



SANYO Semiconductors

DATA SHEET

## TF202B

N-channel Silicon Junction FET

## Condenser Microphone Applications

## Features

- Especially suited for use in condenser microphone for audio equipments and telephones.
- TF202B is possible to make applied sets smaller and thinner
- Excellent voltage characteristic.
- Excellent transient characteristic.
- 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> =5V, I <sub>D</sub> =1μA	-0.2	-0.6	-1.2	V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =5V, V <sub>GS</sub> =0V	140*		350*	μA
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =5V, V <sub>GS</sub> =0V, f=1kHz	0.5	1.2		mS
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =5V, V <sub>GS</sub> =0V, f=1MHz		3.5		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =5V, V <sub>GS</sub> =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 <sub>V</sub>	V <sub>IN</sub> =10mV, f=1kHz			-3.0	dB
Reduced Voltage Characteristics	ΔG <sub>VV</sub>	V <sub>IN</sub> =10mV, f=1kHz, V <sub>CC</sub> =4.5→1.5V			-1.2	-3.5

Continued on next page.

\*: The TF202B is classified by I<sub>DSS</sub> as follows : (unit : μA)

Rank	E4	E5
I <sub>DSS</sub>	140 to 240	210 to 350

Marking : E

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# TF202B

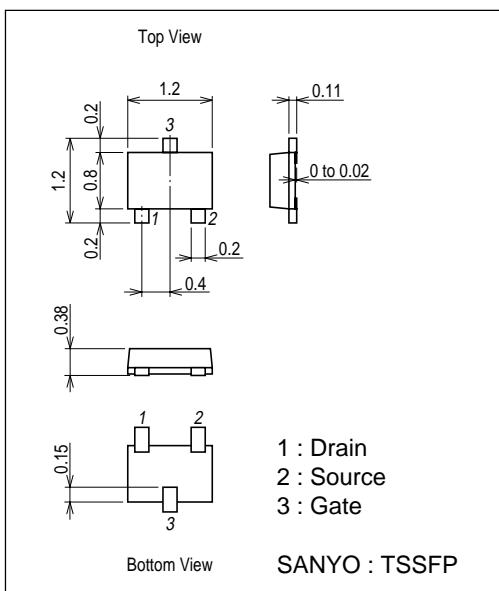
Continued from preceding page.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Frequency Characteristics	$\Delta G_{vf}$	$f=1\text{kHz}$ to $110\text{Hz}$				-1.0 dB
Input Resistance	$Z_{IN}$	$f=1\text{kHz}$	25			$M\Omega$
Output Resistance	$Z_O$	$f=1\text{kHz}$		1000		$\Omega$
Total Harmonic Distortion	THD	$V_{IN}=30\text{mV}$ , $f=1\text{kHz}$		1.0		%
Output Noise Voltage	$V_{NO}$	$V_{IN}=0\text{V}$ , A curve				-110 dB

## Package Dimensions

unit : mm

7048-001



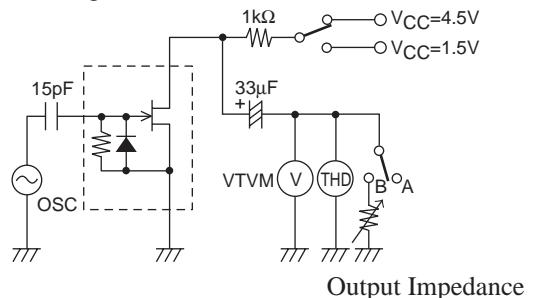
## Test Circuit

Voltage gain

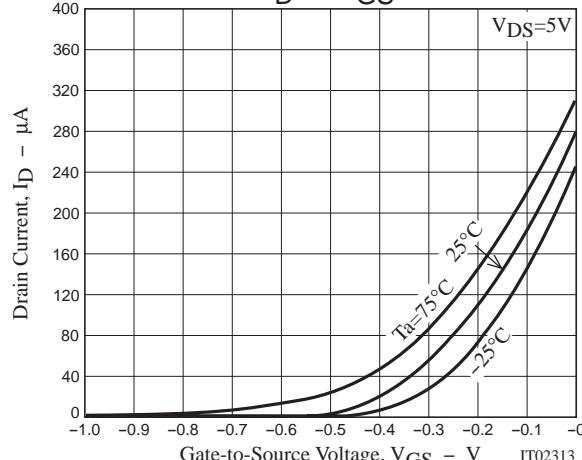
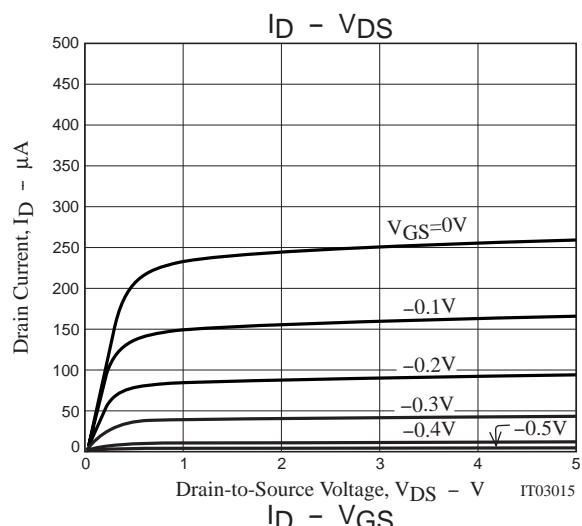
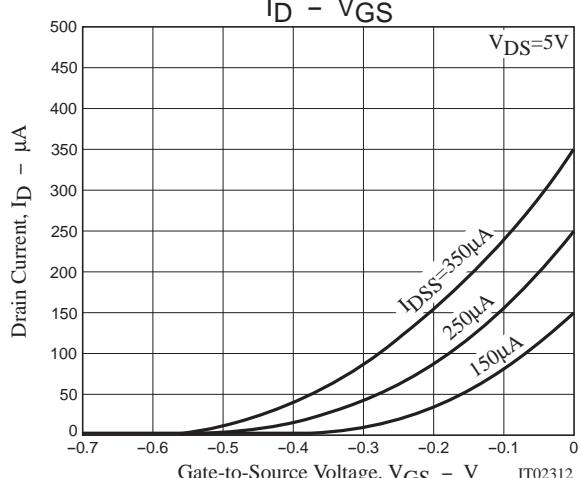
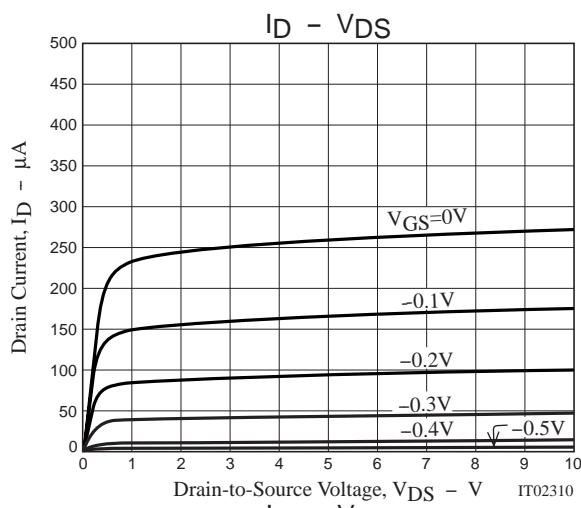
Frequency Characteristics

Distortion

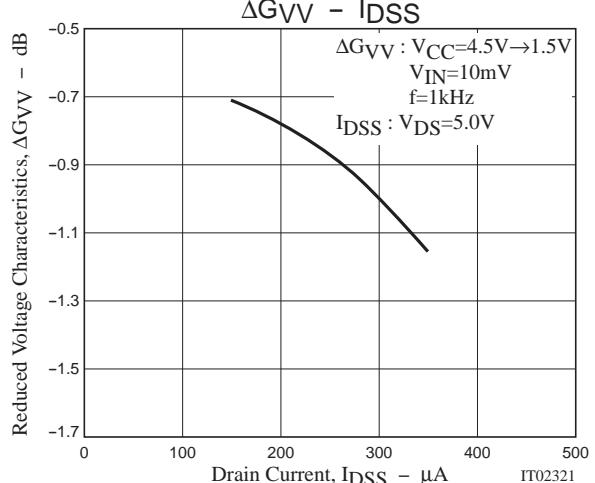
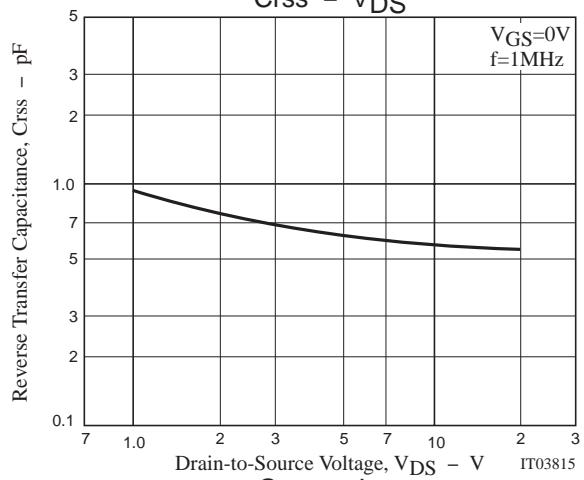
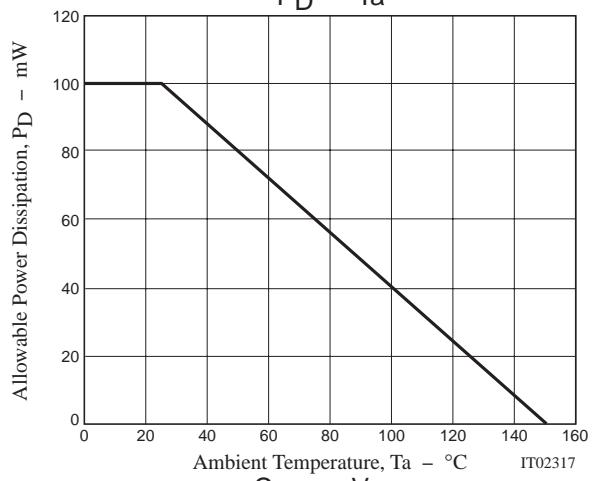
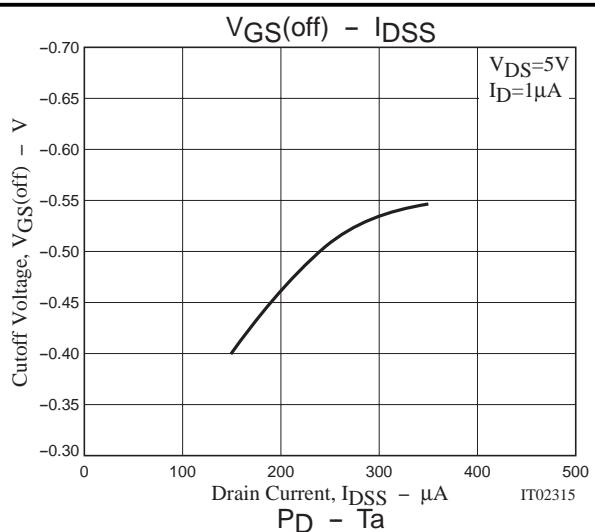
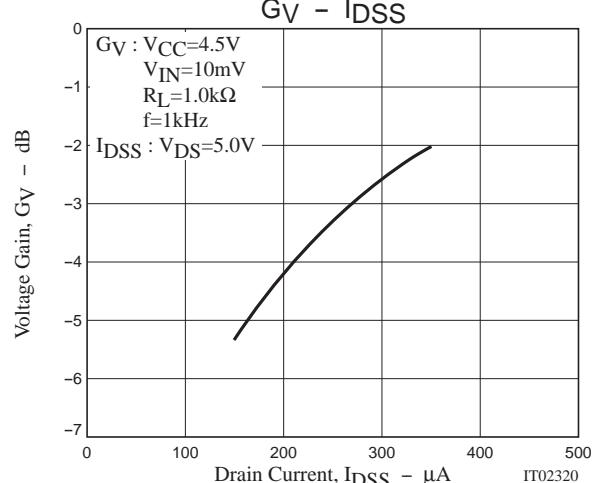
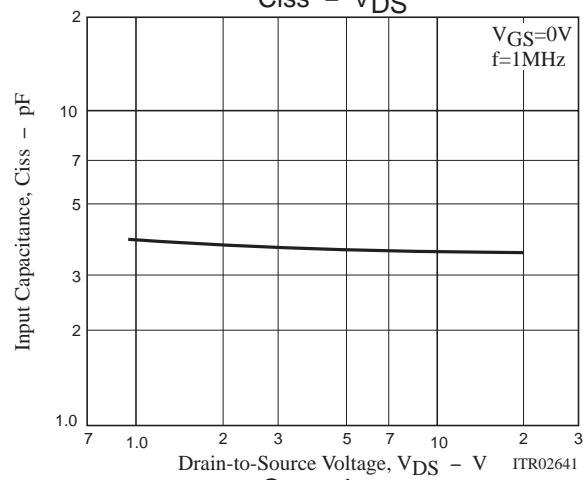
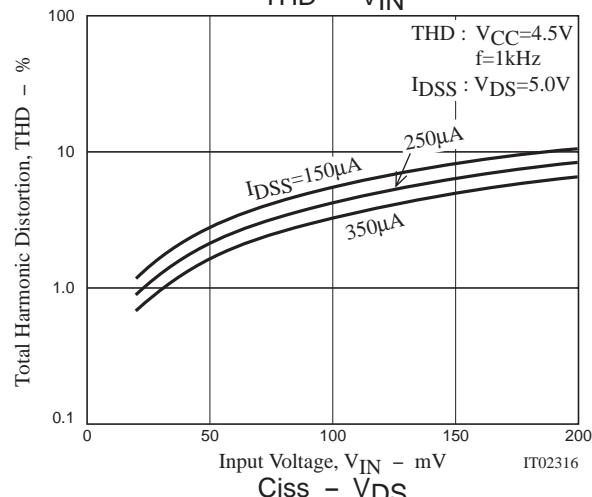
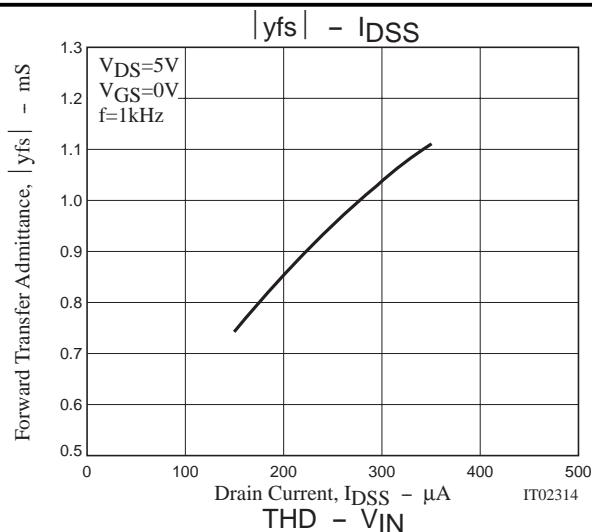
Reduced Voltage Characteristics



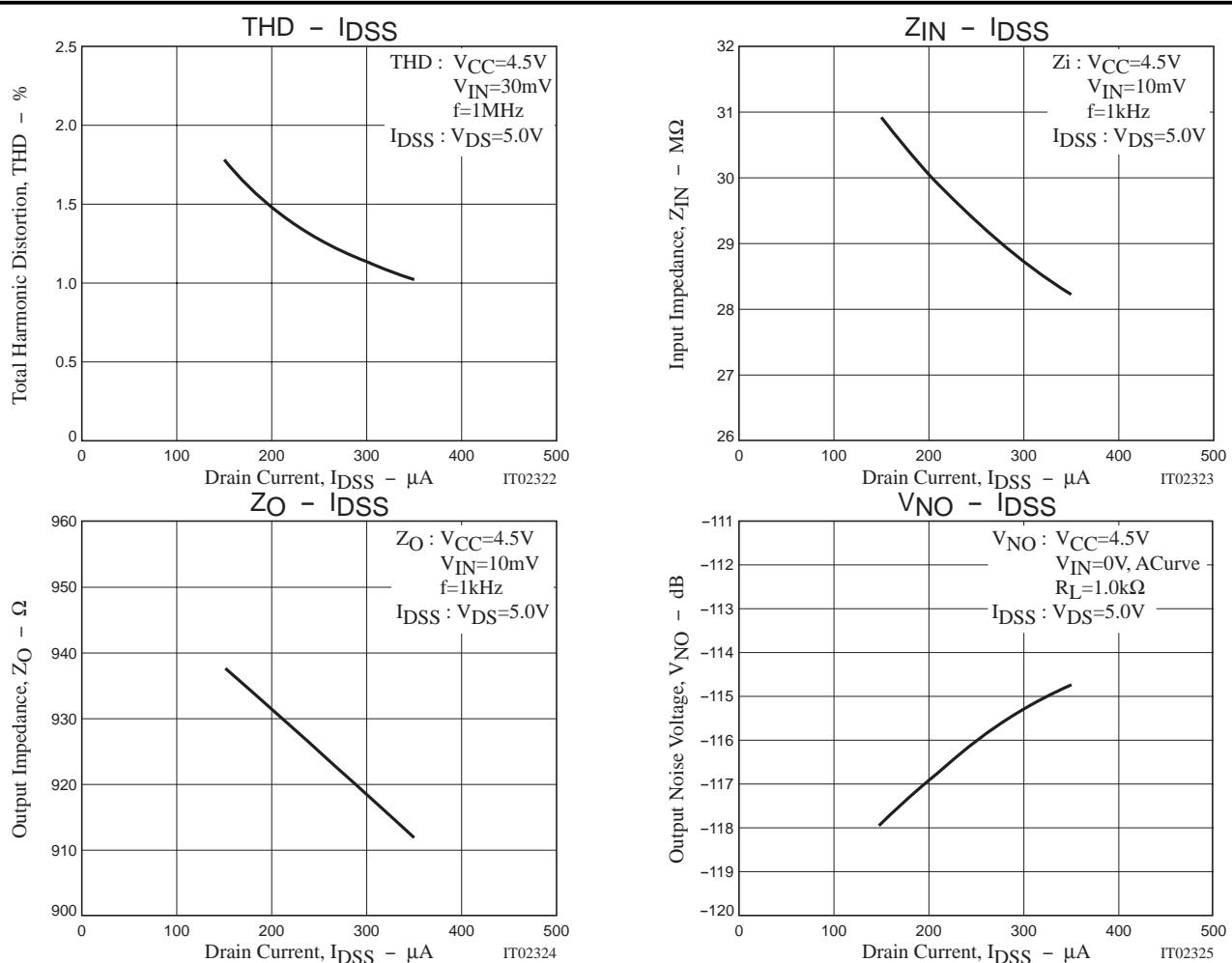
Output Impedance



## TF202B



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