



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 | 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} =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 | y _{fs} | V _{DS} =2V, V _{GS} =0V, f=1kHz | 0.5 | 1.4 | | mS |
| Input Capacitance | C _{iss} | V _{DS} =2V, V _{GS} =0V, f=1MHz | | 5.0 | | pF |
| Reverse Transfer Capacitance | C _{rss} | V _{DS} =2V, V _{GS} =0V, f=1MHz | | 1.1 | | pF |
| [Ta=25°C, V _{CC} =2.0V, R _L =2.2kΩ, C _{in} =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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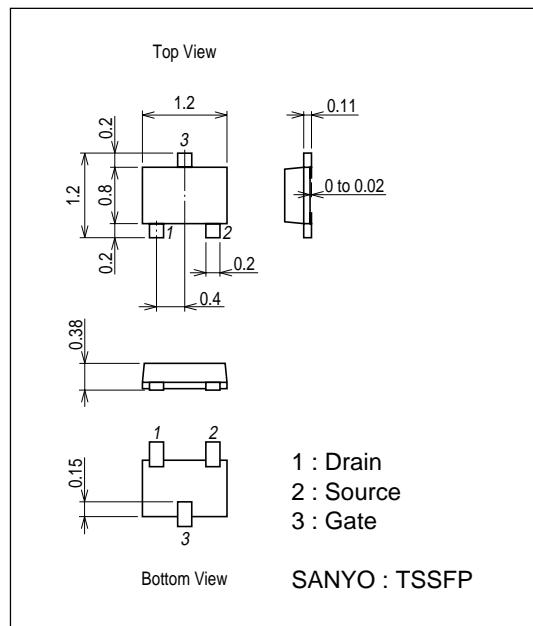
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---------------------------|-----------------|------------------------|---------|-----|------|------|
| | | | min | typ | max | |
| Frequency Characteristics | ΔG_{vf} | f=1kHz to 110Hz | | | -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

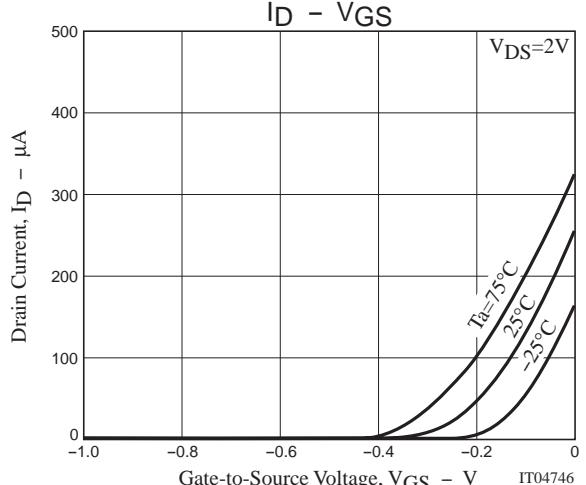
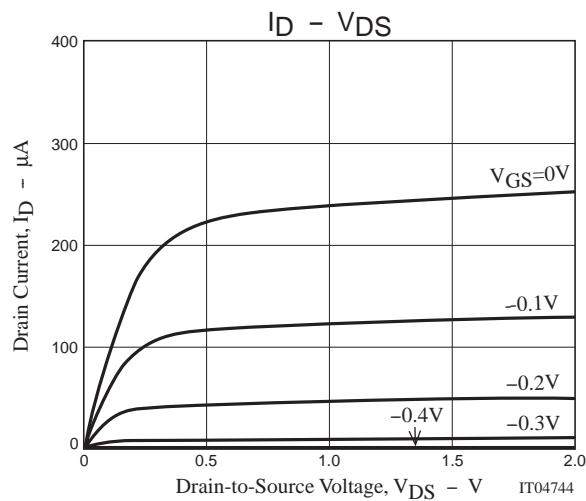
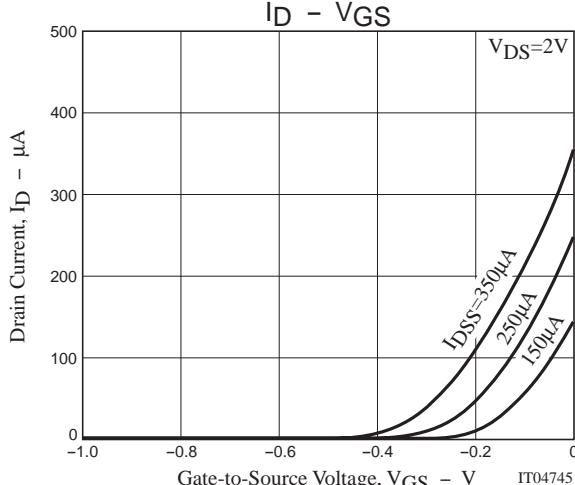
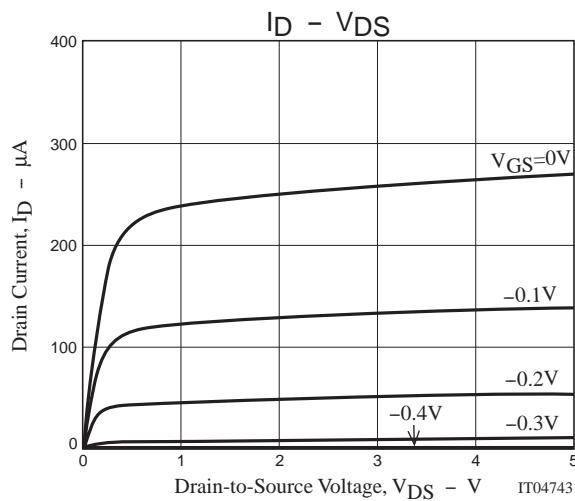
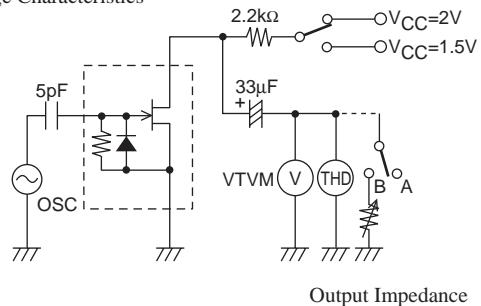
unit : mm

7048-001

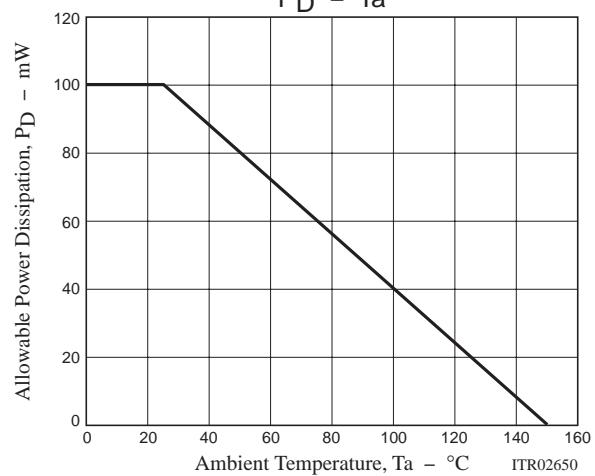
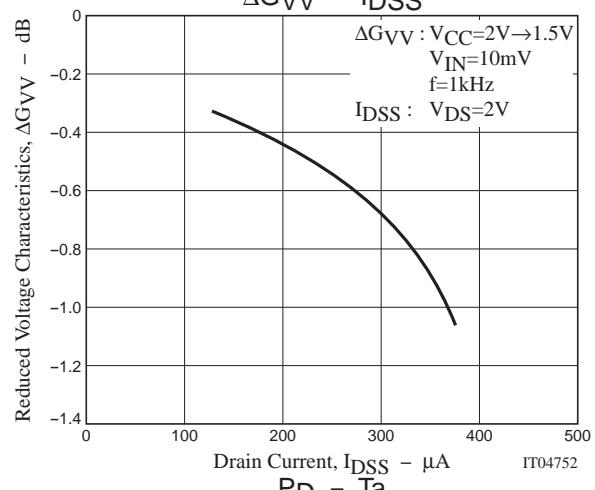
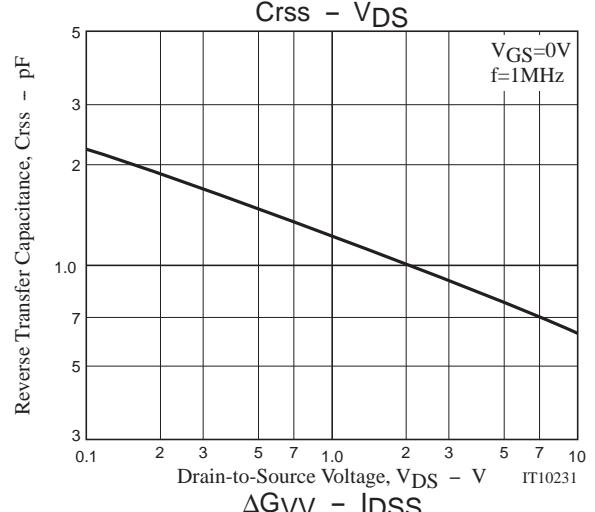
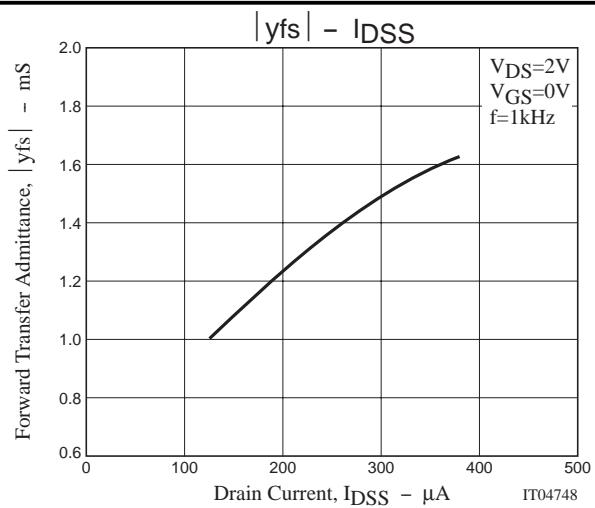
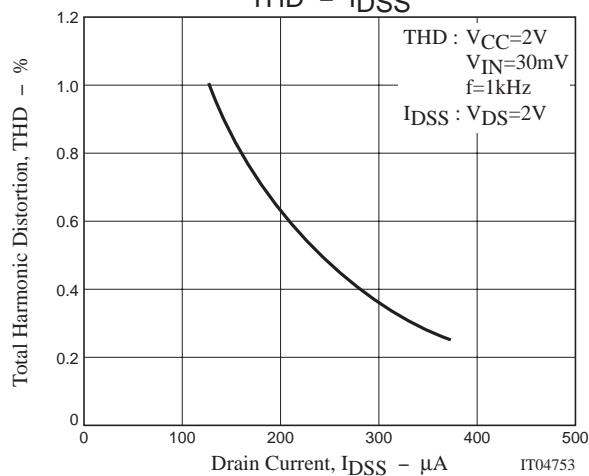
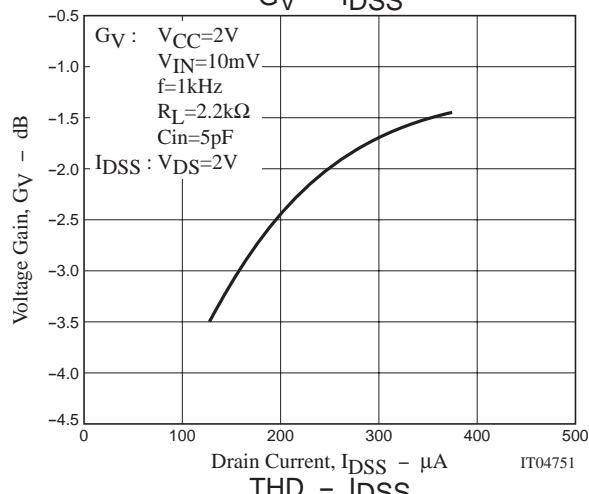
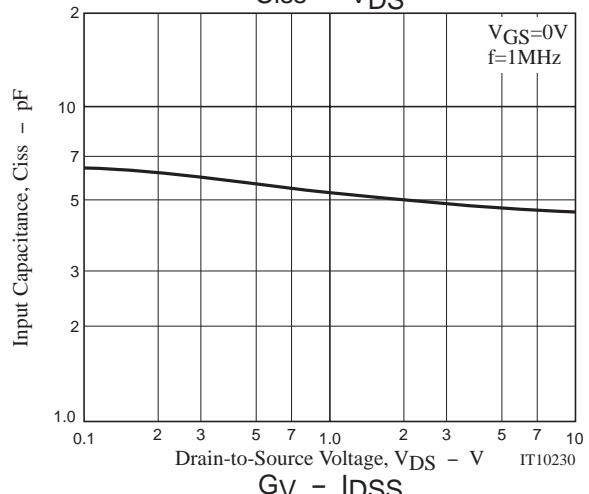
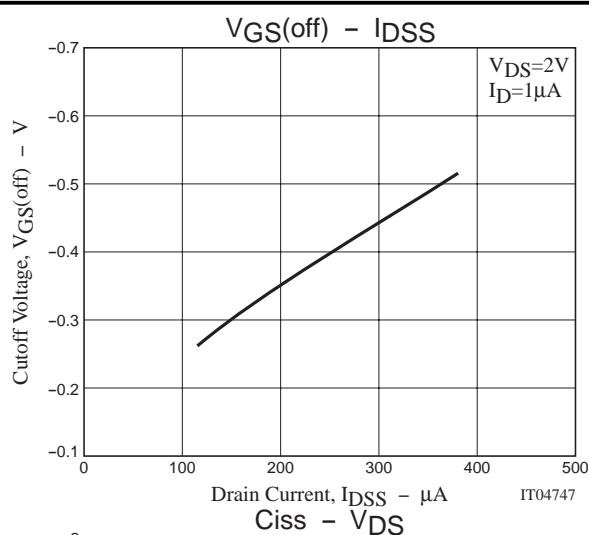


Test Circuit

- Voltage gain
- Frequency Characteristics
- Distortion
- Reduced Voltage Characteristics



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