



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 | T _j | | 150 | °C |
| Storage Temperature | T _{stg} | | -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

Continued on next page.

*: 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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TF202C

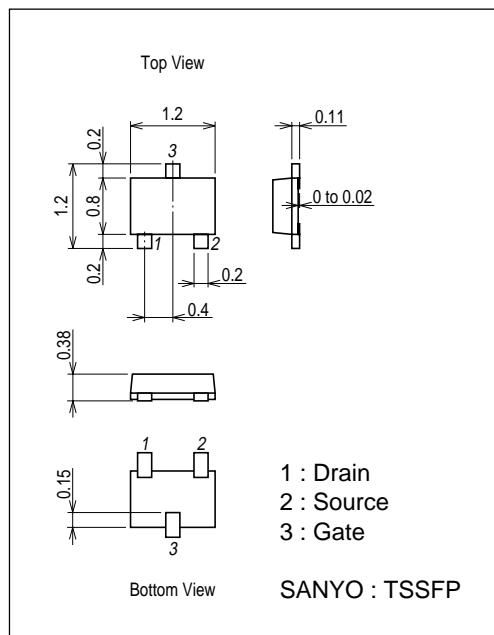
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|-----------------|---|---------|------|------|------|
| | | | min | typ | max | |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS}=5V, V_{GS}=0V, f=1kHz$ | 0.5 | 1.2 | | mS |
| Input Capacitance | C_{iss} | $V_{DS}=5V, V_{GS}=0V, f=1MHz$ | | 3.5 | | pF |
| Reverse Transfer Capacitance | C_{rss} | $V_{DS}=5V, V_{GS}=0V, f=1MHz$ | | 0.65 | | pF |
| [Ta=25°C, VCC=4.5V, RL=1kΩ, Cin=15pF, See specified Test Circuit.] | | | | | | |
| Voltage Gain | G_V | $V_{IN}=10mV, f=1kHz$ | | -3.0 | | dB |
| Reduced Voltage Characteristic | ΔG_{VV} | $V_{IN}=10mV, f=1kHz, VCC=4.5 \rightarrow 1.5V$ | | -1.2 | -3.5 | dB |
| Frequency Characteristic | ΔG_{vf} | $f=1kHz$ 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



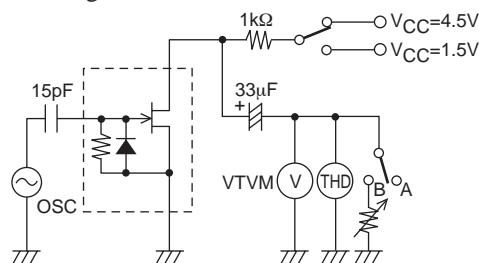
Test Circuit

Voltage gain

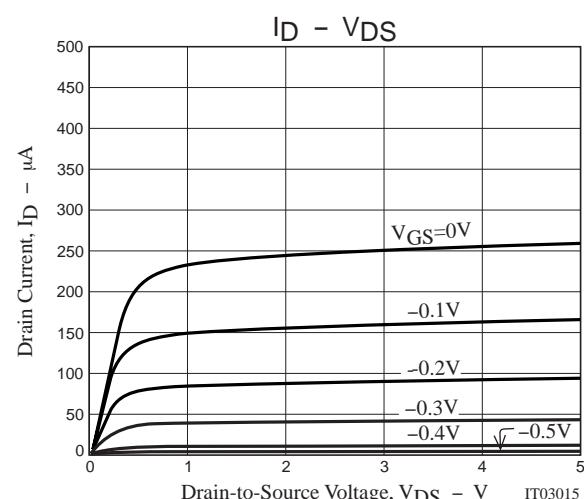
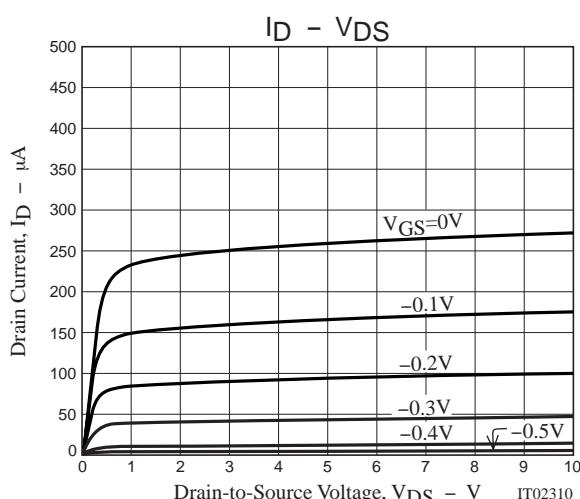
Frequency Characteristic

Distortion

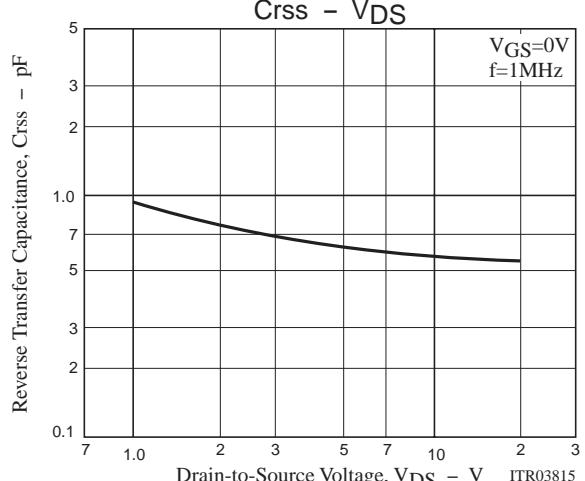
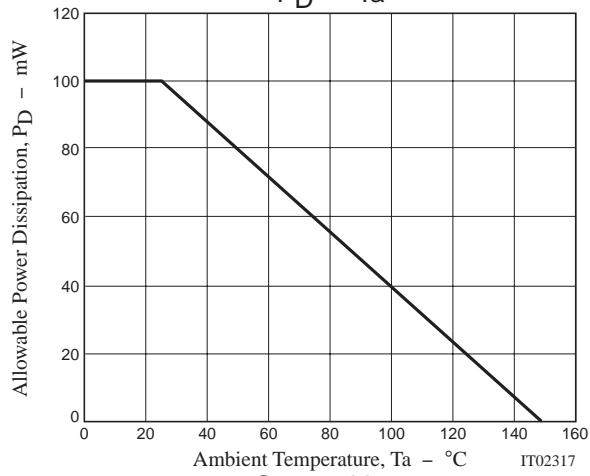
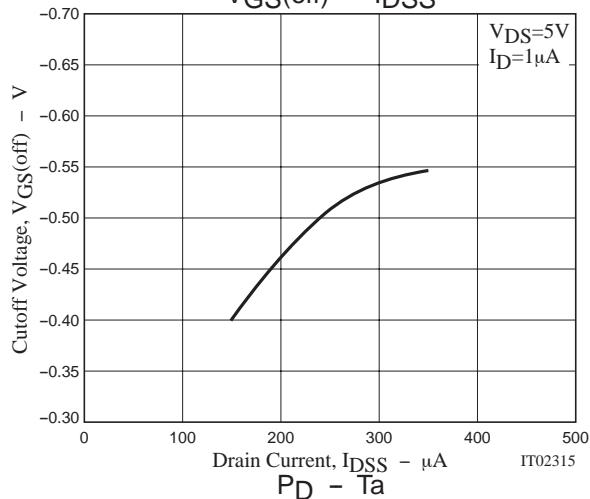
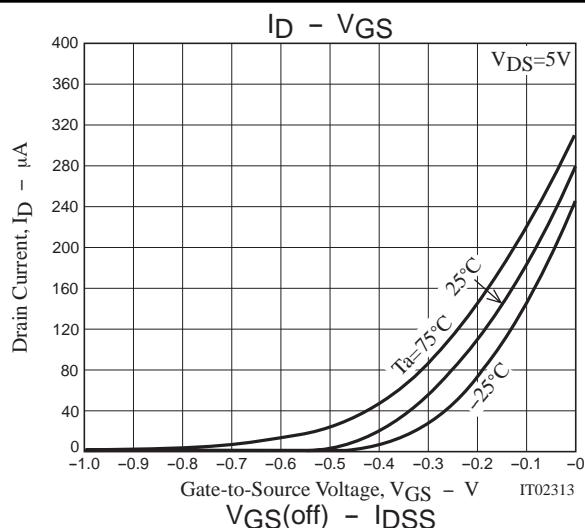
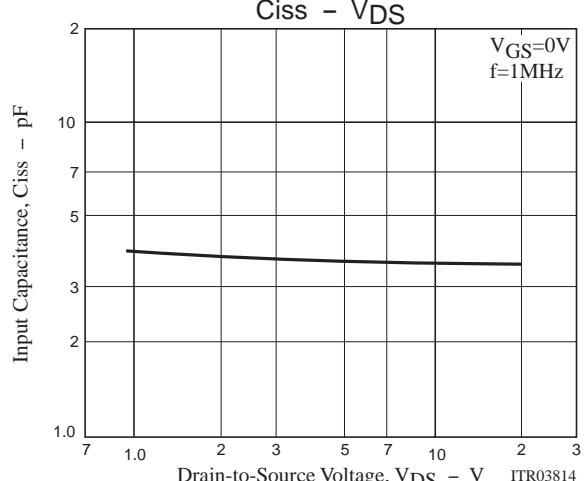
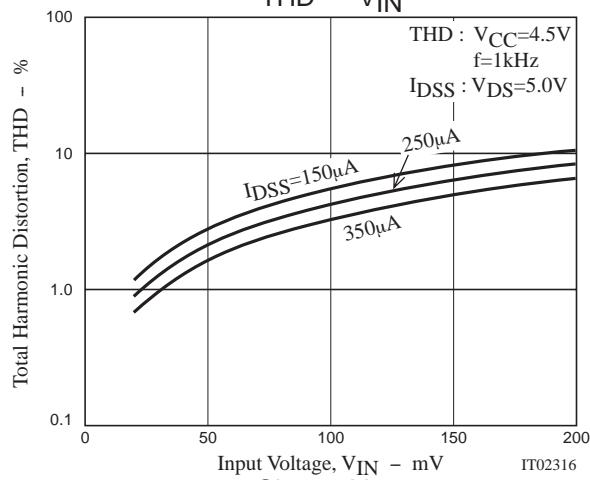
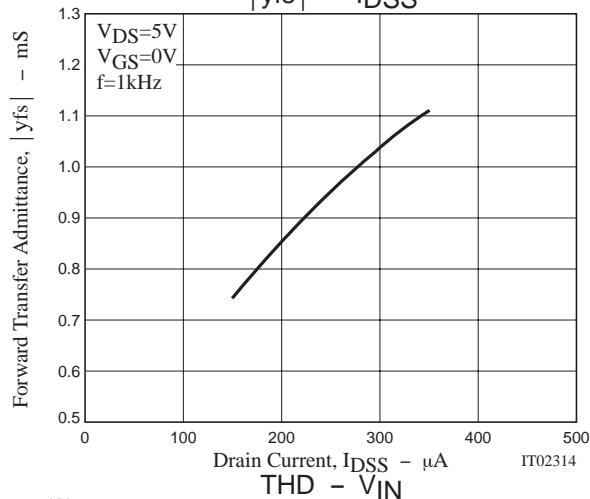
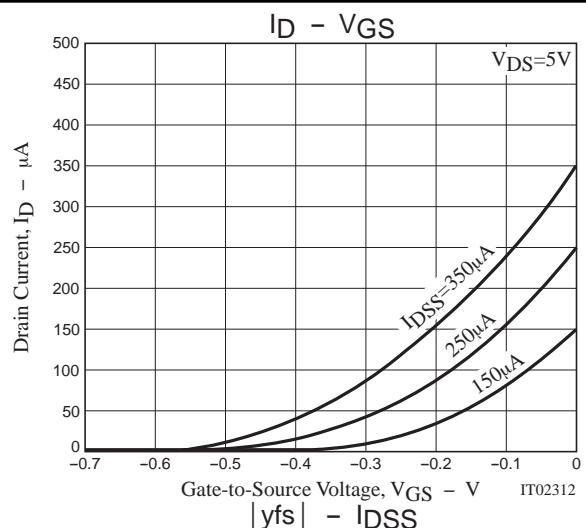
Reduced Voltage Characteristic



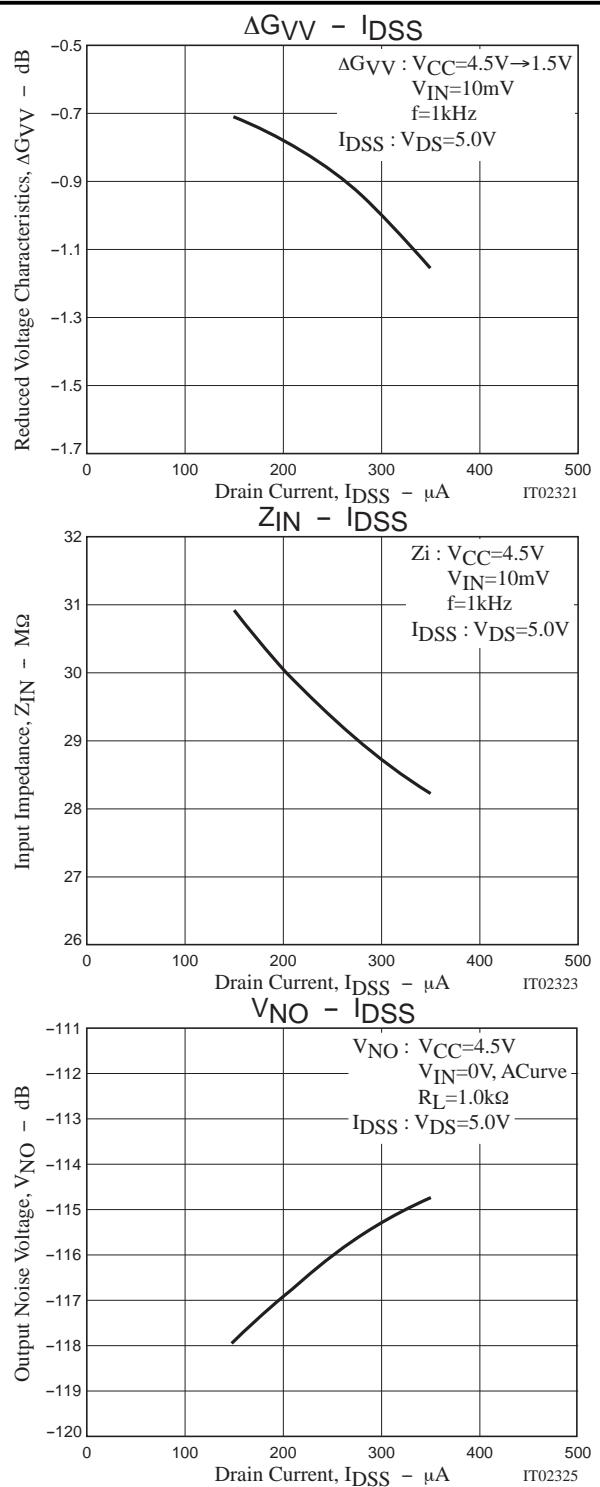
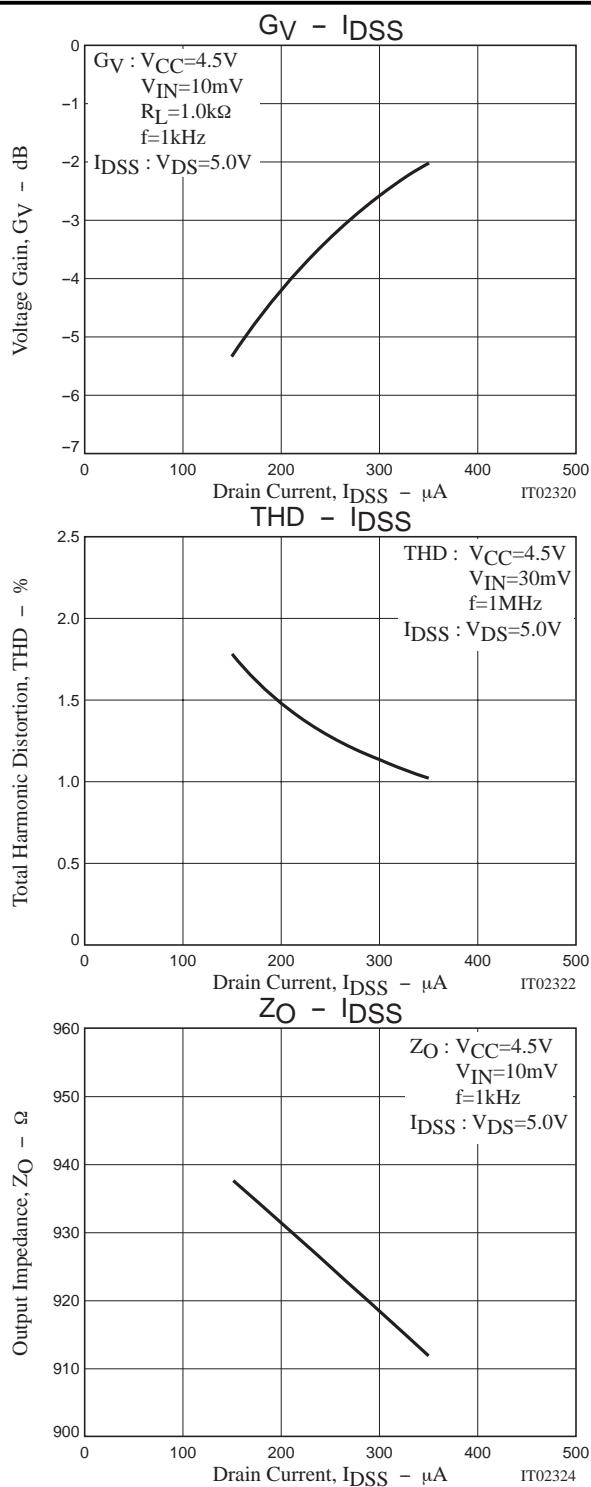
Output Impedance



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