



# SANYO Semiconductors

## DATA SHEET

# TF250TH — N-channel Silicon Junction FET

## Electret Condenser Microphone Applications

### 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.

### Specifications

#### Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings		Unit
Gate-to-Drain Voltage	V <sub>GDO</sub>			-20	V
Gate Current	I <sub>G</sub>			10	mA
Drain Current	I <sub>D</sub>			1	mA
Allowable Power Dissipation	P <sub>D</sub>			100	mW
Junction Temperature	T <sub>j</sub>			150	°C
Storage Temperature	T <sub>stg</sub>			-55 to +150	°C

#### Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Drain Breakdown Voltage	V <sub>(BR)GDO</sub>	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
Zero-Gate Voltage 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	0.7	1.3		mS
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =2V, V <sub>GS</sub> =0V, f=1MHz		2.8		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =2V, V <sub>GS</sub> =0V, f=1MHz		0.55		pF

Marking: C

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\*: The TF250TH is classified by I<sub>DSS</sub> as follows : (unit : μA)

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

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## TF250TH

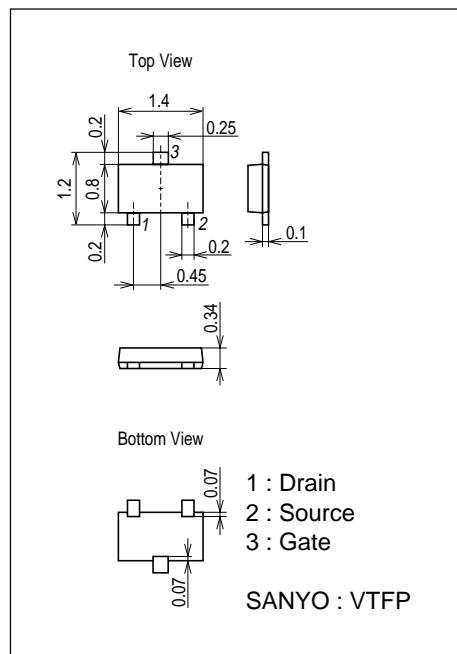
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[Ta=25°C, VCC=2V, RL=2.2kΩ, Cin=5pF, See specified Test Circuit.]						
Voltage Gain	GV	VIN=10mV, f=1kHz		0.8		dB
Reduced Voltage Characteristic	ΔGVV	VIN=10mV, f=1kHz, VCC=2→1.5V		-0.7	-2.0	dB
Frequency Characteristic	ΔGvf	f=1kHz to 110Hz			-1.0	dB
Total Harmonic Distortion	THD	VIN=30mV, f=1kHz		0.6		%
Output Noise Voltage	VNO	VIN=0V, A curve			-100	dB

### Package Dimensions

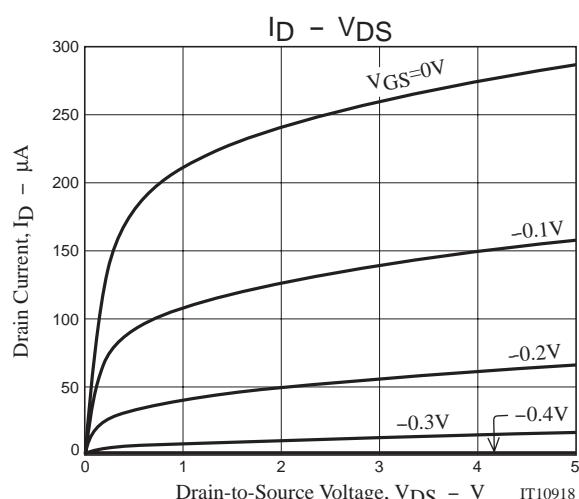
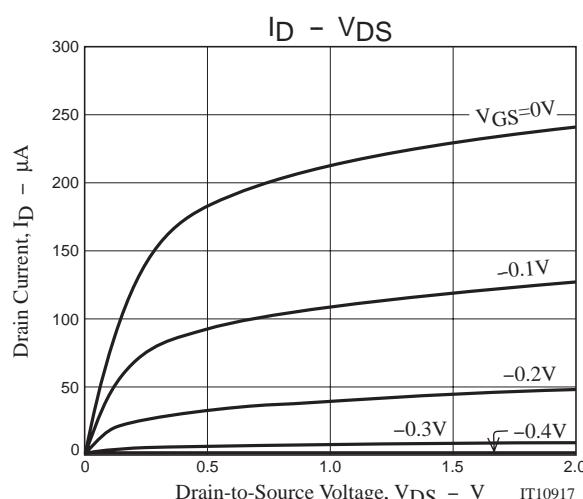
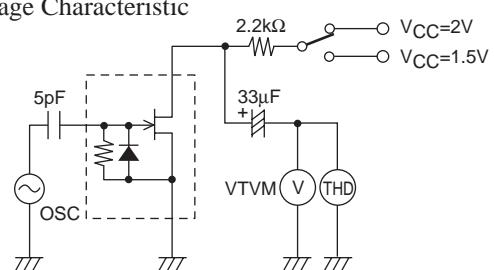
unit : mm (typ)

7031-001

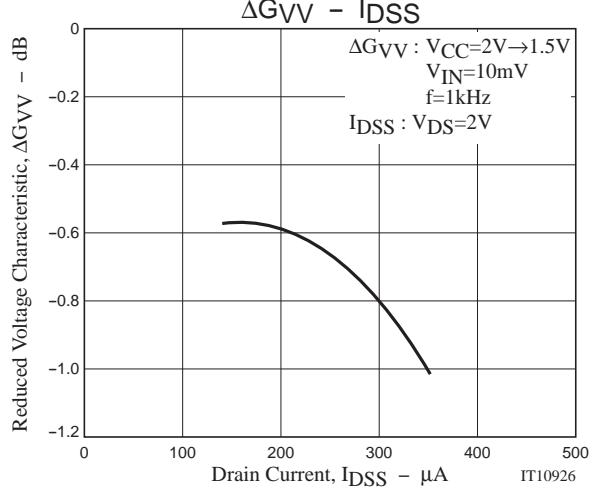
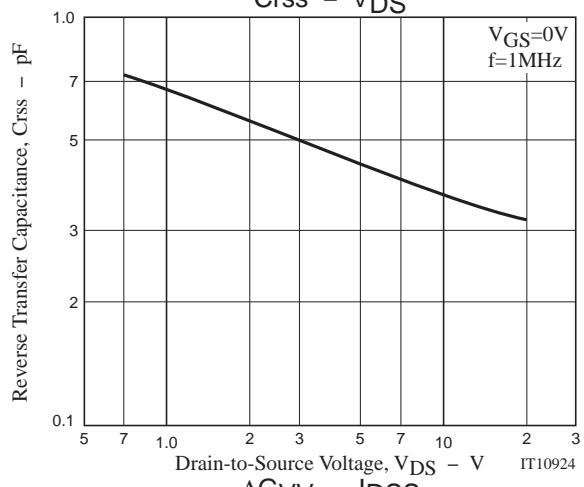
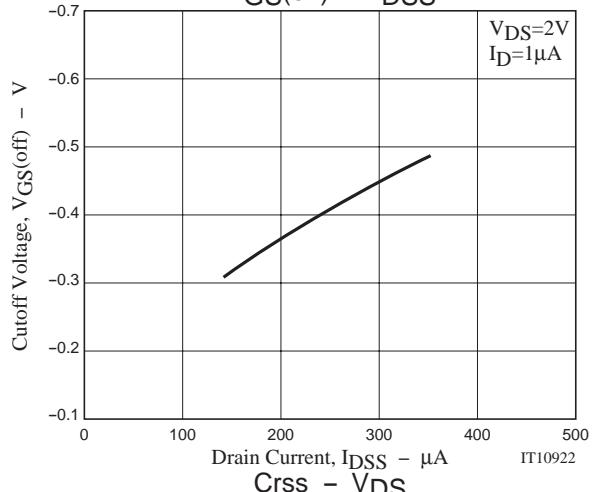
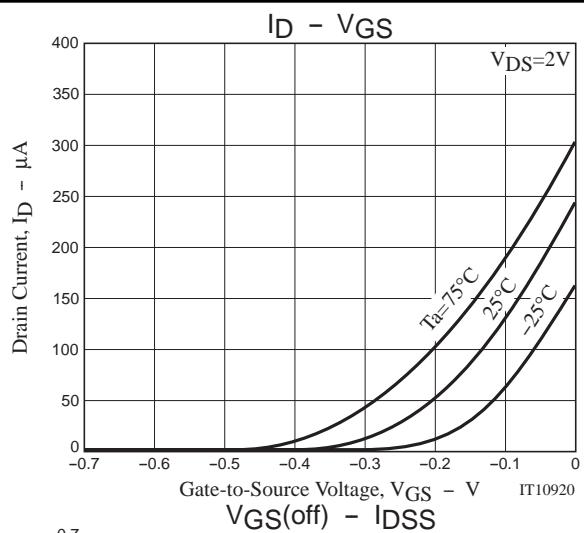
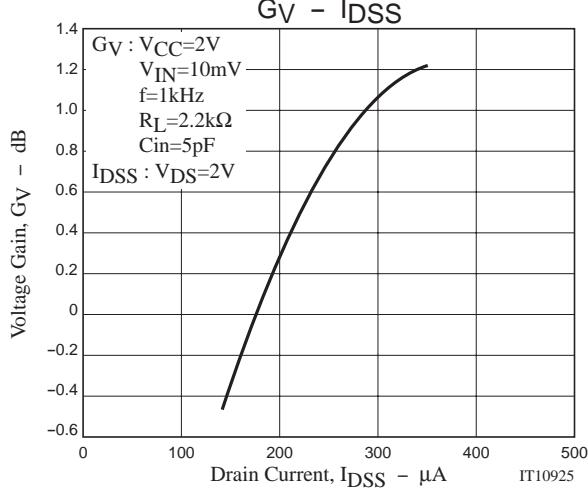
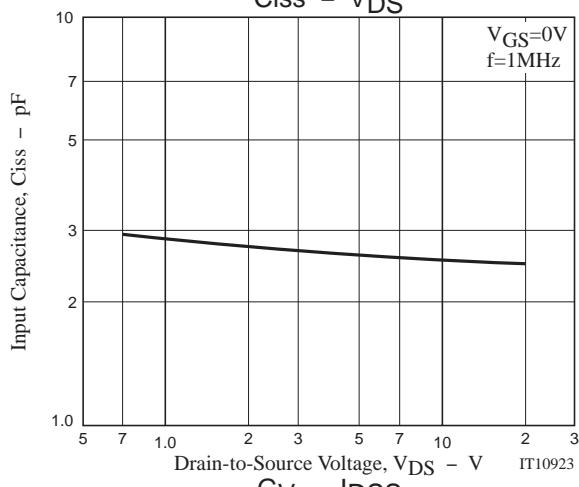
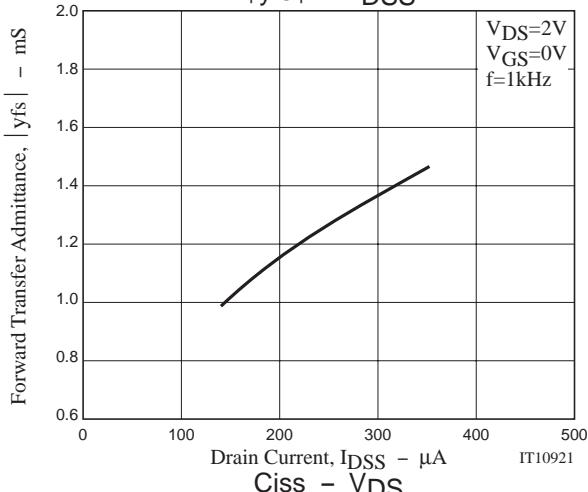
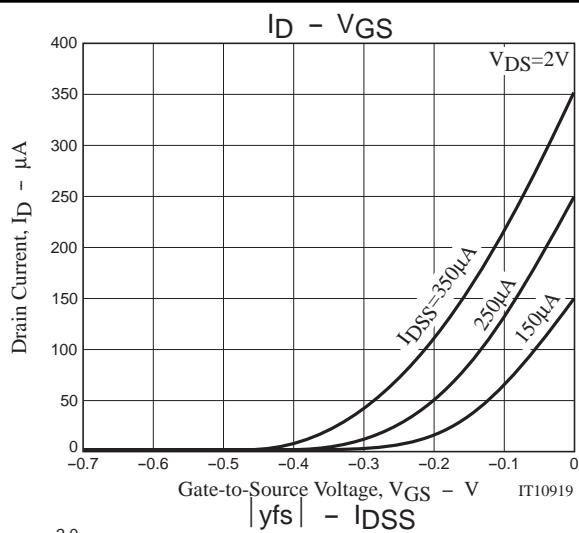


### Test Circuit

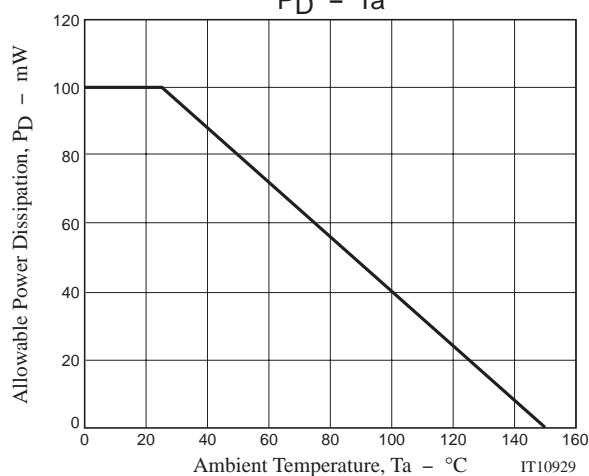
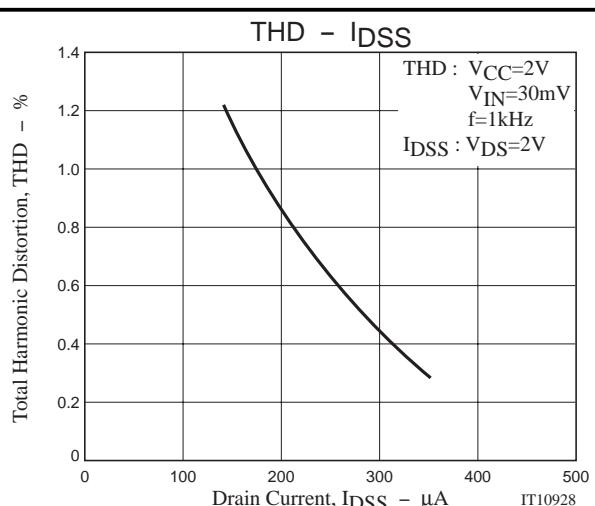
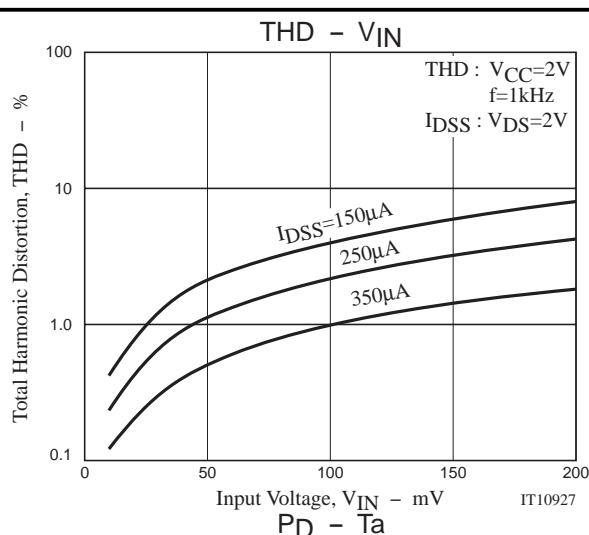
Voltage gain  
Frequency Characteristic  
Distortion  
Reduced Voltage Characteristic



# TF250TH



## TF250TH



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