

# 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 <sub>GDO</sub>		-20	V
Gate Current	IG		10	mA
Drain Current	ID		1	mA
Allowable Power Dissipation	PD		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	Offic
Gate-to-Drain Breakdown Voltage	V(BR)GDO	IG=-100μA	-20			V
Cutoff Voltage	VGS(off)	$V_{DS}=5V$ , $I_{D}=1\mu A$	-0.2	-0.6	-1.2	V
Drain Current	IDSS	V <sub>DS</sub> =5V, V <sub>GS</sub> =0V	140*		350*	μΑ

Marking: E

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<sup>\*:</sup> The TF202C is classified by IDSS as follows: (unit:  $\mu$ A)

Rank	E4	E5
IDSS	140 to 240	210 to 350

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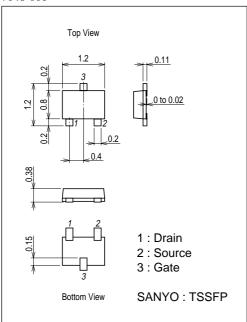
# **TF202C**

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Parameter	Symbol	Conditions	Ratings			1.1	
			min	typ	max	Unit	
Forward Transfer Admittance	yfs	V <sub>DS</sub> =5V, V <sub>GS</sub> =0V, f=1kHz	0.5	1.2		mS	
Input Capacitance	Ciss	VDS=5V, VGS=0V, f=1MHz		3.5		pF	
Reverse Transfer Capacitance	Crss	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, Cin=15pF, See specified Test Circuit.]							
Voltage Gain	GV	V <sub>IN</sub> =10mV, f=1kHz		-3.0		dB	
Reduced Voltage Characteristic	ΔG <sub>VV</sub>	V <sub>IN</sub> =10mV, f=1kHz, V <sub>CC</sub> =4.5→1.5V		-1.2	-3.5	dB	
Frequency Characteristic	∆Gvf	f=1kHz to 110Hz			-1.0	dB	
Input Impedance	ZIN	f=1kHz	25			$M\Omega$	
Output Impedance	ZO	f=1kHz		1000		Ω	
Total Harmonic Distortion	THD	V <sub>IN</sub> =30mV, f=1kHz		1.0		%	
Output Noise Voltage	VNO	V <sub>IN</sub> =0V, A curve			-110	dB	

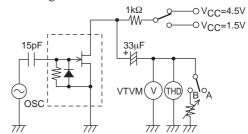
# **Package Dimensions**

unit : mm (typ) 7048-001

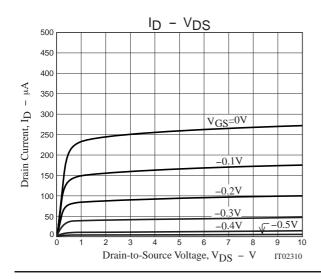


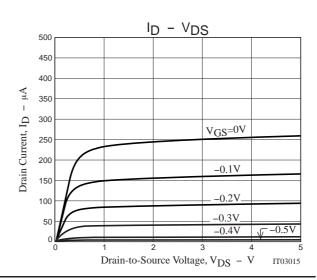
# **Test Circuit**

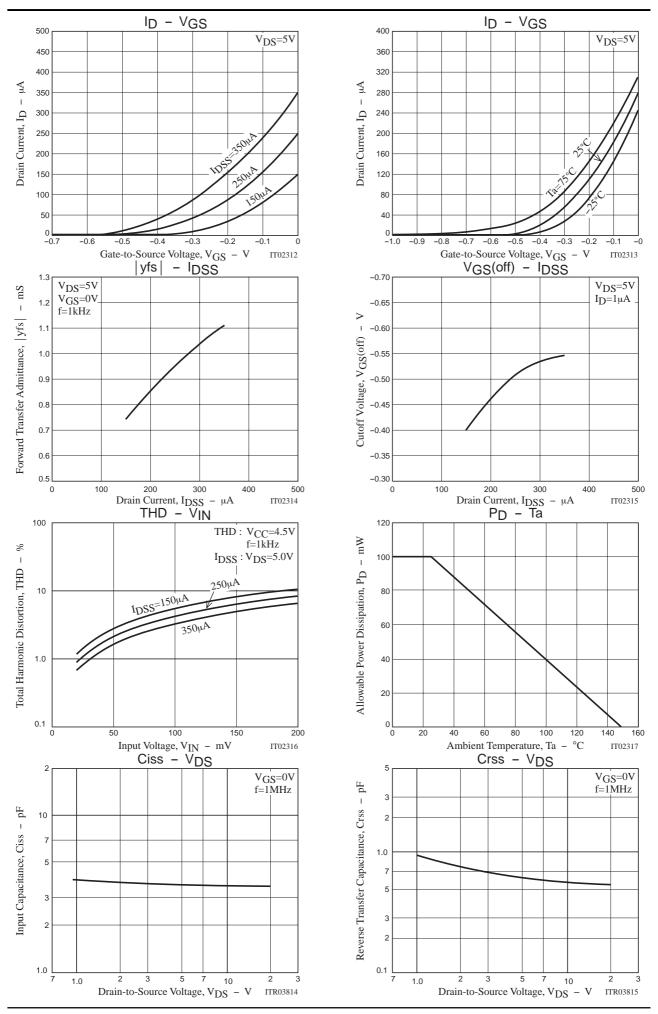
Voltage gain Frequency Characteristic Distortion Reduced Voltage Characteristic



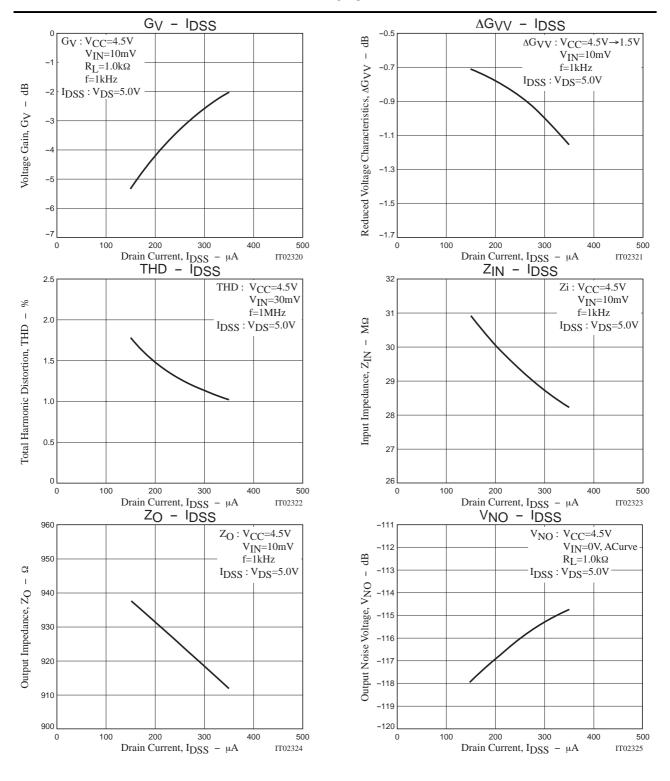
Output Impedance







# **TF202C**



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