Ordering number : ENA0727

SANYO Semiconductors
DATA SHEET

N-channel Silicon Junction FET

TF202C — Electret Condenser Microphone Applications

Features

- Especially suited for use in electret condenser microphone for audio equipments and telephones.
- Ultrasmall package permitting applied sets to be small and slim.
- Excellent voltage characteristics.
- Excellent transient characteristics.
- 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}=5V, I_D=1μA	−0.2	−0.6	−1.2	V
Drain Current	I_{DSS}	V_{DS}=5V, V_{GS}=0V	140*		350*	μA

Marking: E

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* : The TF202C is classified by I_{DSS} as follows : (unit : μA)

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

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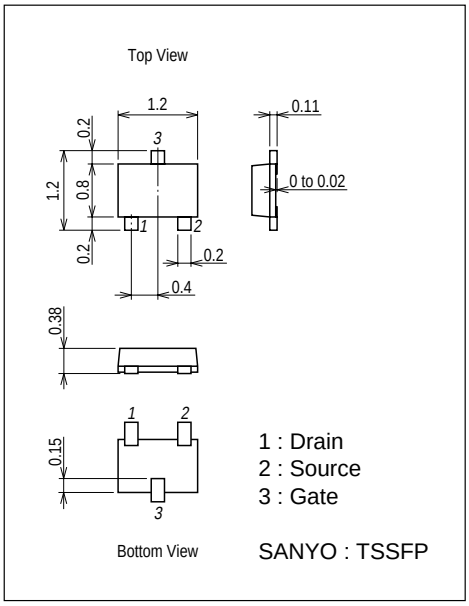
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Forward Transfer Admittance	|yfs|	V_{DS}=5V, V_{GS}=0V, f=1kHz	0.5	1.2		mS
Input Capacitance	Ciss	V_{DS}=5V, V_{GS}=0V, f=1MHz		3.5		pF
Reverse Transfer Capacitance	Crss	V_{DS}=5V, V_{GS}=0V, f=1MHz		0.65		pF
[Ta=25°C, V_{CC}=4.5V, R_L=1kΩ, Cin=15pF, 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→1.5V		-1.2	-3.5	dB
Frequency Characteristic	ΔGvf	f=1kHz 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		1.0		%
Output Noise Voltage	V_{NO}	V_{IN}=0V, A curve			-110	dB

Package Dimensions

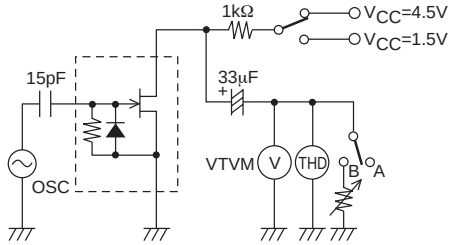
unit : mm (typ)

7048-001

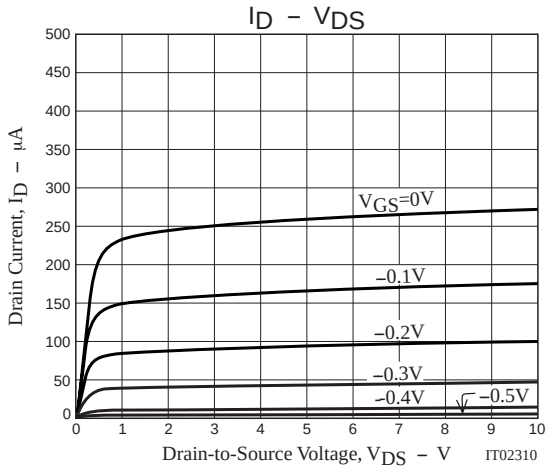


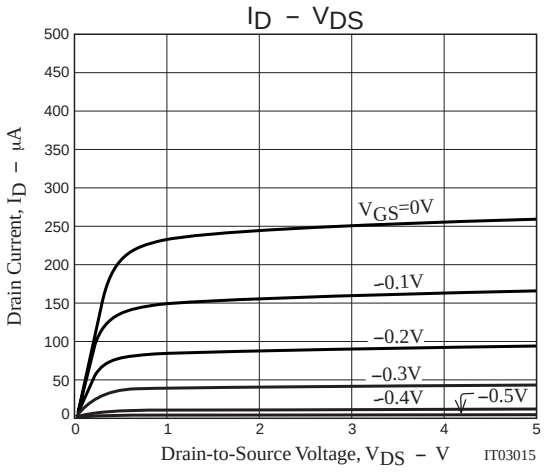
Test Circuit

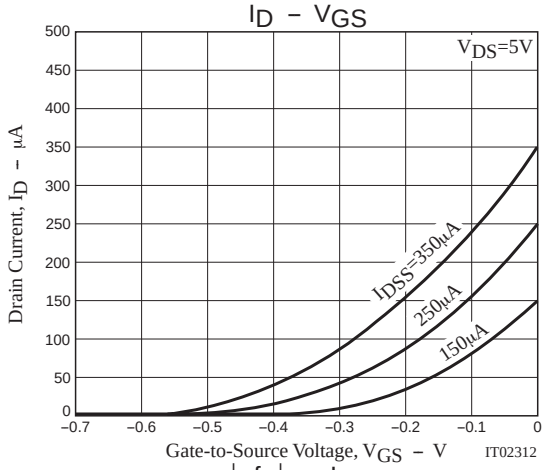
Voltage gain
Frequency Characteristic
Distortion
Reduced Voltage Characteristic

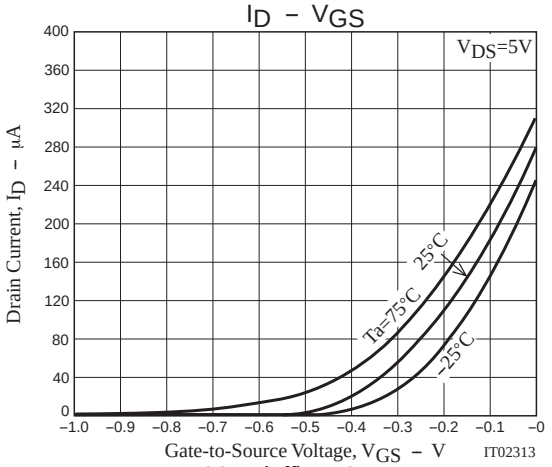


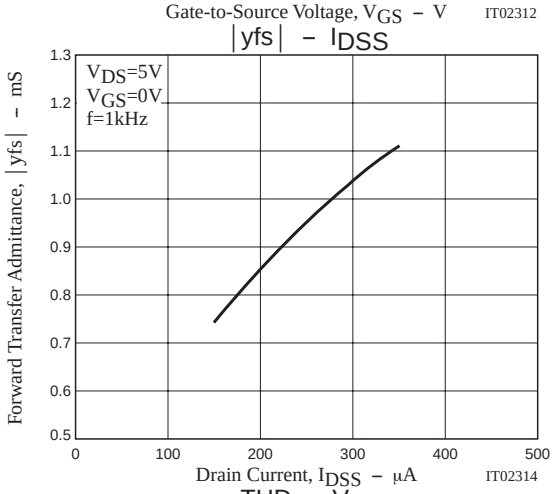
Output Impedance

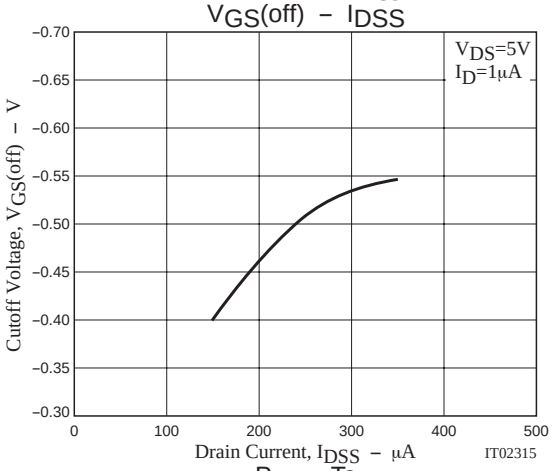


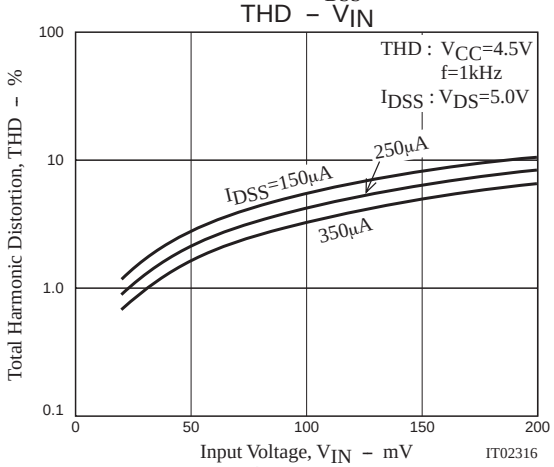


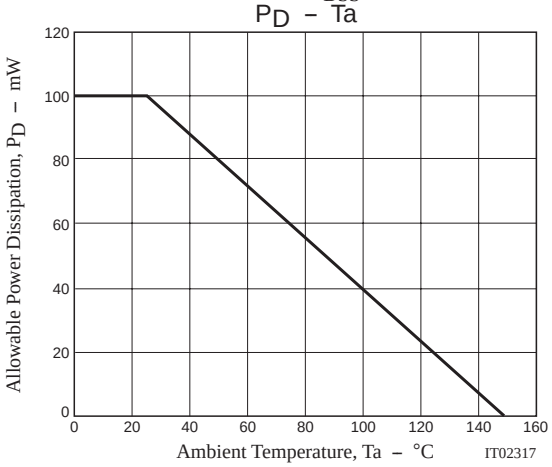


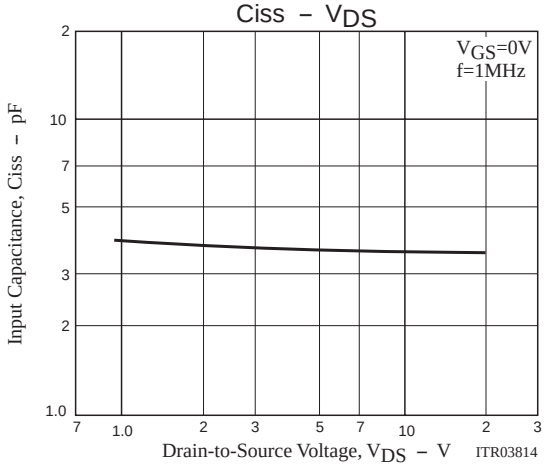


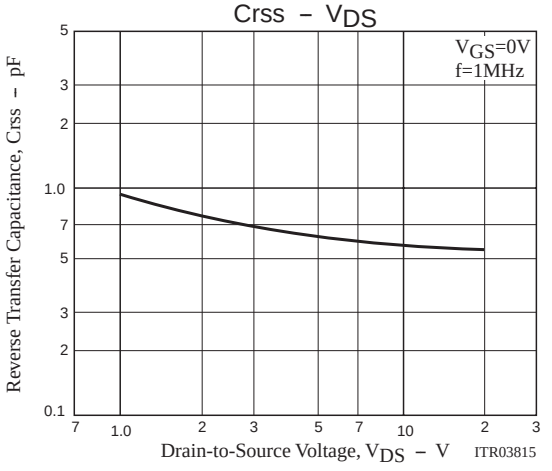




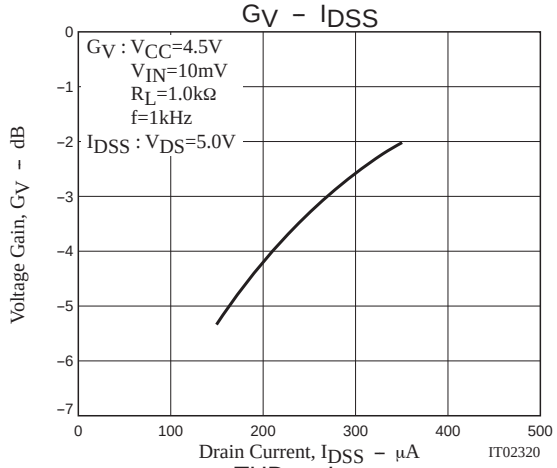




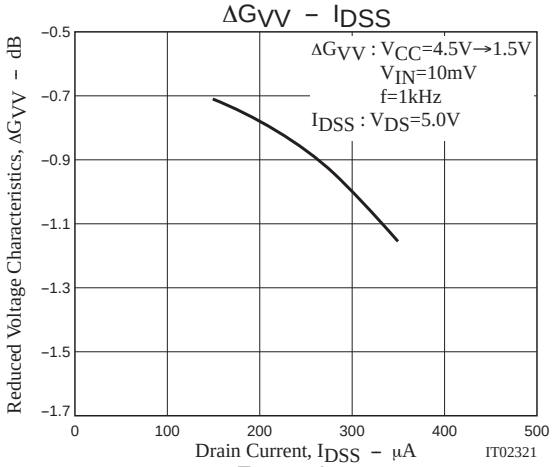




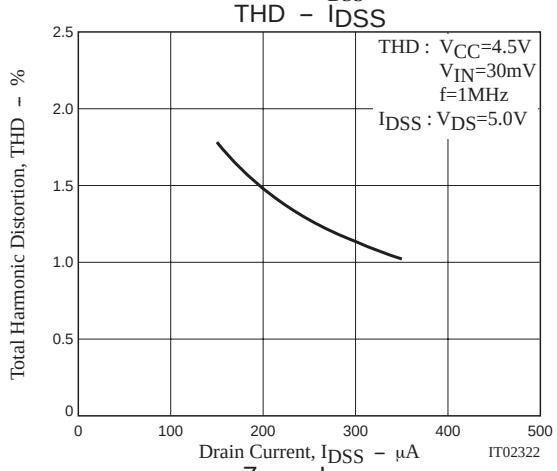
G_V – I_{DSS}



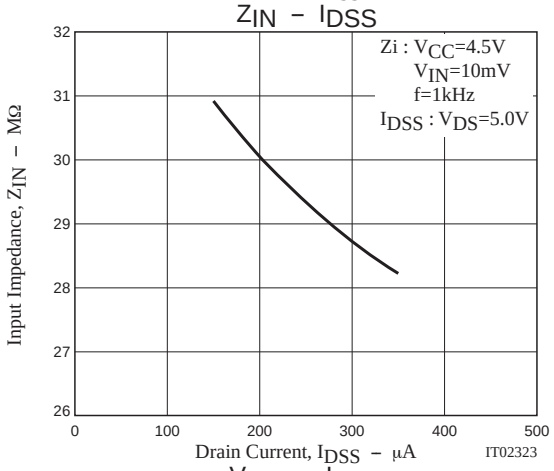
ΔG_{VV} – I_{DSS}



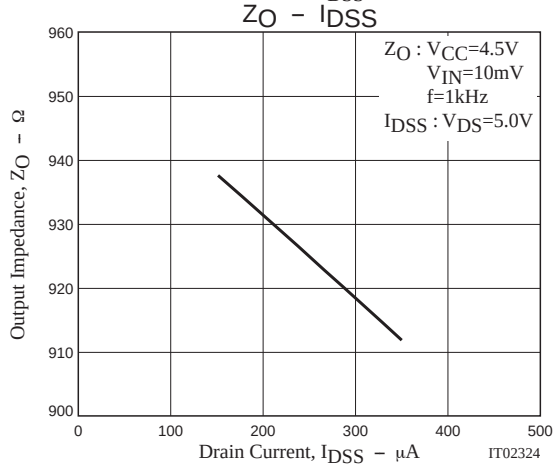
THD – I_{DSS}



Z_{IN} – I_{DSS}



Z_O – I_{DSS}



V_{NO} – I_{DSS}