



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

N-channel Silicon Junction FET

TF256TH — Electret Condenser Microphone Applications

Features

- High gain : $G_V=2.7\text{dB typ}$ ($V_{CC}=2\text{V}$, $R_L=2.2\text{k}\Omega$, $C_{in}=5\text{pF}$, $V_{IN}=10\text{mV}$, $f=1\text{kHz}$)
- Ultrasmall package facilitates miniaturization in end products
- Best suited for use in electret condenser microphone for audio equipments and telephones
- Excellent transient characteristics
- Adoption of FBET process
- Halogen free compliance

Specifications

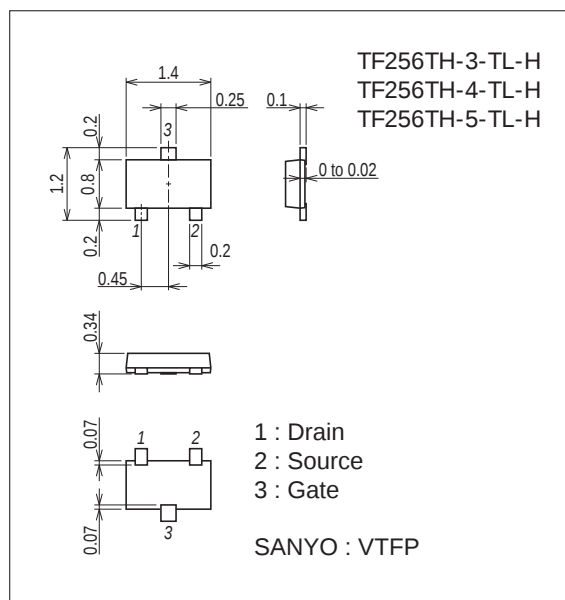
Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

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)

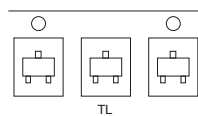
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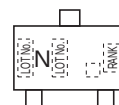
Product & Package Information

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

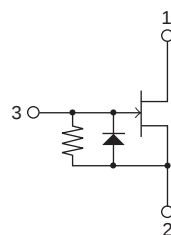
Packing Type: TL



Marking



Electrical Connection



SANYO Semiconductor Co., Ltd.

<http://www.sanyosemi.com/en/network/>

TF256TH

Electrical Characteristics at Ta=25°C

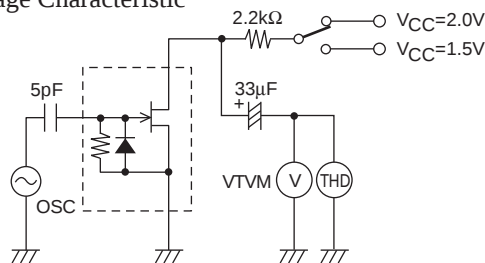
Parameter	Symbol	Conditions	Ratings				Unit
			Rank	min	typ	max	
Gate-to-Drain Breakdown Voltage	V _{(BR)GDO}	I _G =-100μA		-20			V
Cutoff Voltage	V _{GS(off)}	V _{DS} =2V, I _D =1μA		-0.1	-0.35	-1.0	V
Drain Current	I _{DSS} *	V _{DS} =2V, V _{GS} =0V	3	100		180	μA
			4	140		280	
			5	240		450	
Forward Transfer Admittance	y _{fs}	V _{DS} =2V, V _{GS} =0V, f=1kHz		0.75	1.7		mS
Input Capacitance	C _{iss}	V _{DS} =2V, V _{GS} =0V, f=1MHz			3.1		pF
Reverse Transfer Capacitance	C _{rss}				1.0		pF
[T _a =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	3		1.0		dB
			4		2.0		
			5		3.0		
Reduced Voltage Characteristic	ΔG _{VV}	V _{IN} =10mV, f=1kHz, V _{CC} =2.0V → 1.5V	3		-0.5	-1.0	dB
			4		-0.6	-1.3	
			5		-0.9	-2.0	
Frequency Characteristic	ΔG _{vf}	f=1kHz to 110Hz				-1.0	dB
Total Harmonic Distortion	THD	V _{IN} =30mV, f=1kHz	3		1.4		%
			4		0.9		
			5		0.35		
Output Noise Voltage	V _{NO}	V _{IN} =0V, A curve			-105	-100	dB

* : The TF256TH is classified by I_{DSS} as follows : (unit : μA)

Rank	3	4	5
I_{DSS}	100 to 180	140 to 280	240 to 450

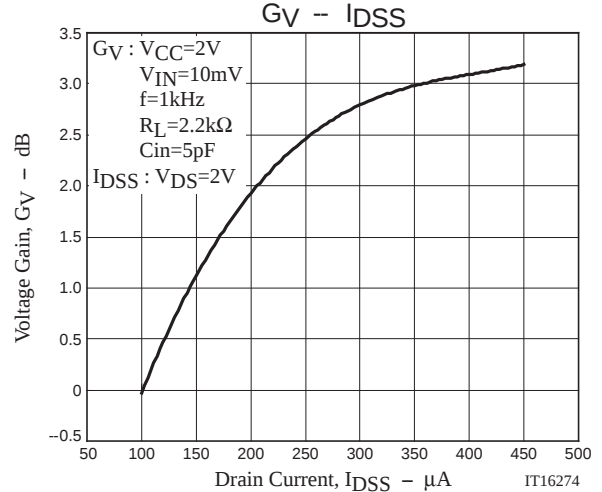
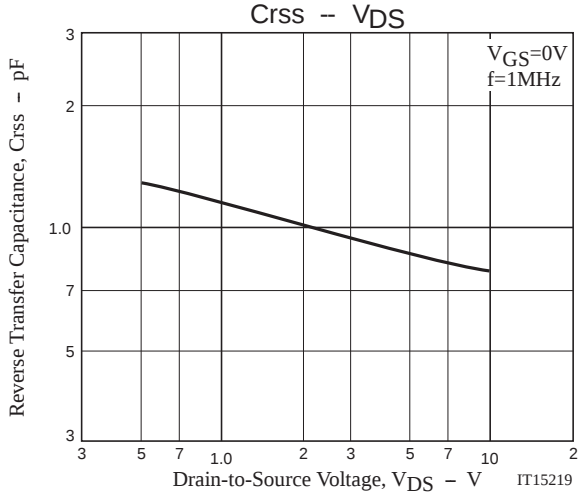
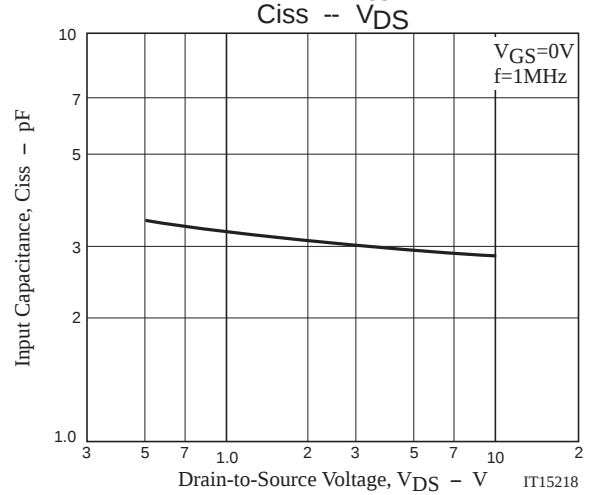
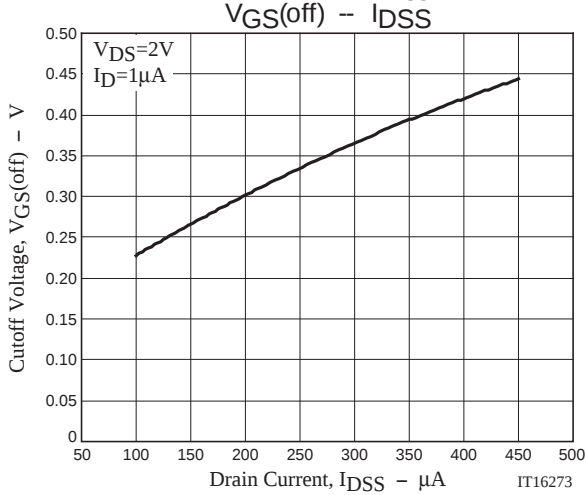
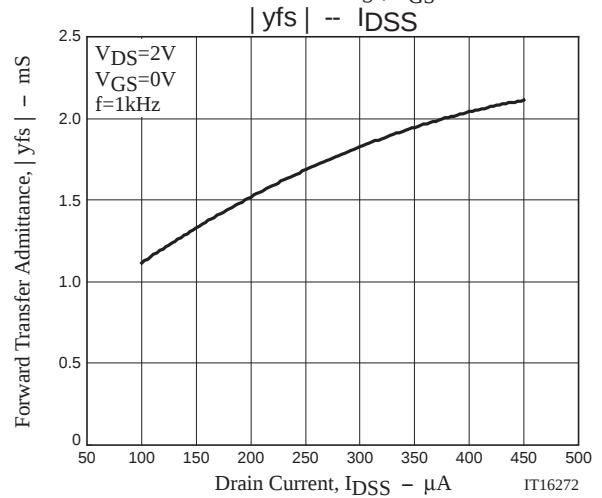
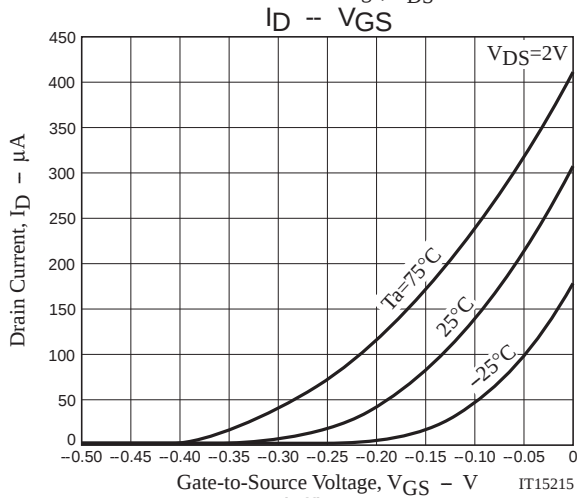
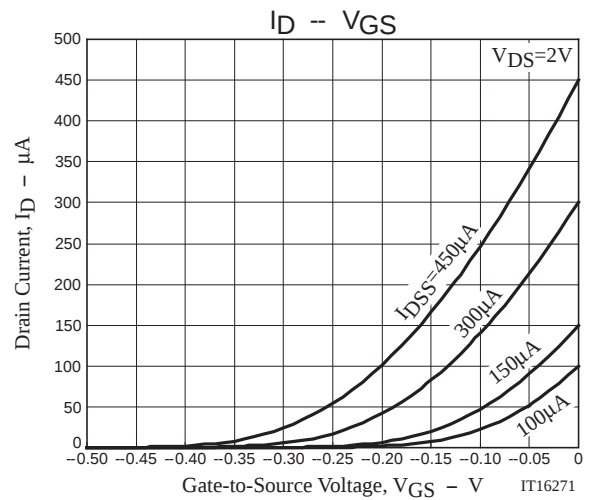
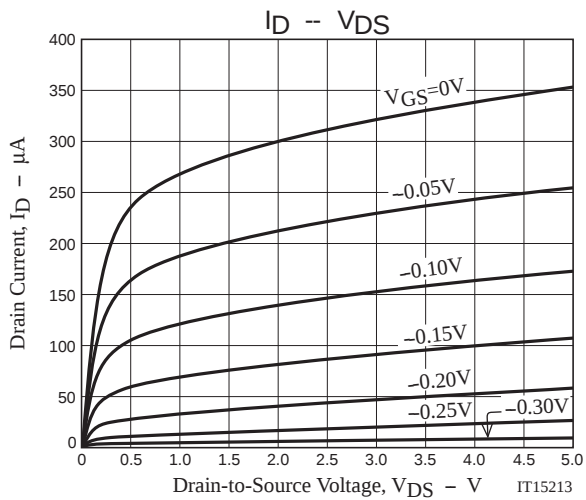
Test Circuit

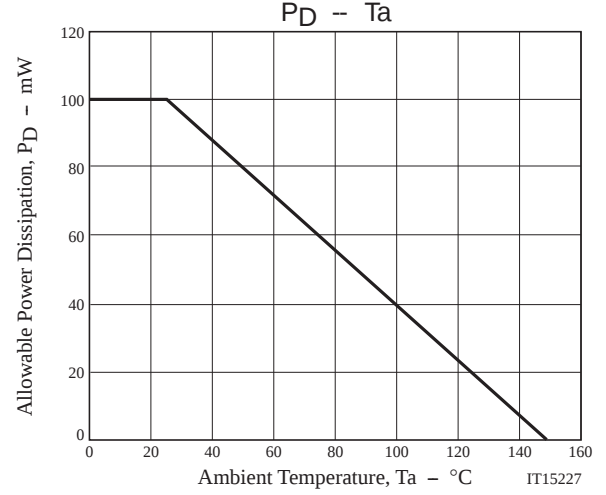
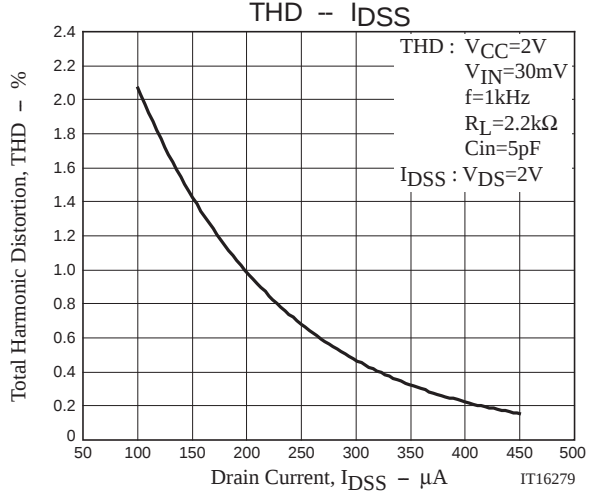
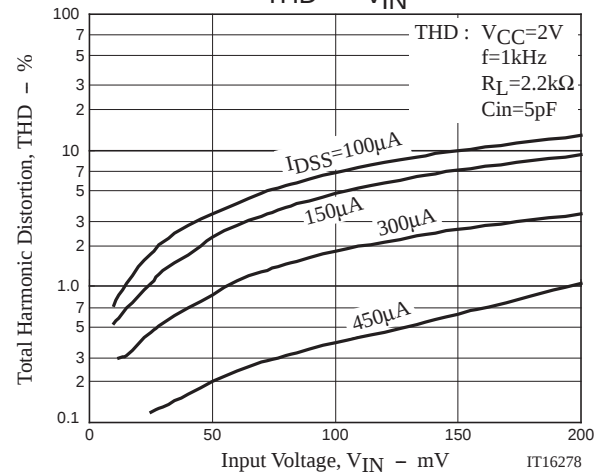
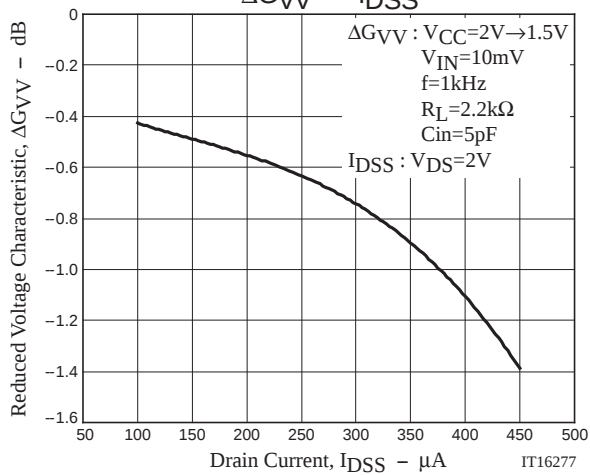
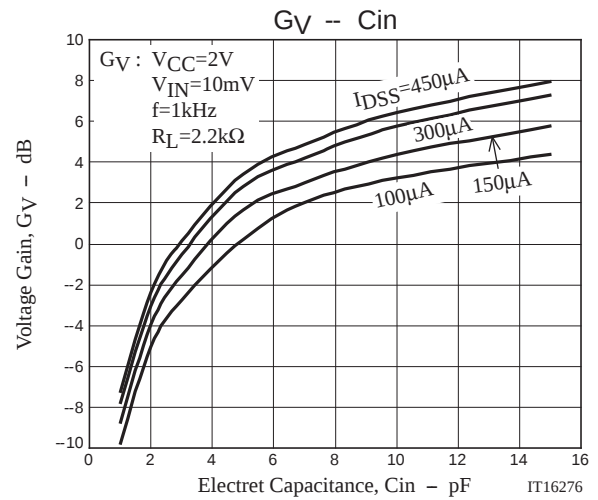
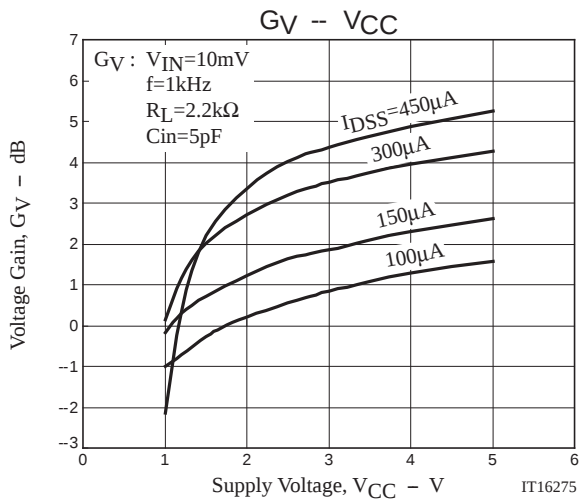
Voltage gain
Frequency Characteristic
Distortion
Reduced Voltage Characteristic



Ordering Information

Device	Package	Shipping	memo
TF256TH-3-TL-H	VTFP	8,000pcs./reel	Pb Free and Halogen Free
TF256TH-4-TL-H	VTFP	8,000pcs./reel	
TF256TH-5-TL-H	VTFP	8,000pcs./reel	





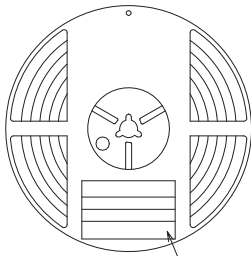
Taping Specification

TF256TH-3-TL-H, TF256TH-4-TL-H, TF256TH-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



Type No.
LOT No.
Quantity
Origin

Reel label

Reel label, Inner box label
(unit:mm)

(P) TYPE	0000000000
(T) LOT	00
(Q) QTY	0.000 (1) LEAD FREE *
(S) SPECIAL	*20722005310C*
ASSEMBLY:**** (DIFFUSION:****)	

Outer box label

It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.

TYPE CODE	*****
TYPE	00000000
QTY	0.000 PCS (1) LEAD FREE *
LOT	00000000
PACKAGE	00000000
SPECIAL	*20722005310C*
ASSEMBLY:**** (DIFFUSION:****)	

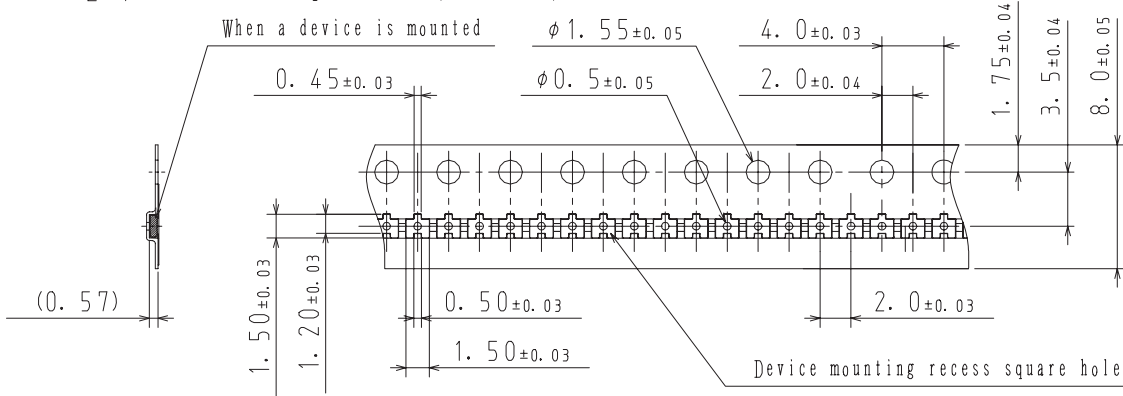
NOTE (1)

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

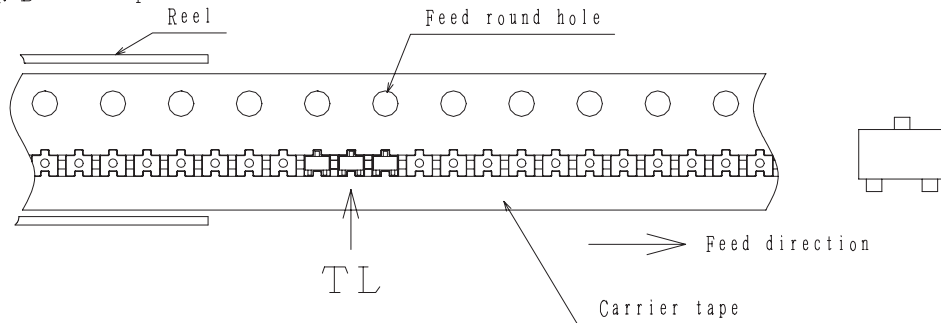
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction

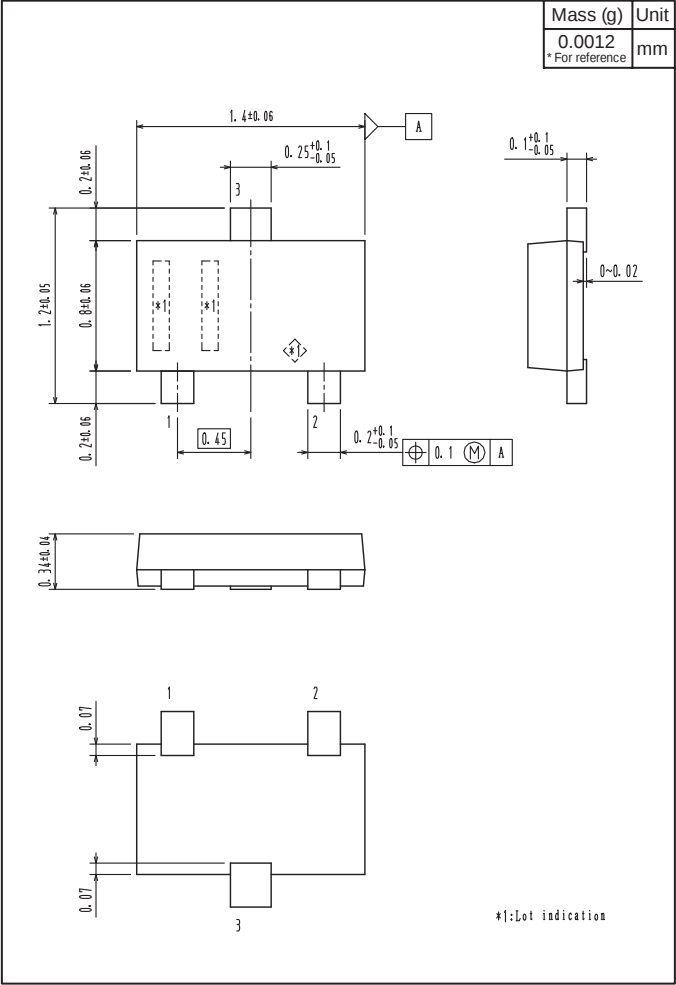


Those with oen electrode terminal on the feed hole side.....TL

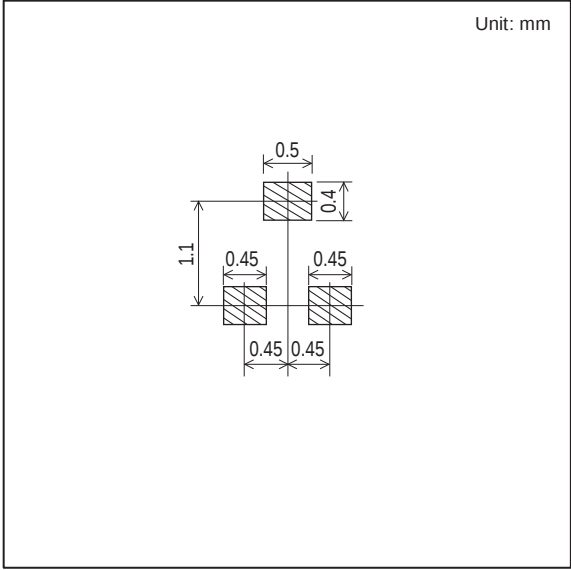
TF256TH

Outline Drawing

TF256TH-3-TL-H, TF256TH-4-TL-H, TF256TH-5-TL-H



Land Pattern Example



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