

<FIELD-EFFECT TRANSISTOR>

2SK930

FOR LOW FREQUENCY AMPLIFY APPLICATION
N CHANNEL JUNCTION TYPE

DESCRIPTION

2SK930 is a super mini outline resin sealed silicon N channel junction type FET. It is designed for low frequency voltage amplify, application, analog switch application.

FEATURE

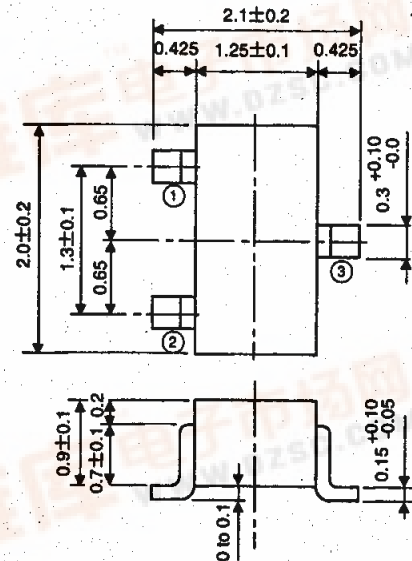
- Small type for mounting
- High $|y_{fs}|$ $|y_{fs}| = 4\text{mS}(\text{typ})$
- Low $R_{DS(\text{ON})}$ $R_{DS(\text{ON})} = 250\ \Omega$ type

APPLICATION

General purpose voltage amplify, analog switch circuit for stereo, cassette deck, VCR.

OUTLINE DRAWING

Unit:mm



TERMINAL CONNECTOR

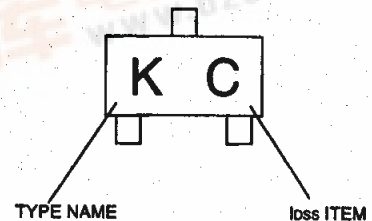
- ① : SOURCE
- ② : DRAIN
- ③ : GATE

EIAJ : SC-70

Note)

The dimension without tolerance represent central value.

MARKING



MAXIMUM RATINGS (Ta=25°C)

| Symbol | Parameter | Ratings | Unit |
|-----------|--------------------------------------|-------------|------|
| V_{GDO} | Gate to Drain voltage | -50 | V |
| I_g | Gate current | 10 | mA |
| P_T | Total allowable dissipation(Ta=25°C) | 150 | mW |
| T_{ch} | Channel temperature | +125 | °C |
| T_{stg} | Storage temperature | -55 to +125 | °C |

ELECTRICAL CHARACTERISTICS (Ta=25°C)

| Symbol | Parameter | Test conditions | Limits | | | Unit |
|----------------------|-----------------------------|--|--------|------|------|---------------|
| | | | Min | Typ | Max | |
| $V_{(BR)GDO}$ | G to D break down voltage | $I_G = -10\ \mu\text{A}, I_S = 0$ | -50 | | | V |
| I_{GSS} | Gate leakage current | $V_{GS} = -30\text{V}, V_{DS} = 0$ | | | -1 | nA |
| I_{DSS}^* | Drain current | $V_{DS} = 10\text{V}, V_{GS} = 0$ | 1.0 | | 12 | mA |
| $V_{GS(\text{off})}$ | Cut off voltage | $V_{DS} = 10\text{V}, I_D = 10\ \mu\text{A}$ | -0.3 | -1.5 | -6.0 | V |
| $ y_{fs} $ | Forward transfer admittance | $V_{DS} = 10\text{V}, V_{GS} = 0, f = 1\text{kHz}$ | 1.0 | 3.0 | | mS |
| $ y_{os} $ | Output admittance | $V_{DS} = 10\text{V}, V_{GS} = 0, f = 1\text{kHz}$ | | 10 | | μS |
| C_{iss} | Input capacitance | $V_{DS} = 10\text{V}, V_{GS} = 0, f = 1\text{MHz}$ | | 8 | | pF |
| C_{rss} | Feed back capacitance | $V_{DS} = 10\text{V}, V_{GS} = 0, f = 1\text{MHz}$ | | 1.5 | | pF |
| $R_{DS(\text{ON})}$ | Drain to source resistor | $V_{DS} = 10\text{mVrms}(1\text{kHz}), V_{GS} = 0, I_{DSS} = 5\text{mA}$ | | 250 | | Ω |

* : It shows loss classification in right table.

| Item | C | D | E |
|------|------------|------------|-----------|
| loss | 1.0 to 3.0 | 2.5 to 6.0 | 5.0 to 12 |

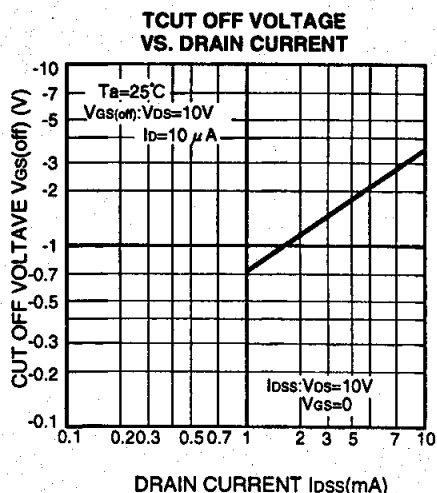
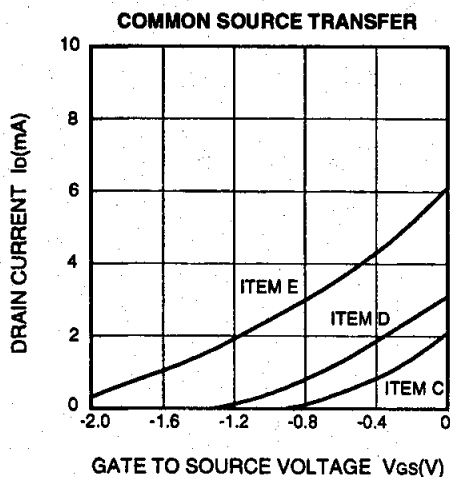
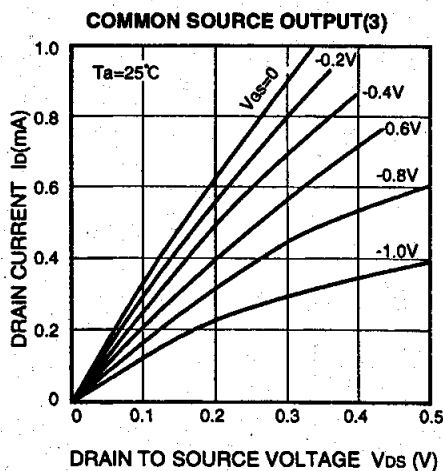
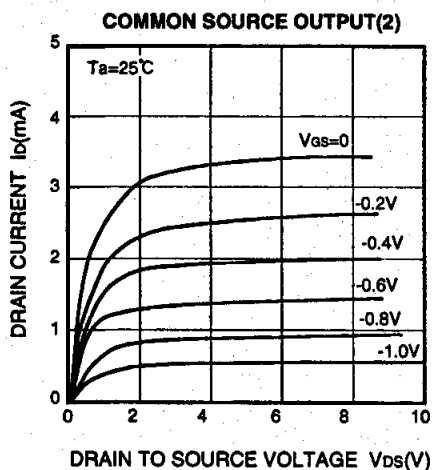
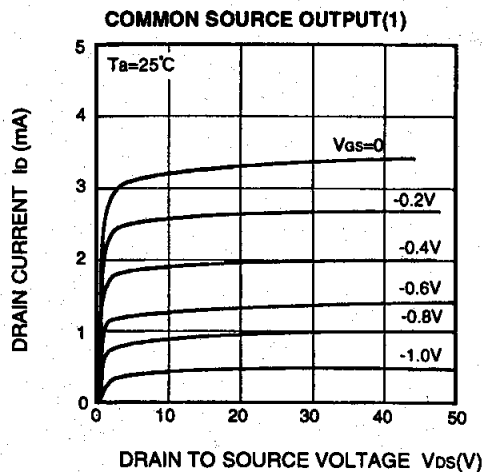
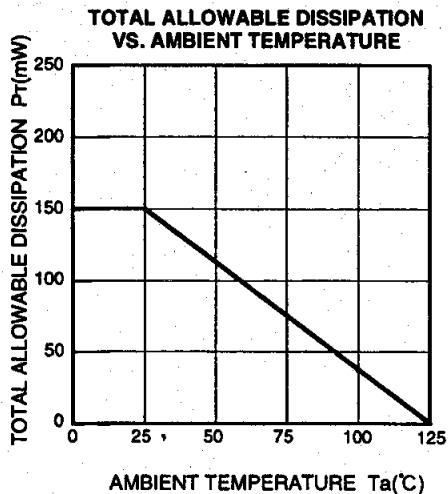


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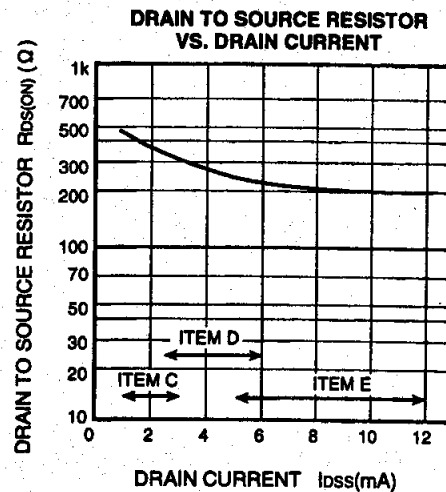
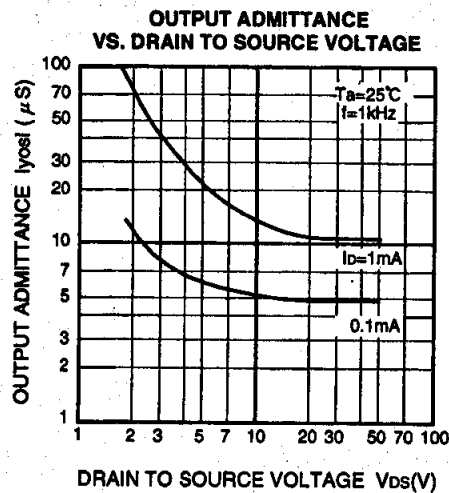
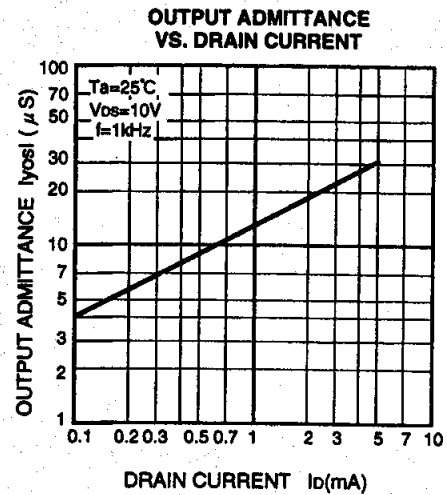
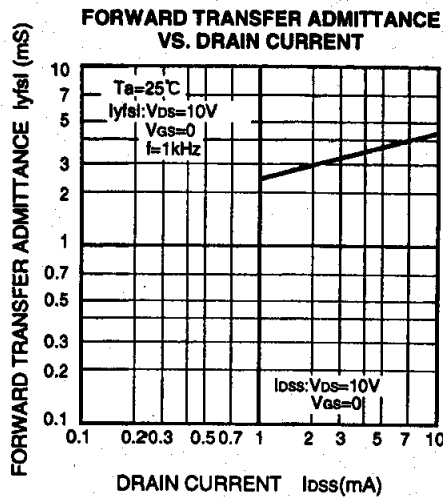
TYPICAL CHARACTERISTICS



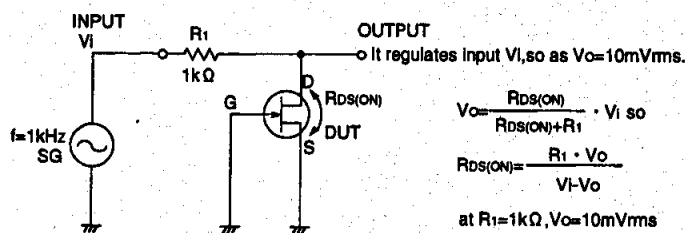
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DRAIN TO SOURCE RESISTOR $R_{ds(ON)}$ TEST CIRCUIT



$$V_o = \frac{R_{ds(ON)}}{R_{ds(ON)} + R_1} \cdot V_i \text{ so}$$

$$R_{ds(ON)} = \frac{R_1 \cdot V_o}{V_i - V_o}$$

at $R_1=1\text{k}\Omega$, $V_o=10\text{mVrms}$

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