Ordering number : ENA0171

SANYO Semiconductors
DATA SHEET

TF222B — N-channel Silicon Junction FET
Condenser Microphone Applications

Features

- Especially suited for use in condenser microphone for audio equipments and telephones.
- TF222B 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_{GDO}		−20	V
Gate Current	I_G		10	mA
Drain Current	I_D		1	mA
Allowable Power Dissipation	P_D		100	mW
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Drain Breakdown Voltage	$V_{(BR)GDO}$	I_G=−100μA	−20			V
Cutoff Voltage	$V_{GS}(off)$	V_{DS}=2V, I_D=1μA	−0.1		−1.0	V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=2V, V_{GS}=0V	140*		350*	μA
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=2V, V_{GS}=0V, f=1kHz	0.5	1.4		mS
Input Capacitance	Ciss	V_{DS}=2V, V_{GS}=0V, f=1MHz		5.0		pF
Reverse Transfer Capacitance	Crss	V_{DS}=2V, V_{GS}=0V, f=1MHz		1.1		pF
[Ta=25°C, V_{CC}=2.0V, R_L=2.2kΩ, Cin=5pF, See specified Test Circuit.]						
Voltage Gain	G_V	V_{IN}=10mV, f=1kHz		−2.0		dB
Reduced Voltage Characteristics	ΔG_{VV}	V_{IN}=10mV, f=1kHz, V_{CC}=2.0→1.5V		−0.6	−2.0	dB

Continued on next page.

* : The TF222B is classified by I_{DSS} as follows : (unit : μA)

Rank	B4	B5
I_{DSS}	140 to 240	210 to 350

Marking : B

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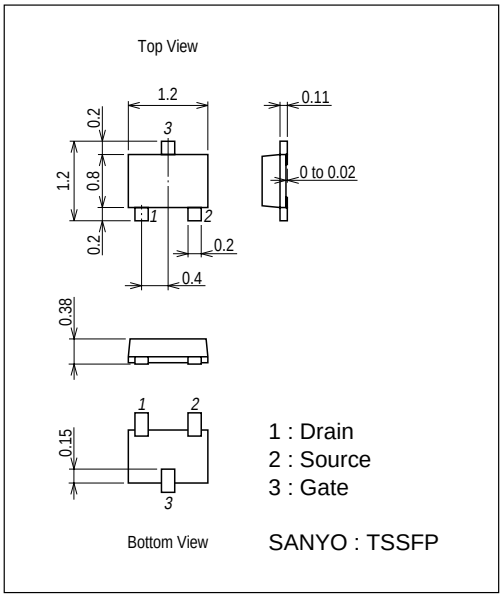
Continued from preceding page.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Frequency Characteristics	ΔGvf	f=1kHz to 110Hz			−1.0	dB
Total Harmonic Distortion	THD	V_{IN}=30mV, f=1kHz		0.7		%
Output Noise Voltage	V_{NO}	V_{IN}=0V, A curve			−102	dB

Package Dimensions

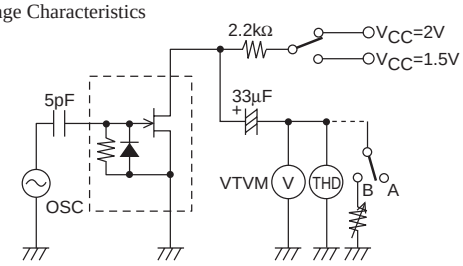
unit : mm

7048-001

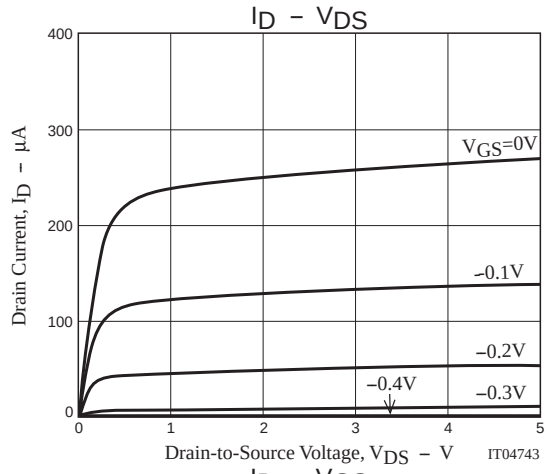


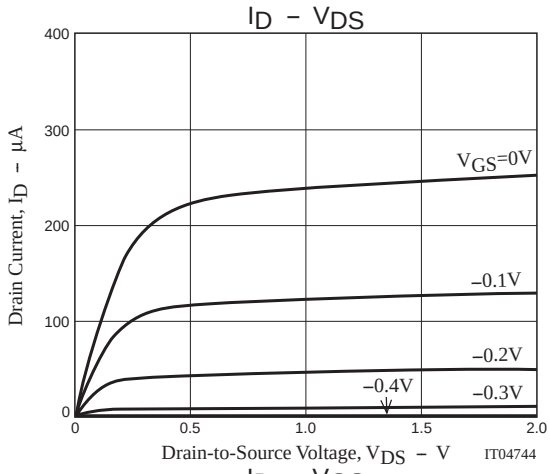
Test Circuit

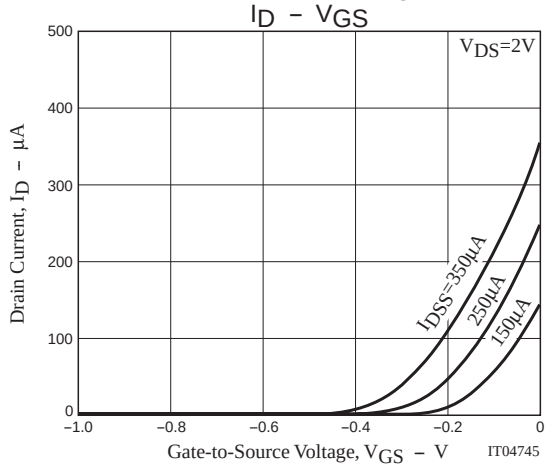
Voltage gain
Frequency Characteristics
Distortion
Reduced Voltage Characteristics

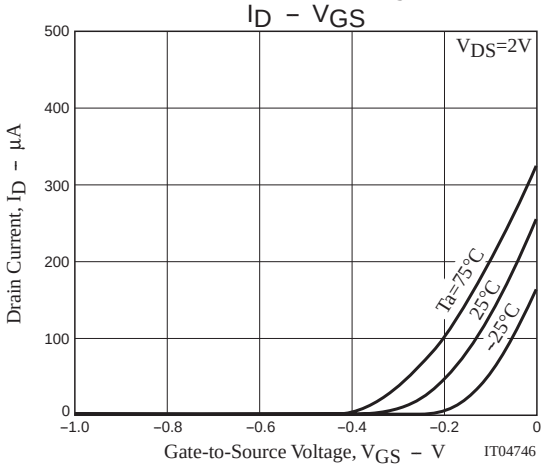


Output Impedance

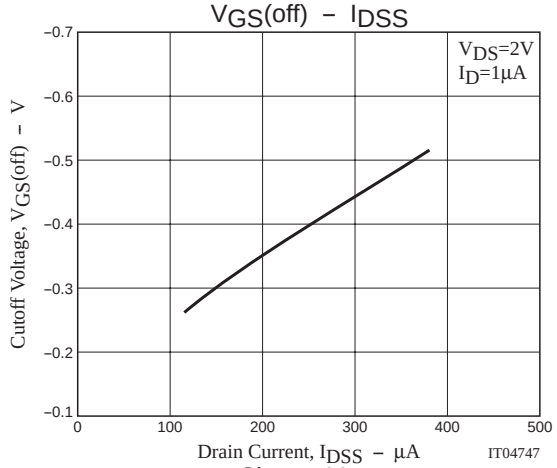




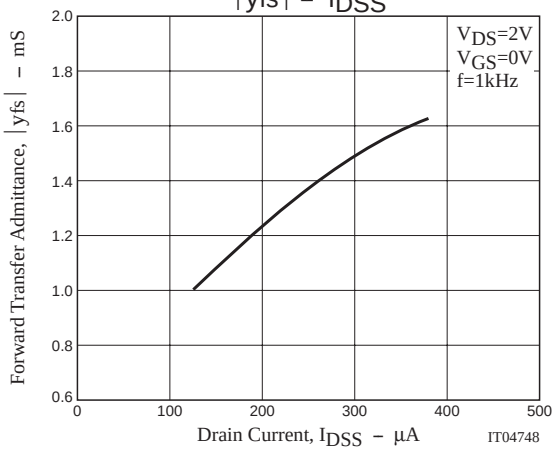




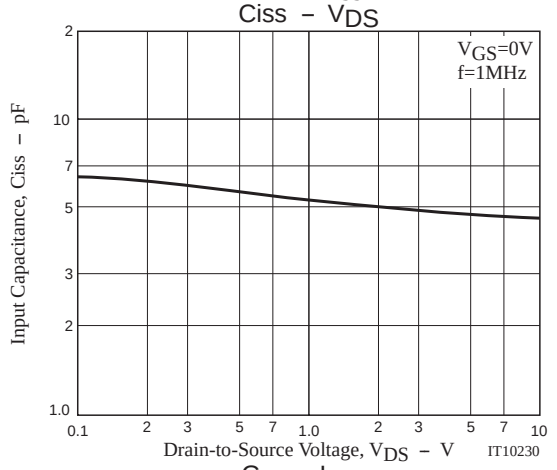
$V_{GS(off)}$ – I_{DSS}



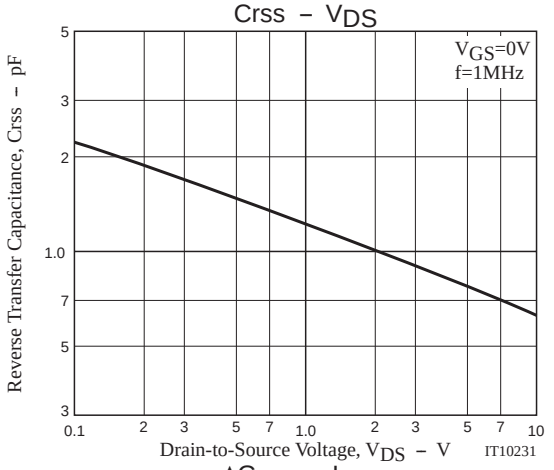
$|yfs|$ – I_{DSS}



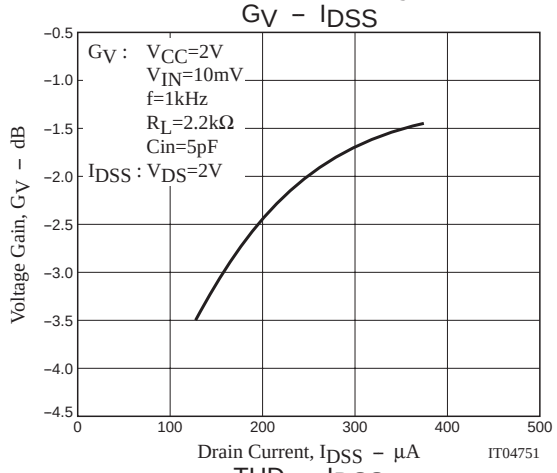
Ciss – V_{DS}



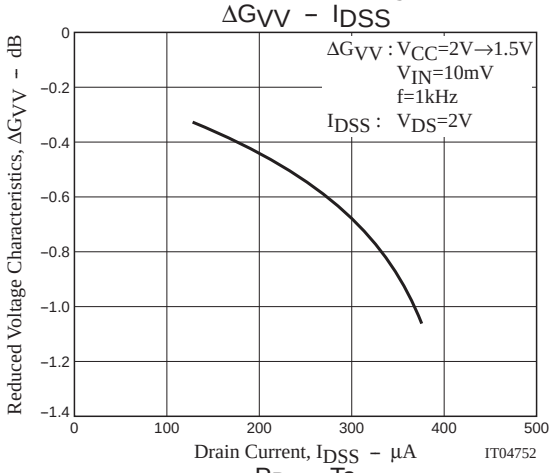
Crss – V_{DS}



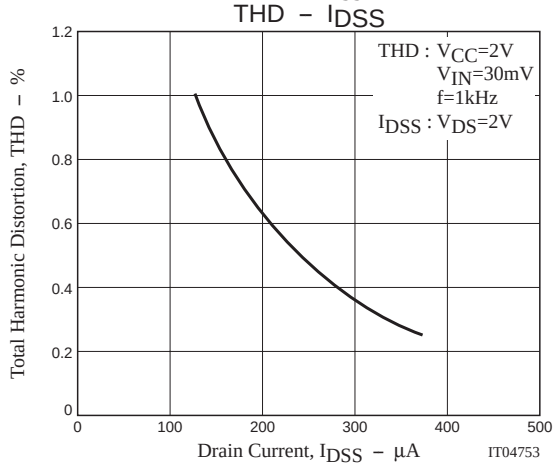
G_V – I_{DSS}



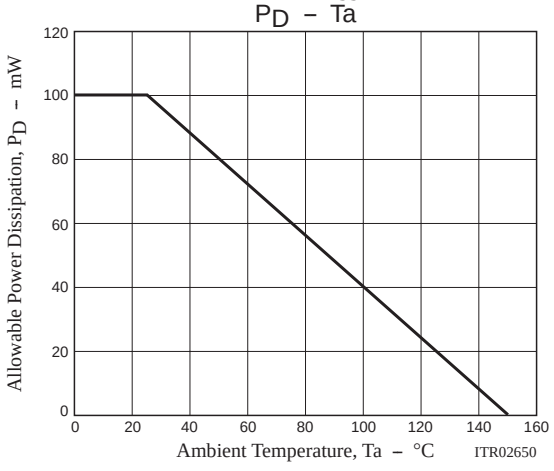
ΔG_{VV} – I_{DSS}



THD – I_{DSS}



P_D – Ta



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