



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 _{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	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Marking: A

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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*	μA
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, VCC=4.5V, RL=1kΩ, Cin=15pF, See specified Test Circuit.]						
Voltage Gain	G_V	$V_{IN} = 10mV, f = 1kHz$		-3.0		dB
Reduced Voltage Characteristic	ΔG_{VV}	$V_{IN} = 10mV, f = 1kHz, V_{CC} = 4.5 \rightarrow 1.5V$		-1.2	-3.5	dB
Frequency Characteristic	ΔG_{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

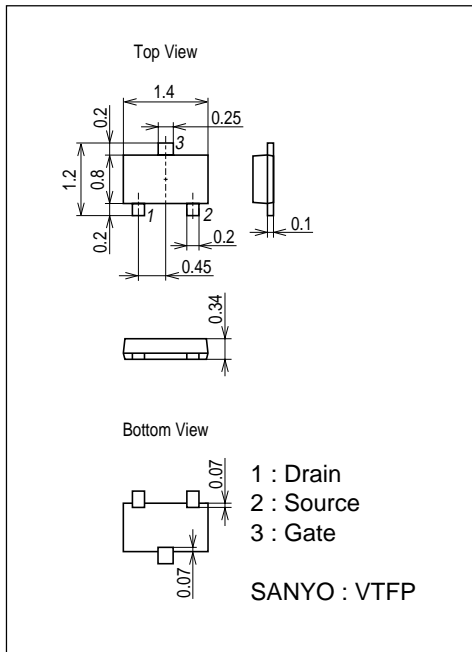
* : The TF218THC is classified by I_{DSS} as follows : (unit : μA)

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

Package Dimensions

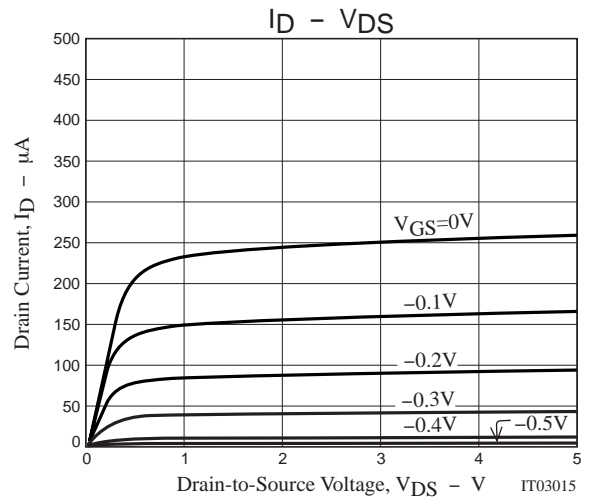
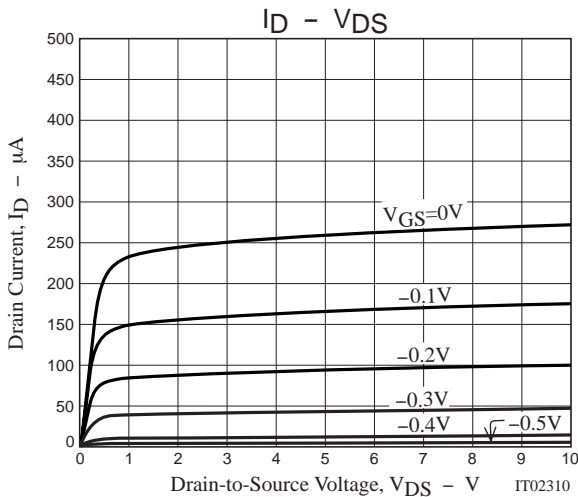
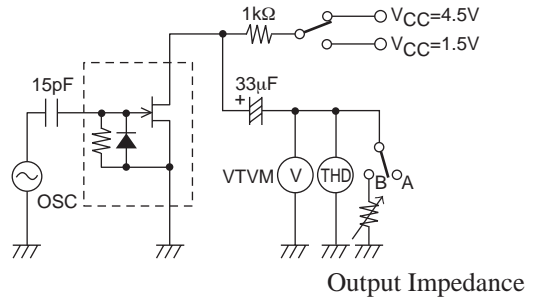
unit : mm (typ)

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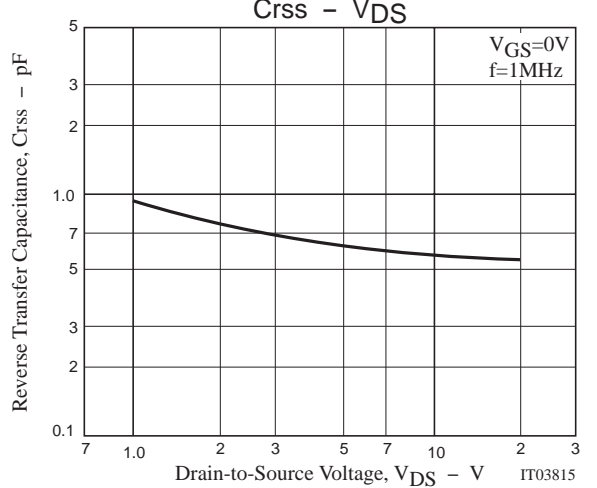
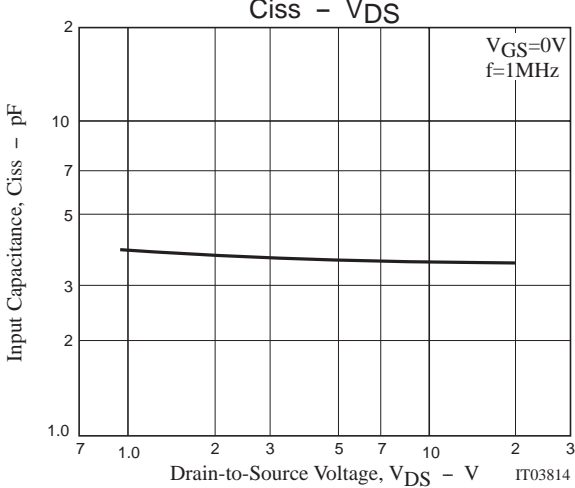
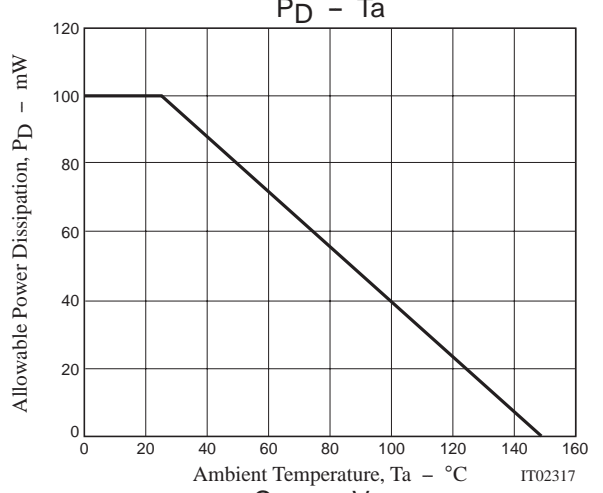
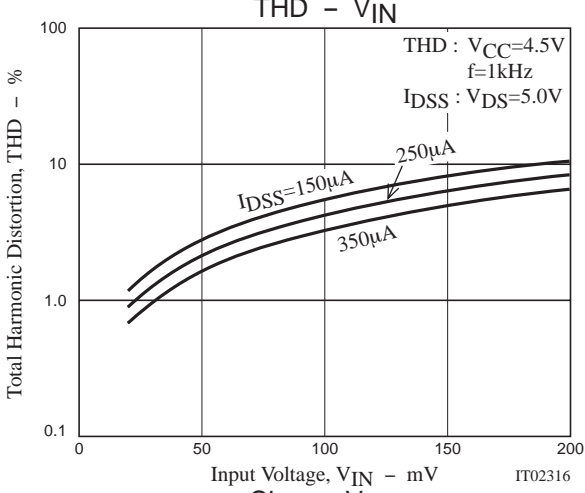
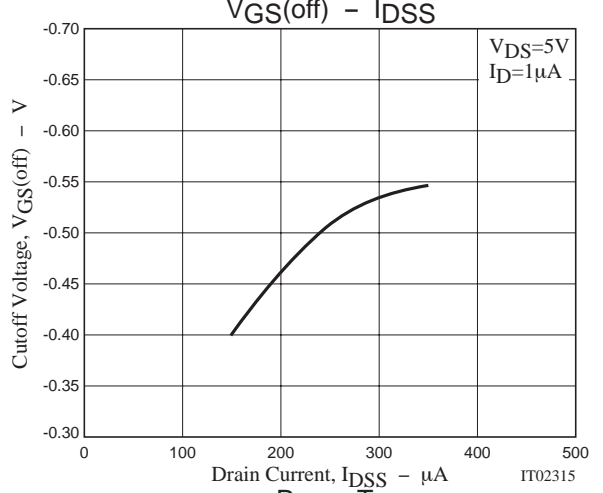
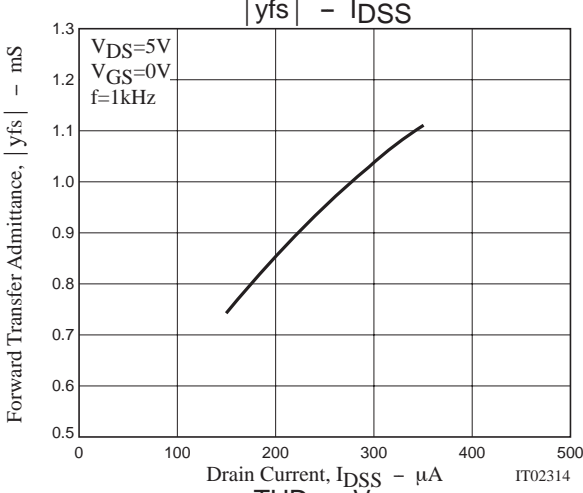
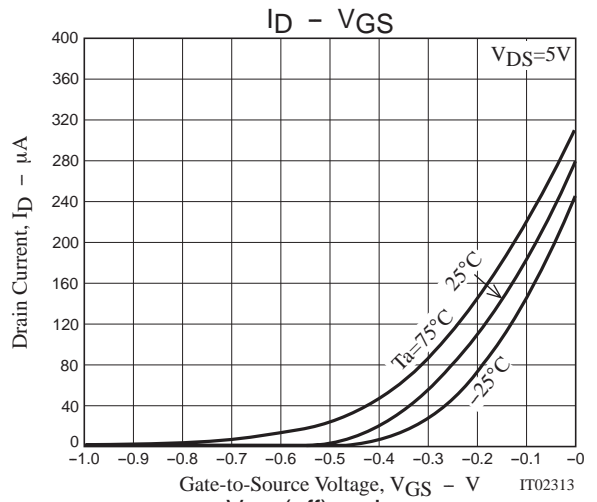
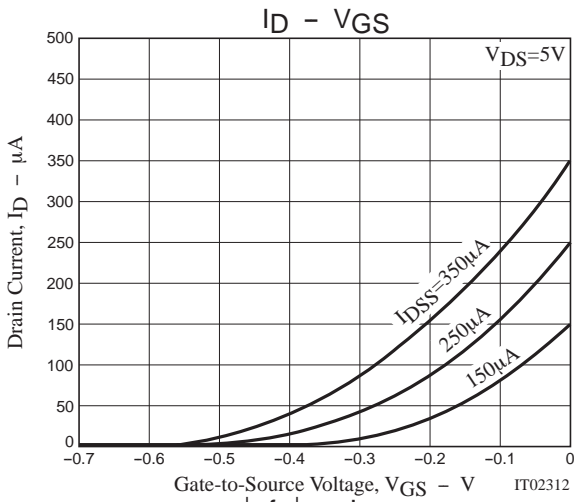


Test Circuit

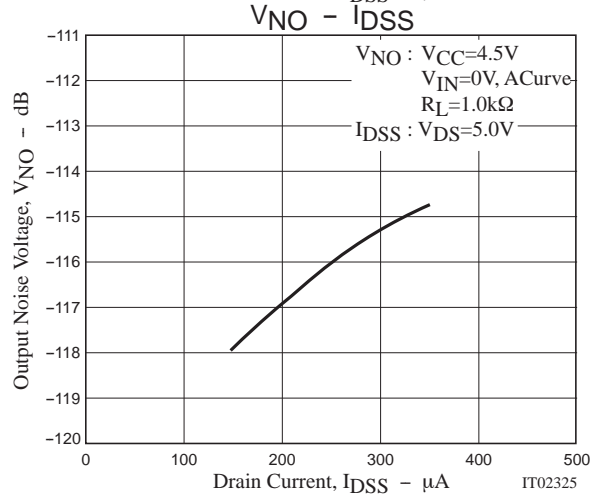
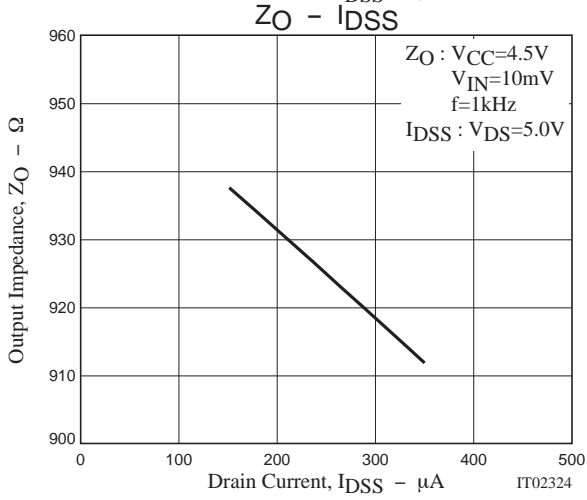
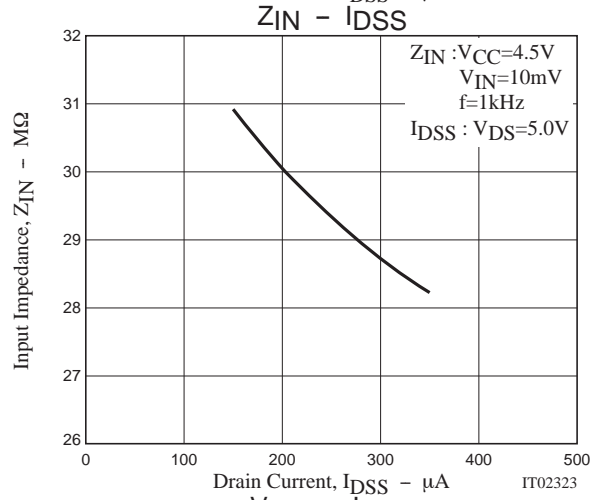
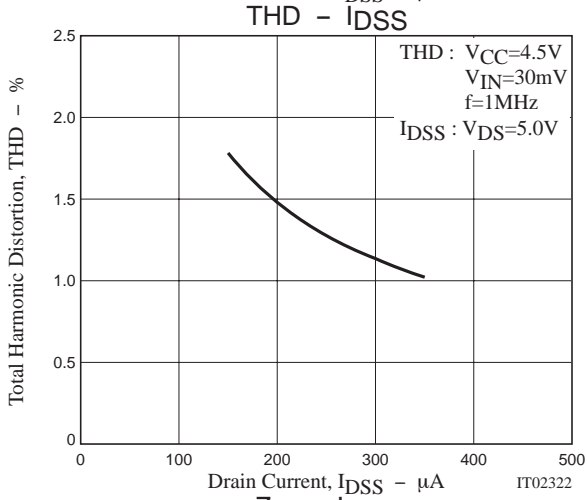
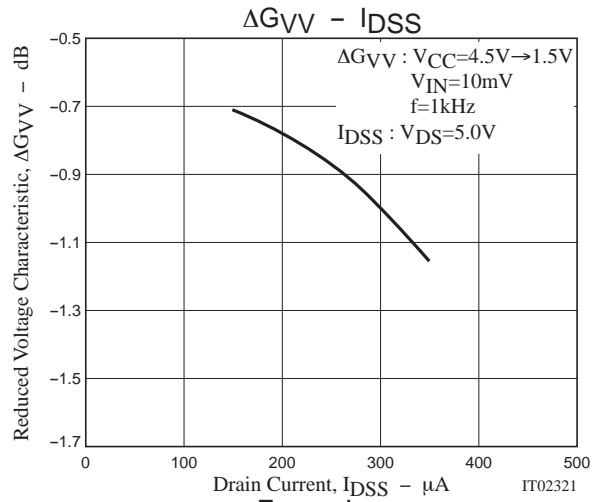
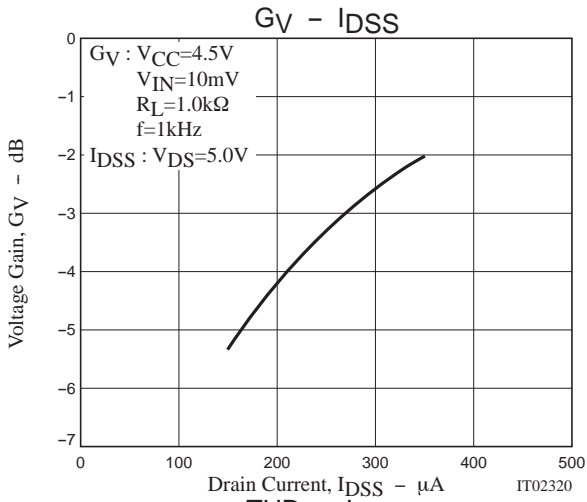
- Voltage gain
- Frequency Characteristic
- Distortion
- Reduced Voltage Characteristic



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