



TF218TH — N-channel Silicon Junction FET

Electret Condenser Microphone Applications

Features

- Ultrasmall package facilitates miniaturization in end products.
- Especially suited for use in electret condenser microphone for audio equipments and telephones.
- 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 | -1.0 | V |
| Zero-Gate Voltage Drain Current | I _{DSS} | V _{DS} =5V, V _{GS} =0V | 140* | | 350* | μA |
| Forward Transfer Admittance | y _{fs} | V _{DS} =5V, V _{GS} =0V, f=1kHz | 0.5 | 1.0 | | 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, V _{CC} =4.5V, R _L =1kΩ, C _{in} =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 | 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 | | 1.2 | | % |
| Output Noise Voltage | V _{NO} | V _{IN} =0V, A curve | | | -110 | dB |

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TF218TH

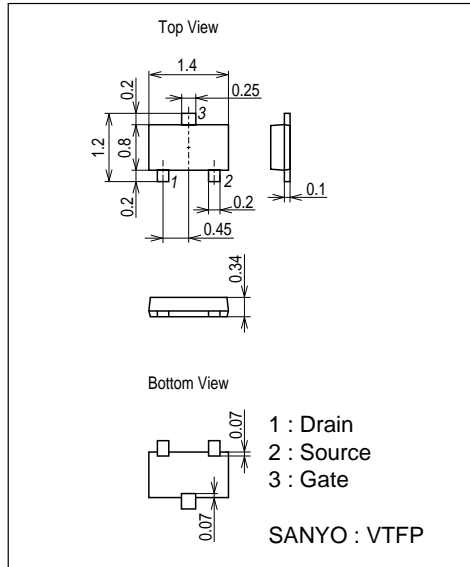
* : The TF218TH is classified by I_{DSS} as follows : (unit : μA)

| Rank | A4 | A5 |
|-----------|------------|------------|
| I_{DSS} | 140 to 240 | 210 to 350 |

Package Dimensions

unit : mm

7031-001



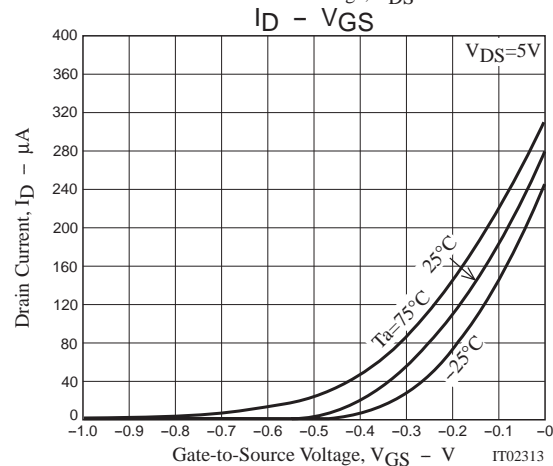
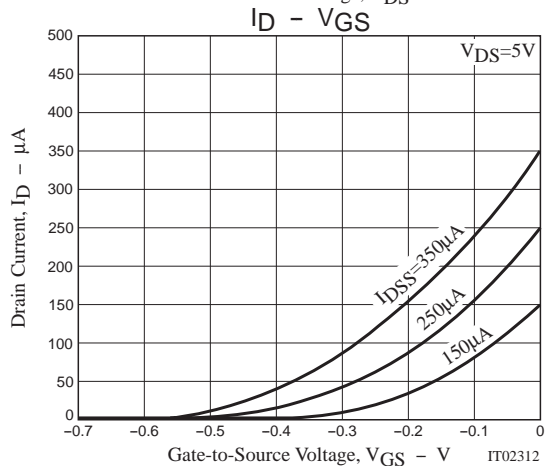
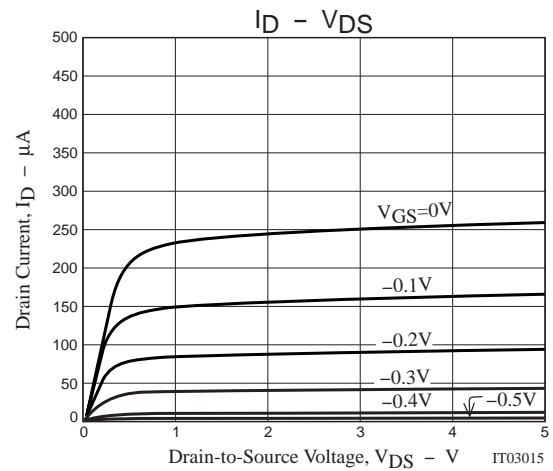
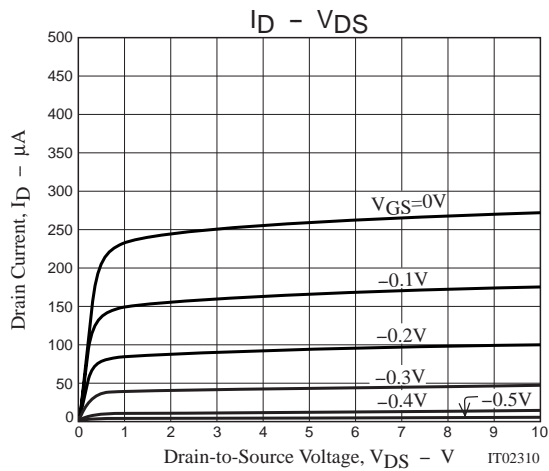
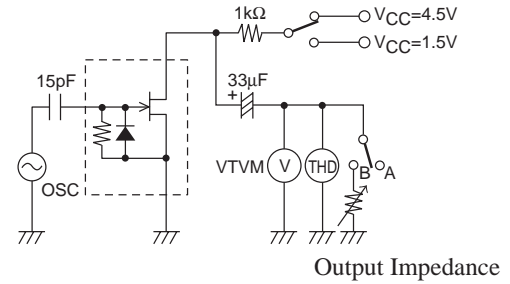
Test Circuit

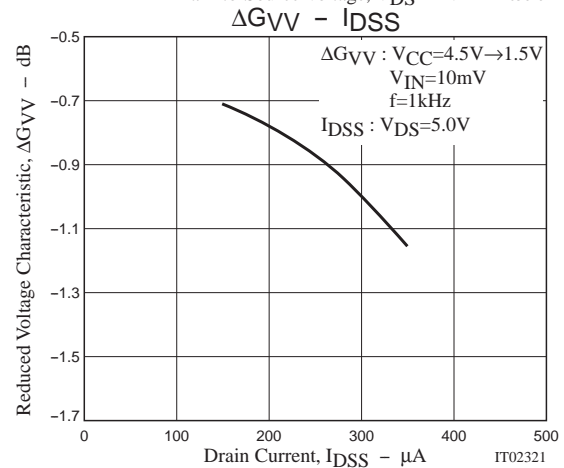
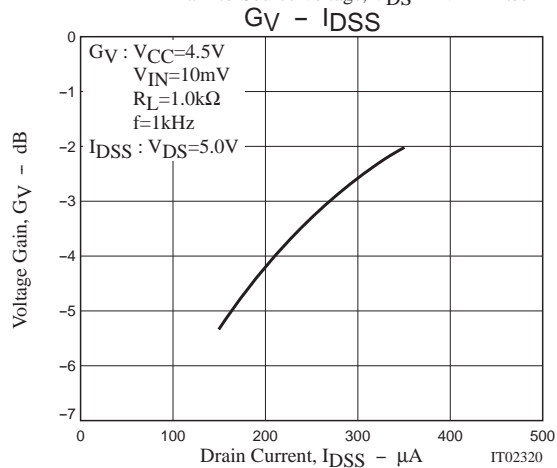
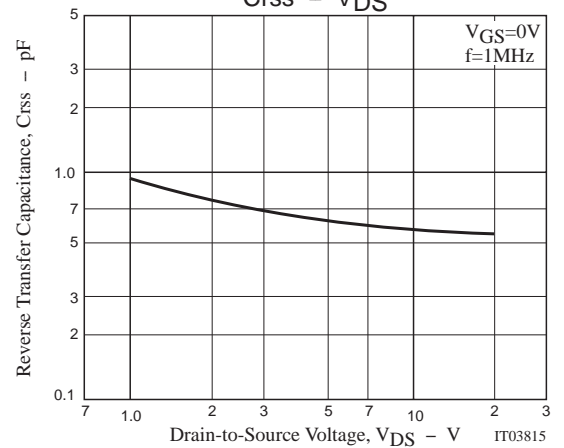
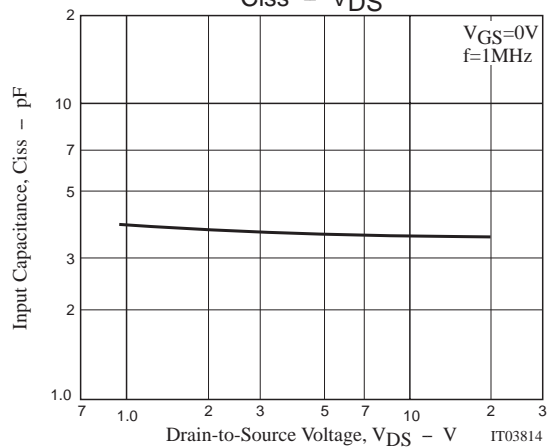
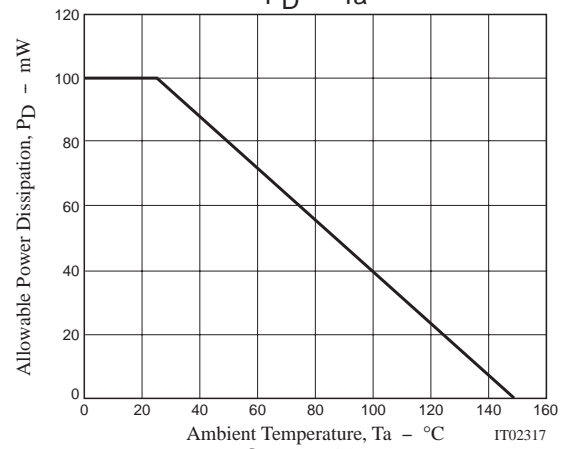
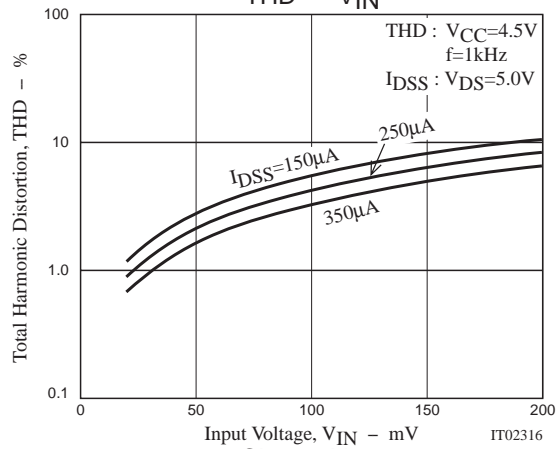
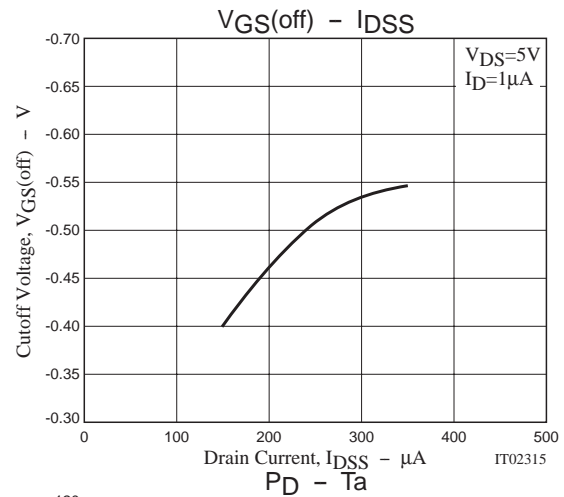
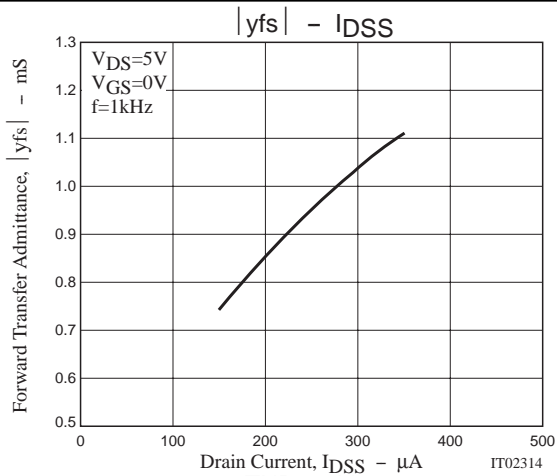
Voltage gain

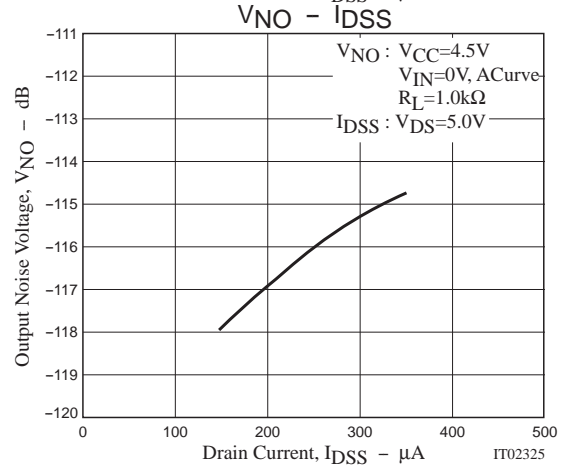
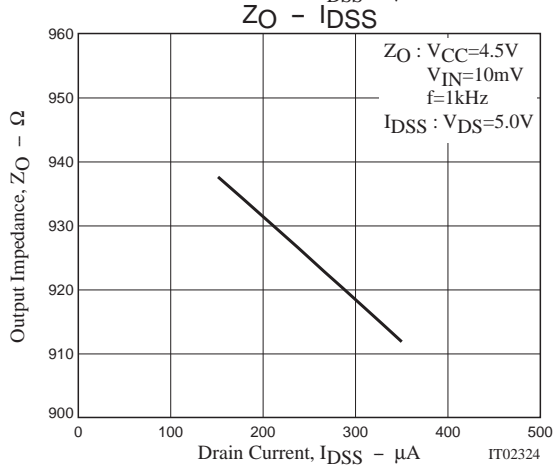
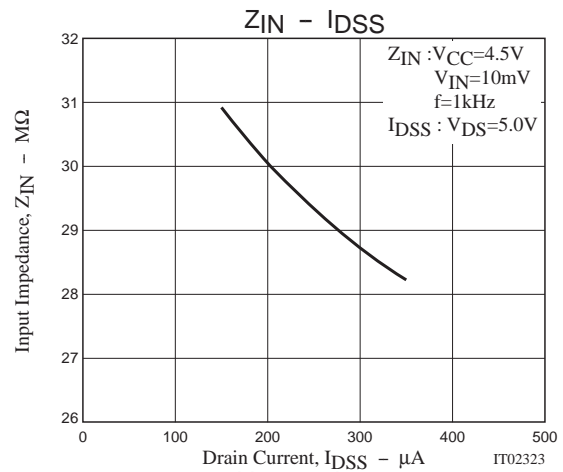
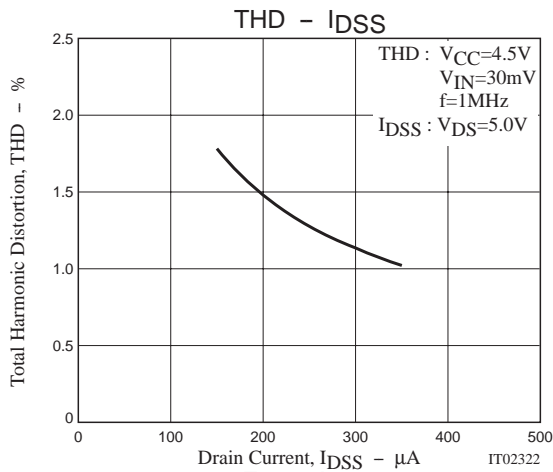
Frequency Characteristic

Distortion

Reduced Voltage Characteristic







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