



TF218

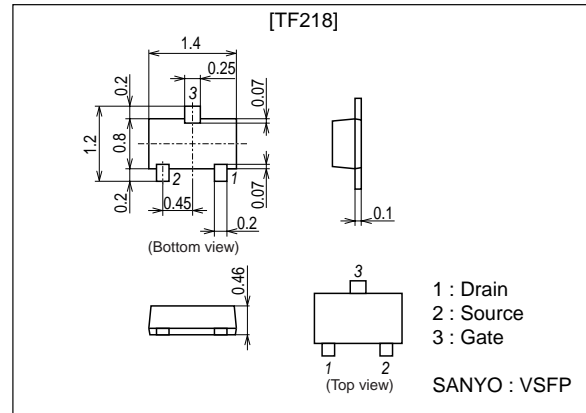
## Capacitor Microphone Applications

### Features

- Ultrasmall package facilitates miniaturization in end products.
- Especially suited for use in audio, telephone capacitor microphones.
- Excellent voltage characteristic.
- Excellent transient characteristic.
- Adoption of FBET process.

### Package Dimensions

unit : mm  
2201



### 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	$^\circ\text{C}$

### Electrical Characteristics

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Drain Breakdown Voltage	$V_{(BR)GDO}$	$I_G=-100\mu\text{A}$	-20			V
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=5\text{V}, I_D=1\mu\text{A}$	-0.2	-0.6	-1.0	V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=5\text{V}, V_{GS}=0$	140*		350*	$\mu\text{A}$
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=5\text{V}, V_{GS}=0, f=1\text{kHz}$	0.5	1.0		mS
Input Capacitance	$C_{iss}$	$V_{DS}=5\text{V}, V_{GS}=0, f=1\text{MHz}$		3.5		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=5\text{V}, V_{GS}=0, f=1\text{MHz}$		0.65		pF

Continued on next page.

\* : The TF218 is classified by  $I_{DSS}$  as follows : (unit :  $\mu\text{A}$ )

Marking	A4	A5
$I_{DSS}$	140 to 240	210 to 350

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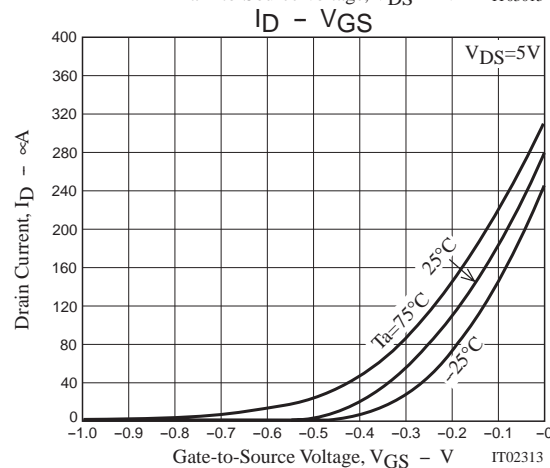
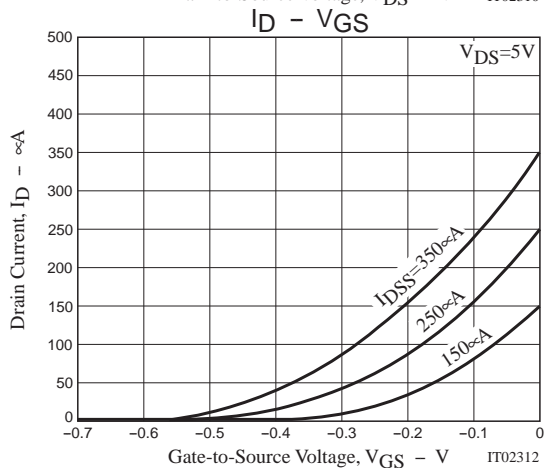
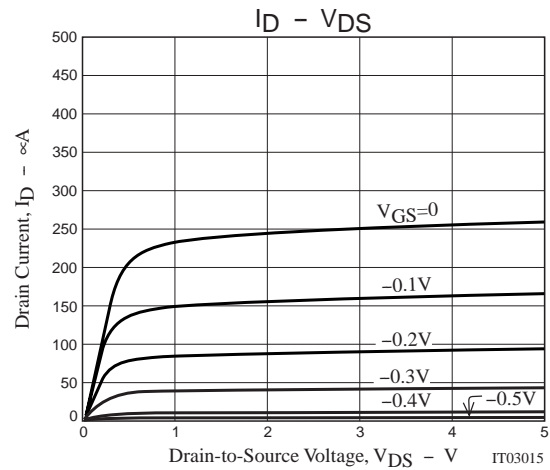
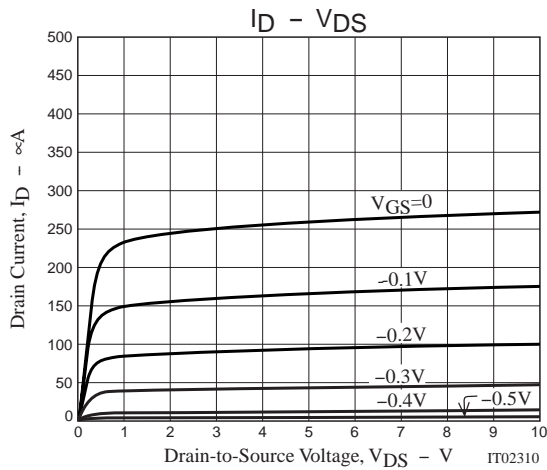
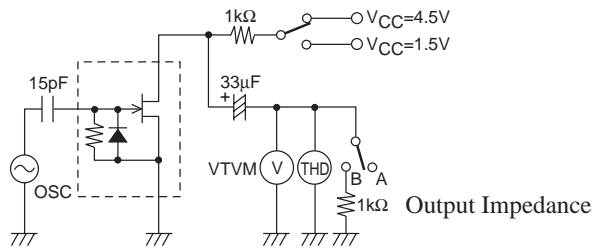
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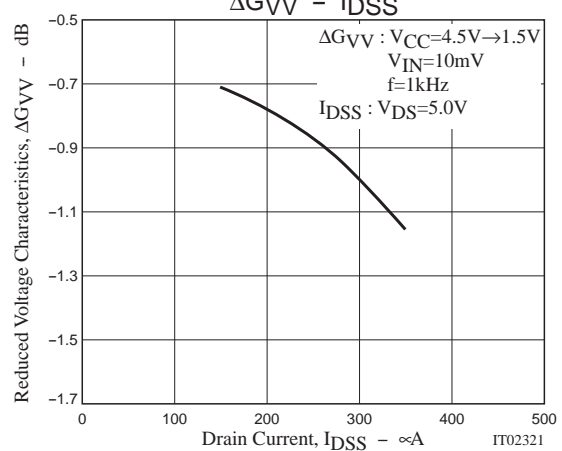
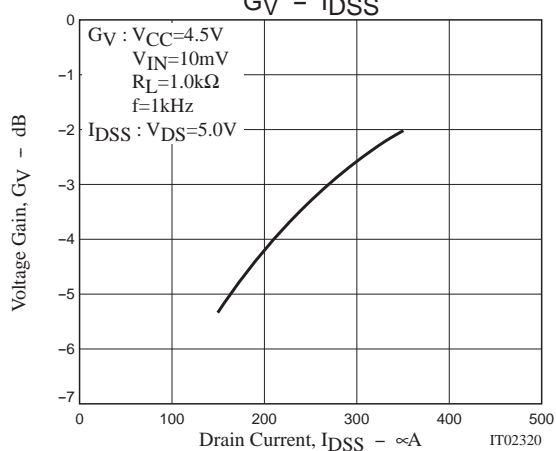
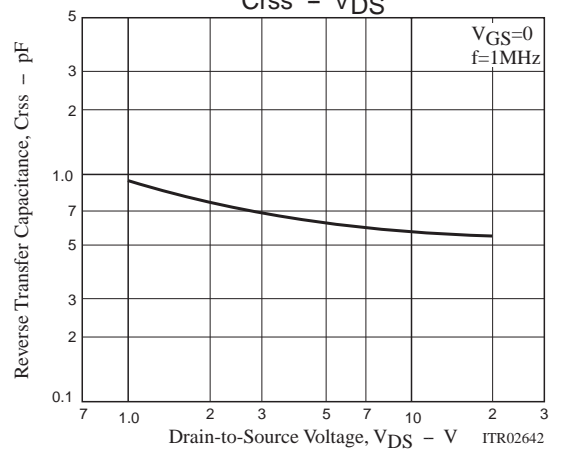
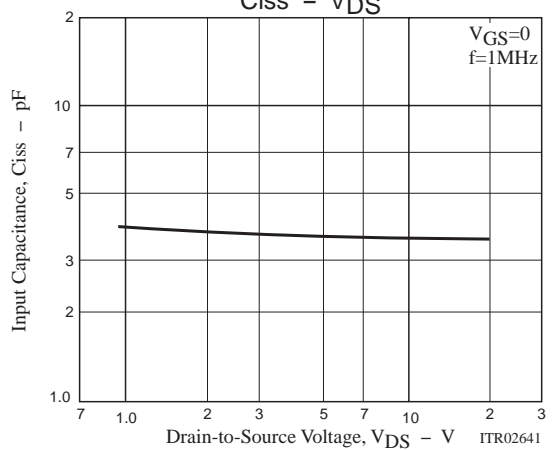
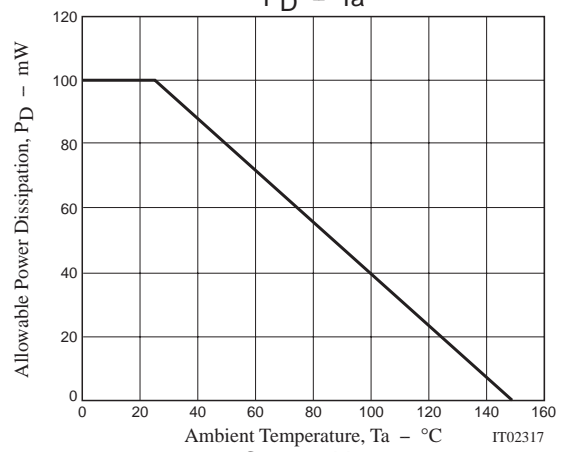
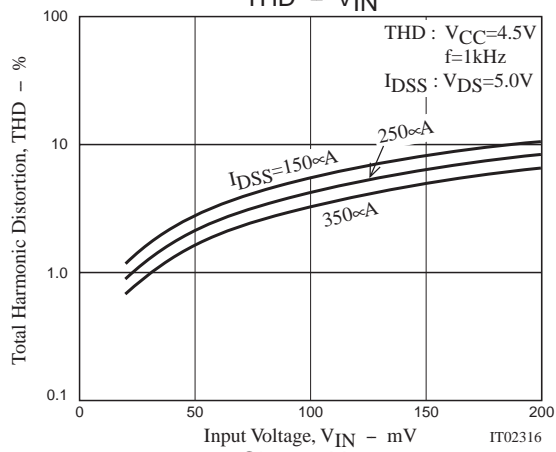
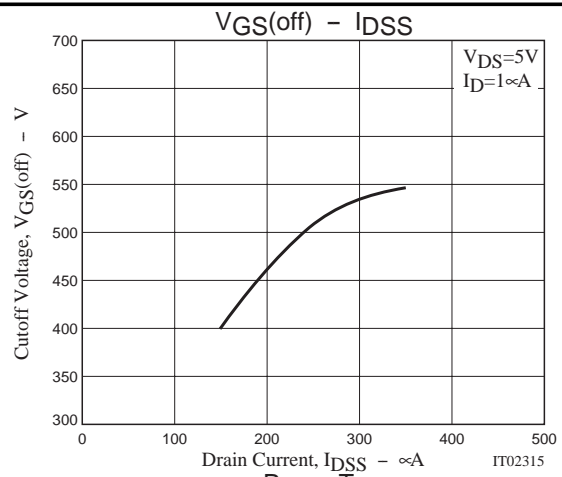
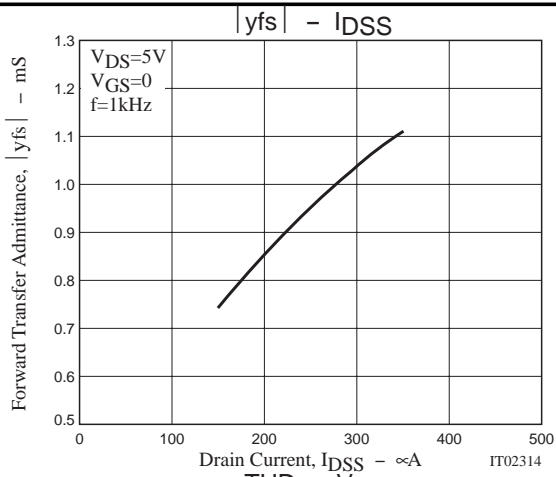
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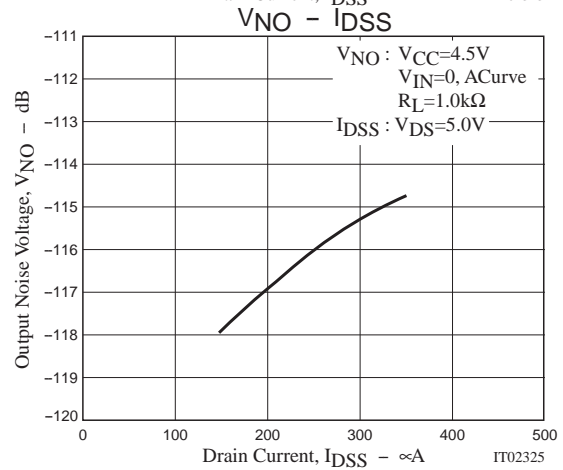
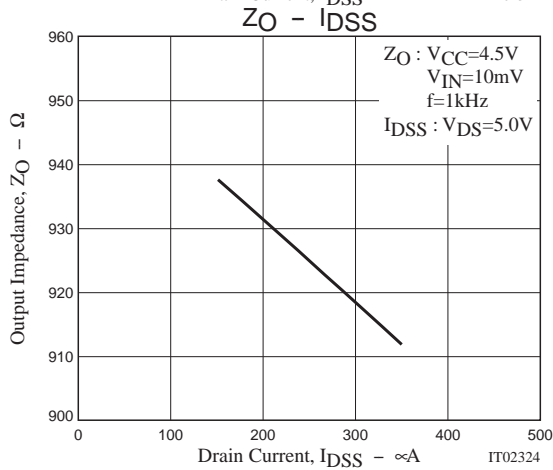
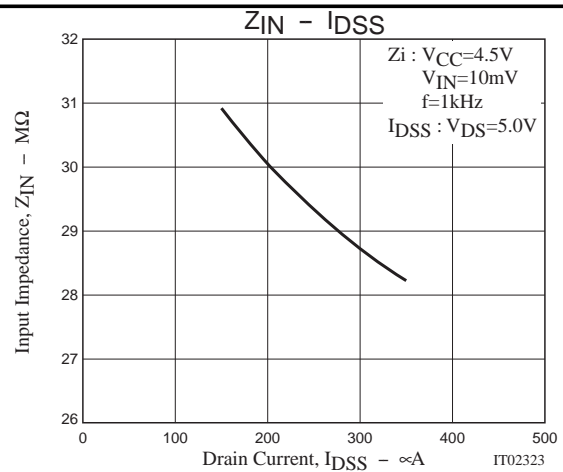
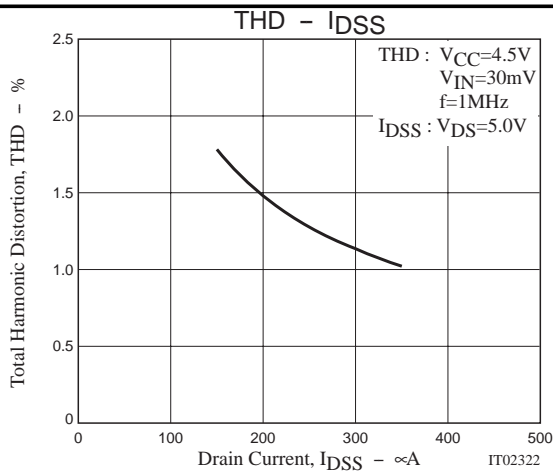
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[Ta=25°C, VCC=4.5V, RL=1kΩ, Cin=15pF, See specified Test Circuit.]						
Voltage Gain	G <sub>V</sub>	V <sub>IN</sub> =10mV, f=1kHz		-3.0		dB
Reduced Voltage Characteristic	ΔG <sub>V</sub>	V <sub>IN</sub> =10mV, f=1kHz, V <sub>CC</sub> =4.5→1.5V		-1.2	-3.5	dB
Frequency Characteristic	ΔG <sub>v</sub> f	f=1kHz to 110Hz			-1.0	dB
Input Impedance	Z <sub>IN</sub>	f=1kHz	25			MΩ
Output Impedance	Z <sub>O</sub>	f=1kHz		1000		Ω
Total Harmonic Distortion	THD	V <sub>IN</sub> =30mV, f=1kHz		1.2		%
Output Noise Voltage	V <sub>NO</sub>	V <sub>IN</sub> =0, A curve			-110	dB

## Test Circuit

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







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