



SANYO Semiconductors

## DATA SHEET

# TF218THC

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.
- Halogen free compliance.

### 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

Marking: A

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**SANYO Semiconductor Co., Ltd.**

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

# TF218THC

## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Drain Breakdown Voltage	$V_{(BR)GDO}$	$I_G = -100\mu A$	-20			V
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 5V, I_D = 1\mu A$	-0.2	-0.6	-1.0	V
Drain Current	$I_{DSS}$	$V_{DS} = 5V, V_{GS} = 0V$	140*		350*	$\mu A$
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = 5V, V_{GS} = 0V, f = 1kHz$	0.5	1.0		mS
Input Capacitance	$C_{iss}$	$V_{DS} = 5V, V_{GS} = 0V, f = 1MHz$		3.5		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS} = 5V, V_{GS} = 0V, f = 1MHz$		0.65		pF
[Ta=25°C, V <sub>CC</sub> =4.5V, R <sub>L</sub> =1kΩ, C <sub>in</sub> =15pF, See specified Test Circuit.]						
Voltage Gain	$G_V$	$V_{IN} = 10mV, f = 1kHz$		-3.0		dB
Reduced Voltage Characteristic	$\Delta G_{VV}$	$V_{IN} = 10mV, f = 1kHz, V_{CC} = 4.5 \rightarrow 1.5V$		-1.2	-3.5	dB
Frequency Characteristic	$\Delta G_{vf}$	$f = 1kHz \text{ to } 110Hz$			-1.0	dB
Input Impedance	$Z_{IN}$	$f = 1kHz$	25			MΩ
Output Impedance	$Z_O$	$f = 1kHz$		1000		Ω
Total Harmonic Distortion	THD	$V_{IN} = 30mV, f = 1kHz$		1.2		%
Output Noise Voltage	$V_{NO}$	$V_{IN} = 0V, A \text{ curve}$			-110	dB

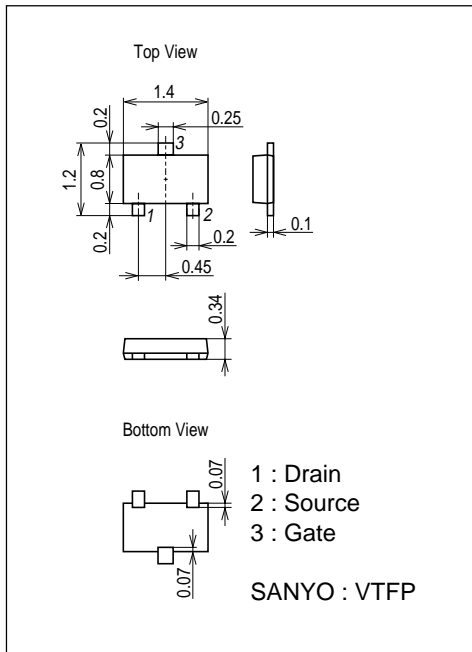
\* : The TF218THC is classified by  $I_{DSS}$  as follows : (unit :  $\mu A$ )

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

## Package Dimensions

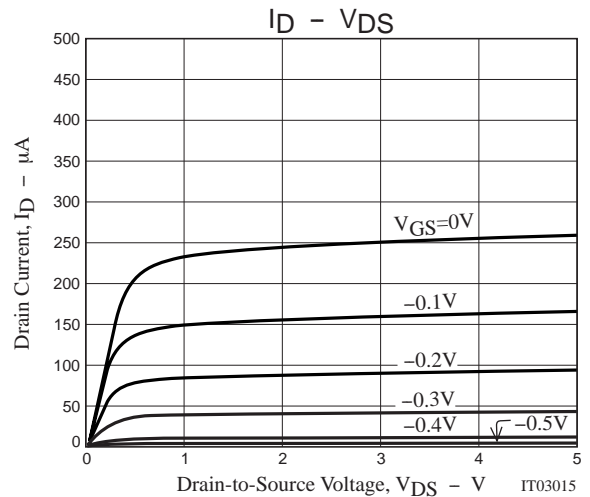
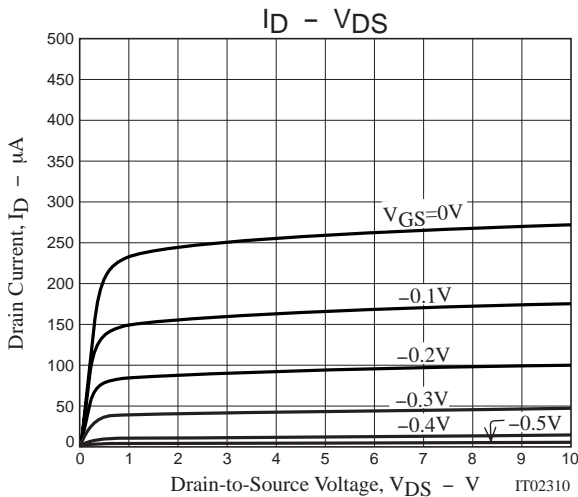
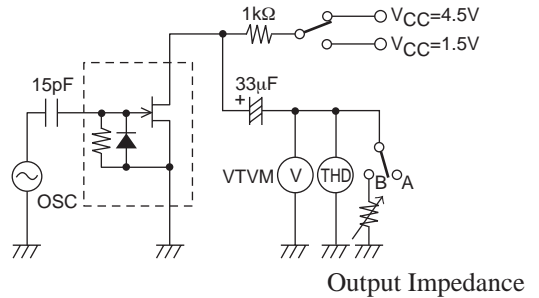
unit : mm (typ)

7031-001

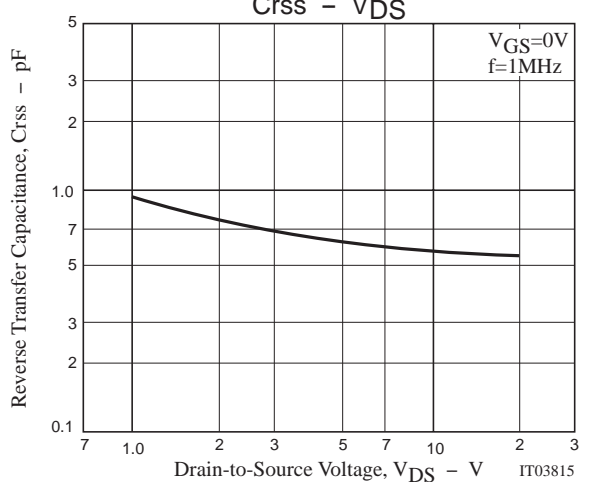
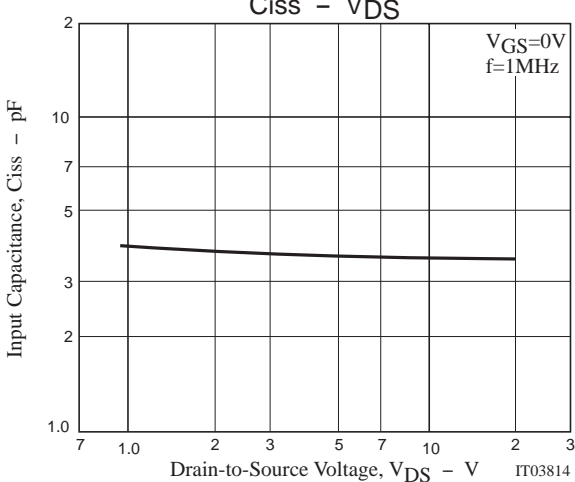
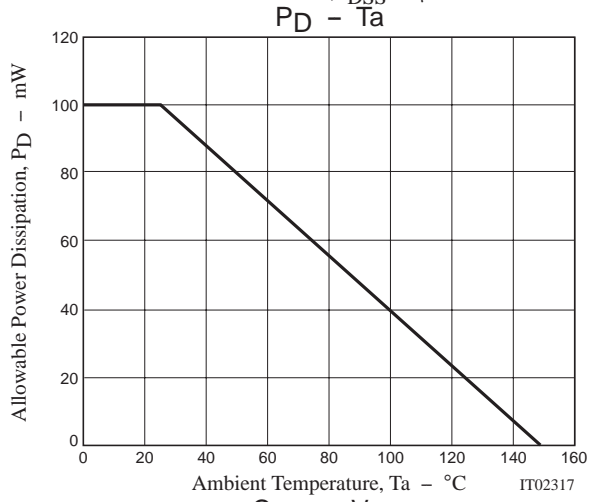
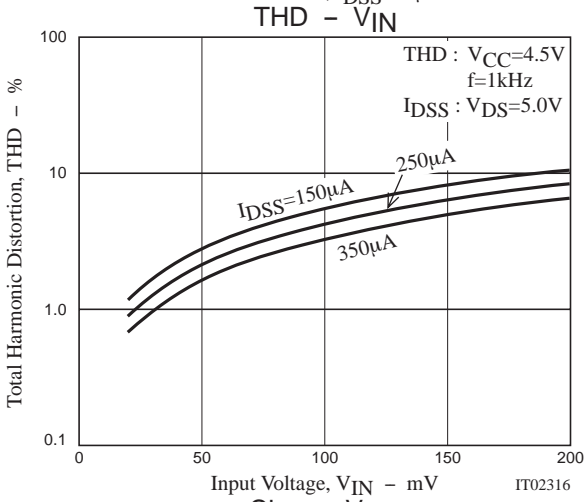
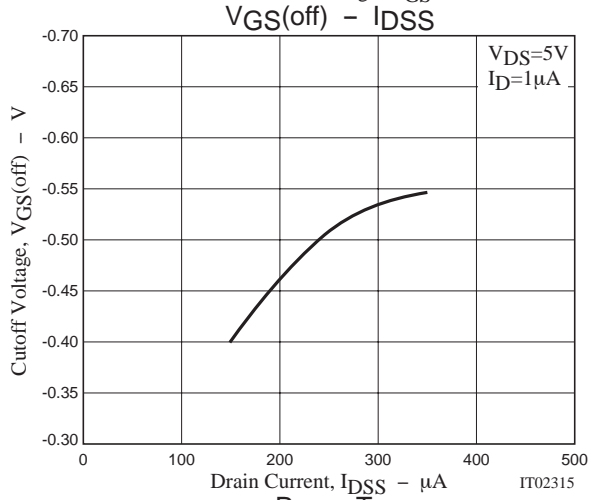
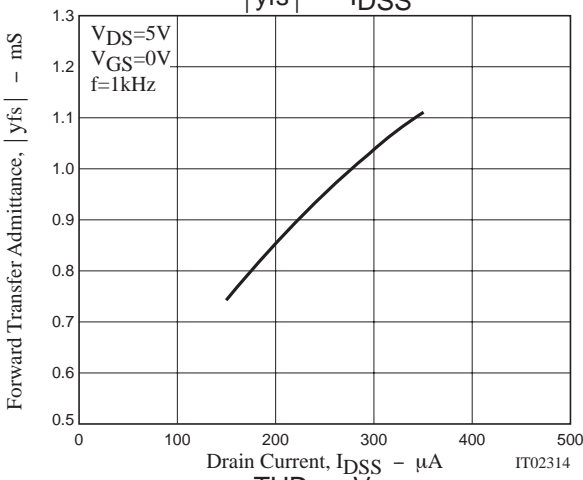
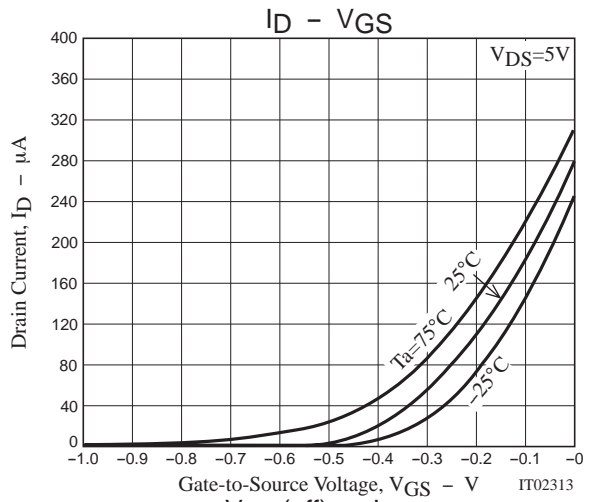
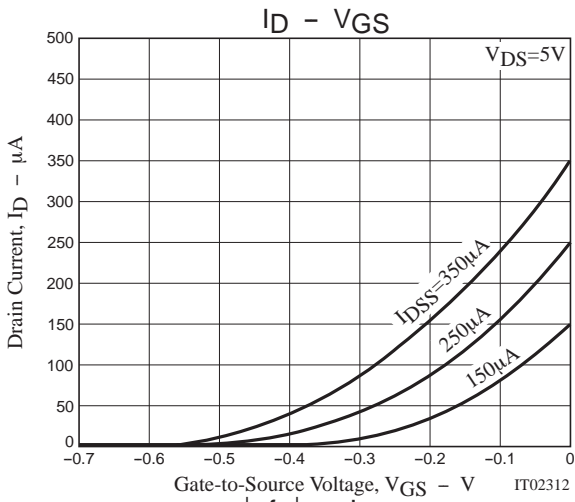


## Test Circuit

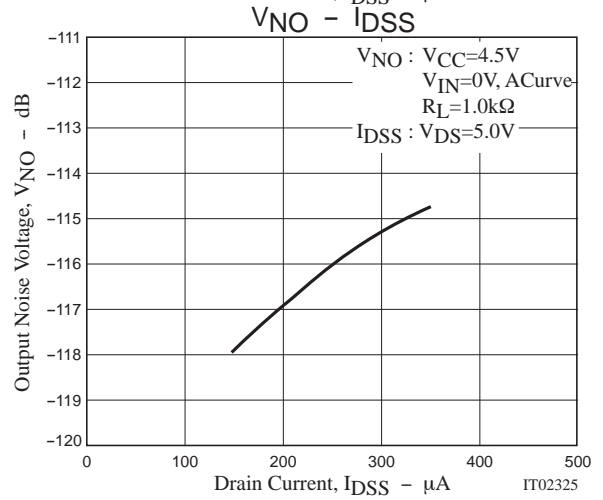
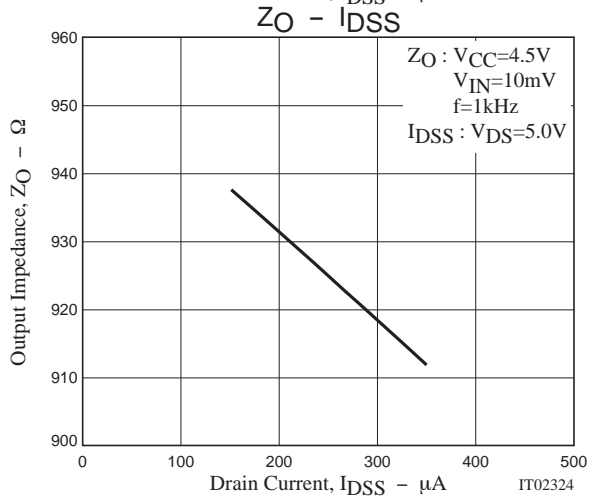
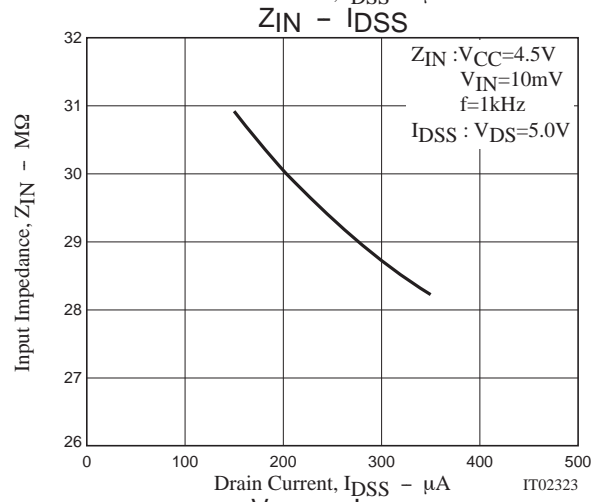
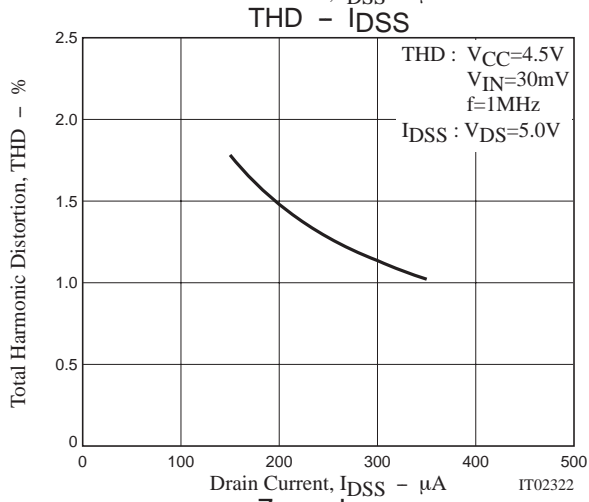
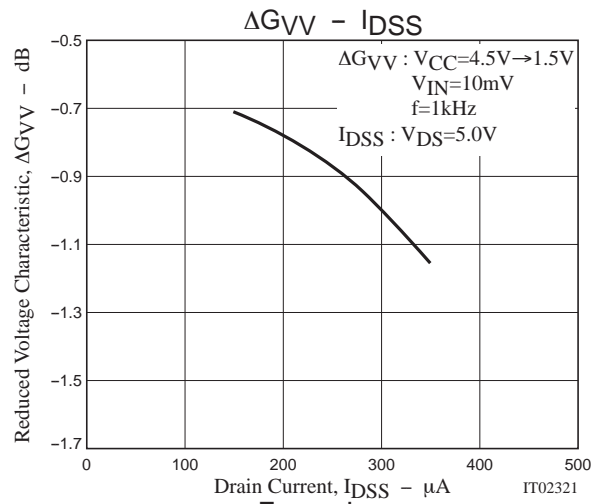
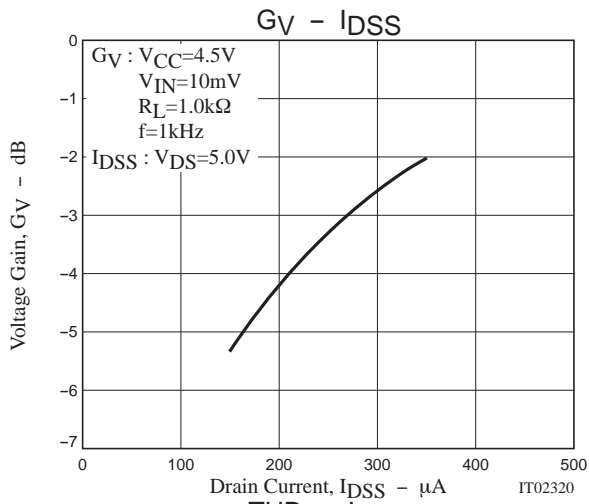
- Voltage gain
- Frequency Characteristic
- Distortion
- Reduced Voltage Characteristic



# TF218THC



# TF218THC



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