



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

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	-1.2	V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=5\text{V}, V_{GS}=0\text{V}$	140*		350*	μA
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=5\text{V}, V_{GS}=0\text{V}, f=1\text{kHz}$	0.5	1.2		mS
Input Capacitance	C_{iss}	$V_{DS}=5\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$		3.5		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=5\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$		0.65		pF
[$T_a=25^\circ\text{C}, V_{CC}=4.5\text{V}, R_L=1\text{k}\Omega, C_{in}=15\text{pF}$, See specified Test Circuit.]						
Voltage Gain	G_V	$V_{IN}=10\text{mV}, f=1\text{kHz}$		-3.0		dB
Reduced Voltage Characteristics	ΔG_{VV}	$V_{IN}=10\text{mV}, f=1\text{kHz}, V_{CC}=4.5 \rightarrow 1.5\text{V}$		-1.2	-3.5	dB

Continued on next page.

* : The TF202B is classified by I_{DSS} as follows : (unit : μA)

Rank	E4	E5
I_{DSS}	140 to 240	210 to 350

Marking : E

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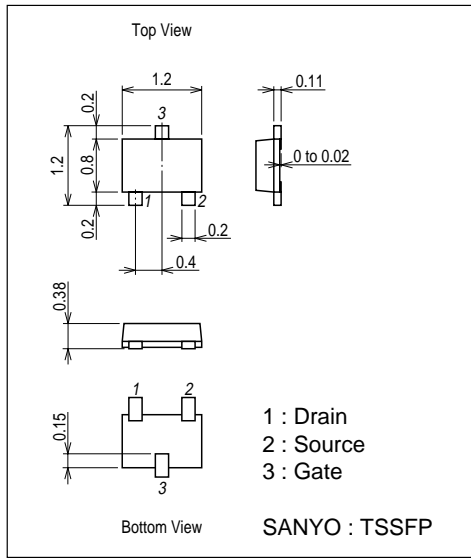
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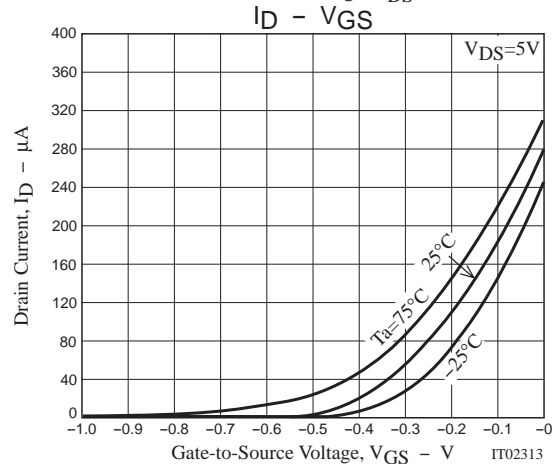
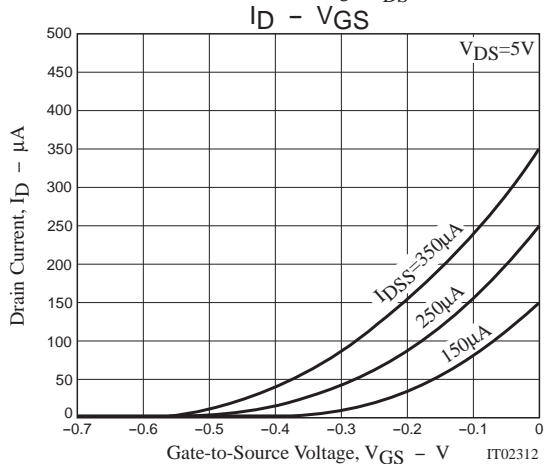
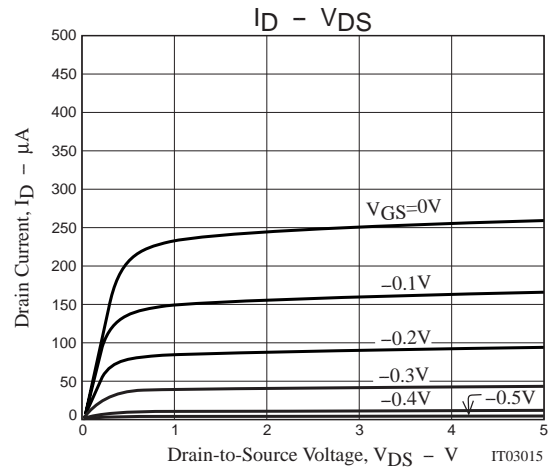
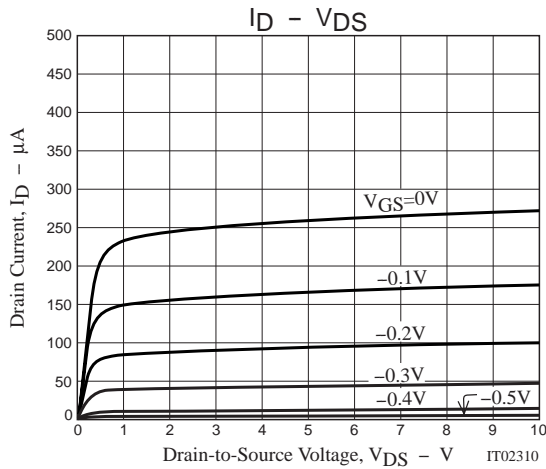
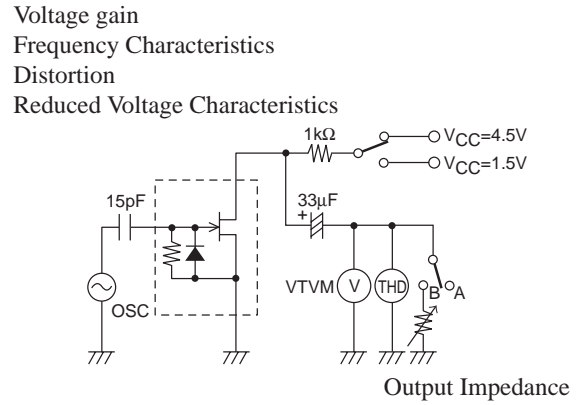
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Frequency Characteristics	ΔG_v	f=1kHz to 110Hz			-1.0	dB
Input Resistance	Z_{IN}	f=1kHz	25			M Ω
Output Resistance	Z_O	f=1kHz		1000		Ω
Total Harmonic Distortion	THD	$V_{IN}=30mV$, f=1kHz		1.0		%
Output Noise Voltage	V_{NO}	$V_{IN}=0V$, A curve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

Package Dimensions

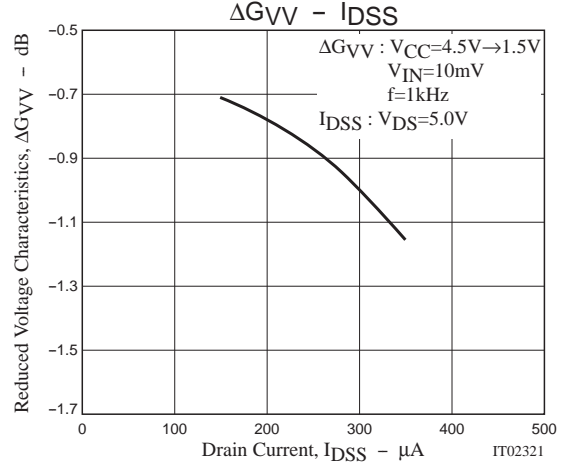
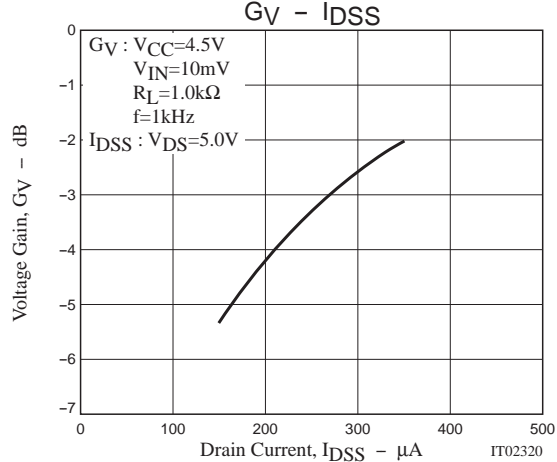
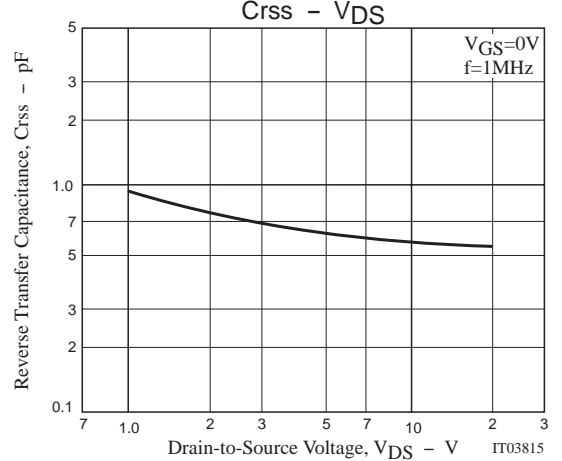
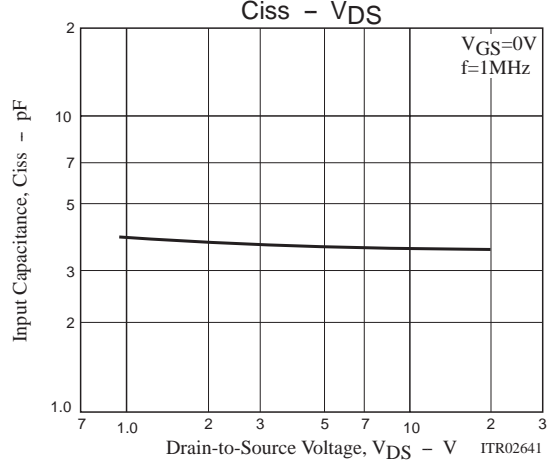
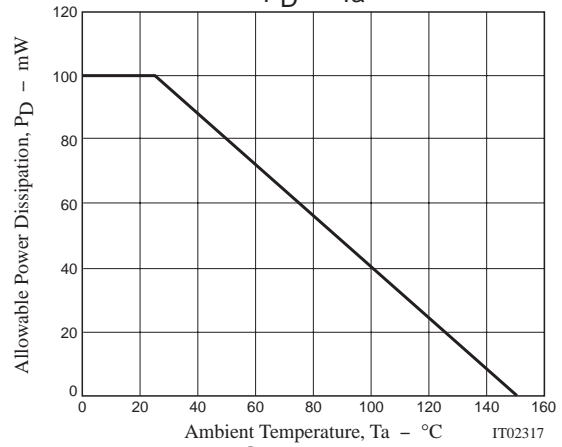
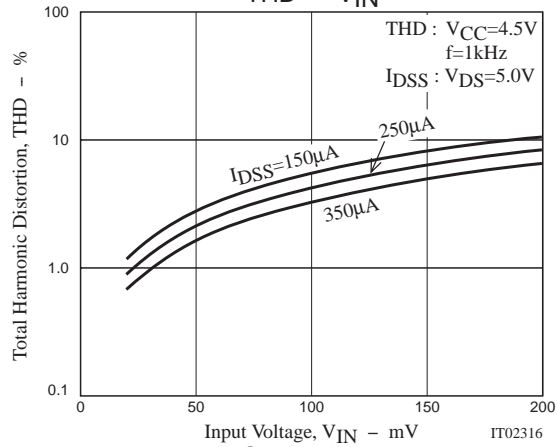
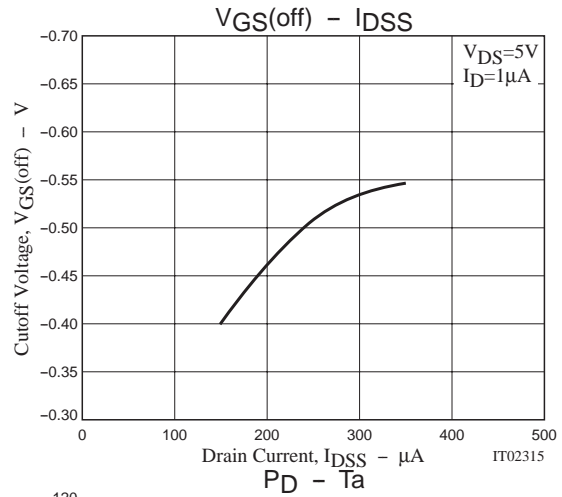
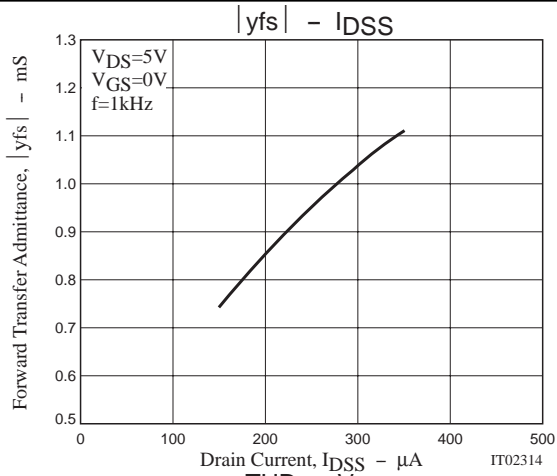
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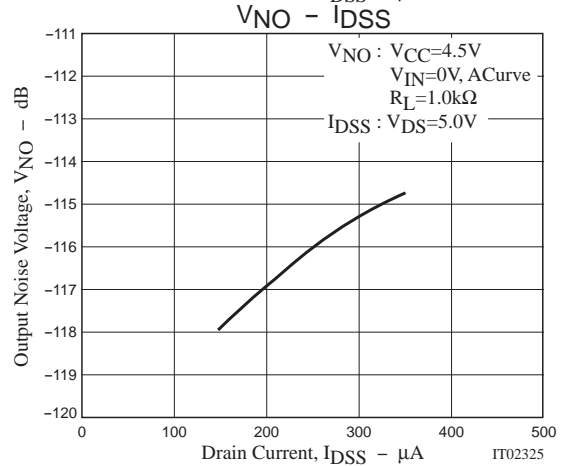
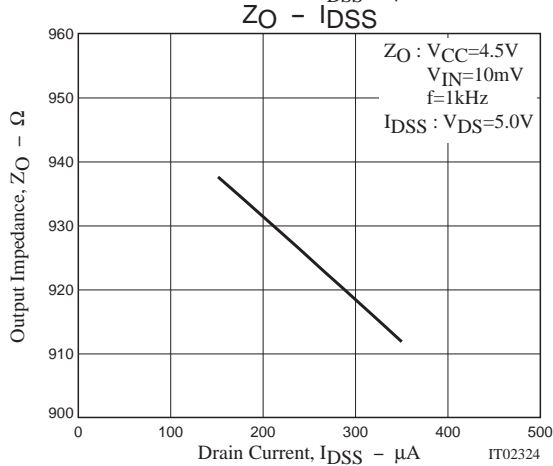
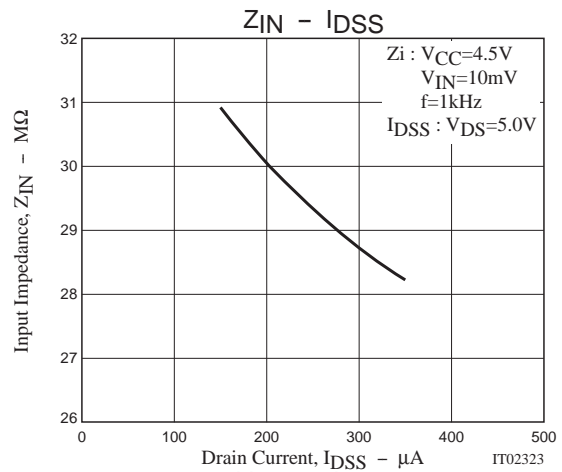
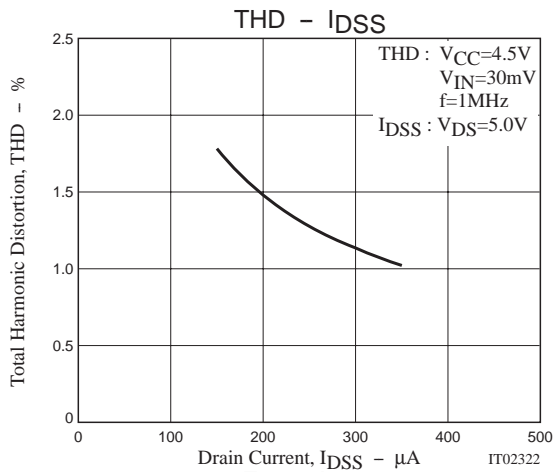


Test Circuit



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