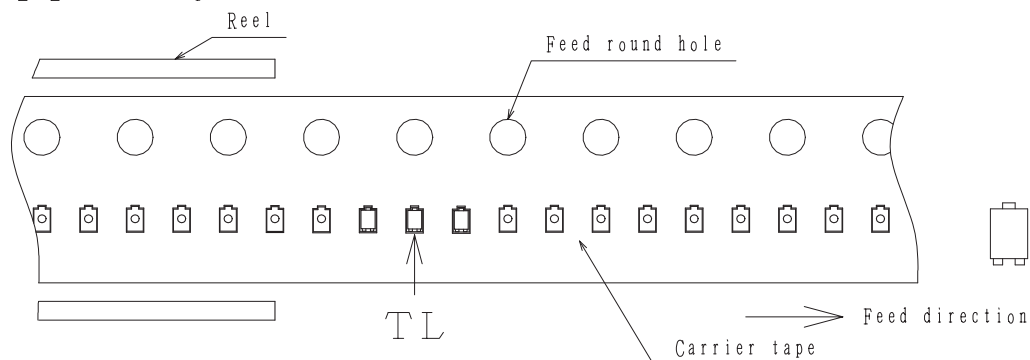


## 2. Taping configuration

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



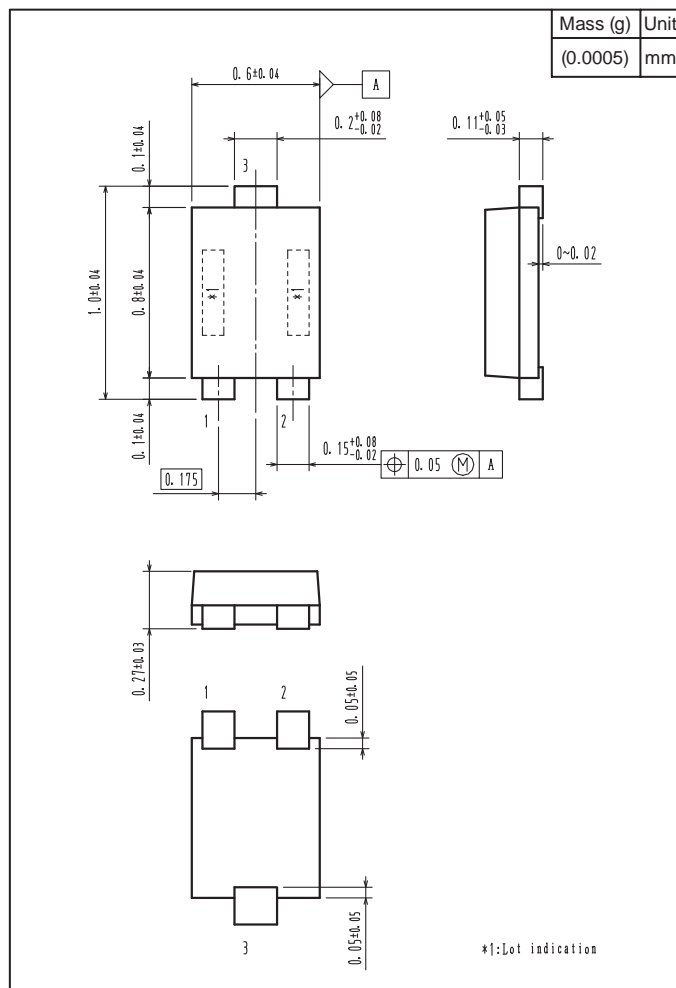
## 2-2. Device placement direction



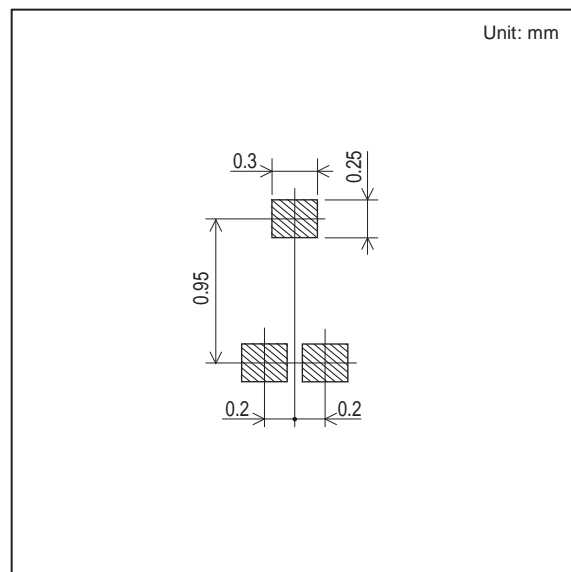
Those with one electrode terminal on the feed hole side.....TL

# Outline Drawing

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



# Land Pattern Example



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