〈Field-Effect Transistor〉

# 2SJ498

For Low Frequency Amplify Application

P Channel Junction type Micro(Frame type)

## DESCRIPTION

2SJ498 is a small type resin sealed P channel junction type FET. It is especially designed for low frequency voltage amplify,analog switch application.

## FEATURE

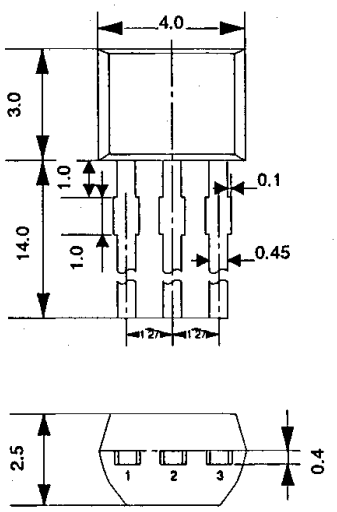
- Small type for mounting
- High |yfs| |yfs|=4mS(typ)
- Low $R_{DS(ON)}$ $R_{DS(ON)}$=220Ω (typ)

## APPLICATION

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

OUTLINE DRAWING

UNIT:mm




TERMINAL CONNECTOR

① : SOURCE
② : GATE
③ : DRAIN

EIAJ : —
JEDEC : —

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 | 450 | mW |
| $T_{ch}$ | Channel temperature | +125 | °C |
| $T_{stg}$ | Storage temperature | -55to+125 | °C |

ELECTRICAL CHARACTERISTICS (Ta=25°C)

| SYMBOL | PARAMETER | TESTCONDITIONS | LIMITS | | | UNIT |
|---|---|---|---|---|---|---|
| | | | MIN | TYP | MAX | |
| $V_{(BR)GDO}$ | G to D break down voltage | $I_G$=10μA, $I_S$=0 | 50 | | | V |
| $I_{GSS}$ | Gate leakage current | $V_{GS}$=30V, $V_{DS}$=0 | | | 1 | nA |
| $I_{DSS}$ * | Drain current | $V_{DS}$=-10V, $V_{GS}$=0 | -0.6 | -4.0 | -12 | mA |
| $V_{GS(off)}$ | Cut off voltage | $V_{DS}$=-10V, $I_D$=-10μA | 0.2 | 1.5 | 6 | V |
| \|yfs\| | Forward transfer admittance | $V_{DS}$=-10V, $V_{GS}$=0, f=1kHz | 1.5 | 4 | | mS |
| Ciss | Input capacitance | $V_{DS}$=-10V, $V_{GS}$=0, f=1MHz | | 18 | | pF |
| $R_{DS(ON)}$ | Drain to Sourse resistor | $V_{DS}$=10mVrms(1kHz), $V_{GS}$=0, $I_{DSS}$=5mA | | 220 | | Ω |

| ITEM | B | C | D | E |
|---|---|---|---|---|
| $I_{DSS}$ | 0.6～1.5 | 1.0～3.0 | 2.5～6.0 | 5.0～12 |

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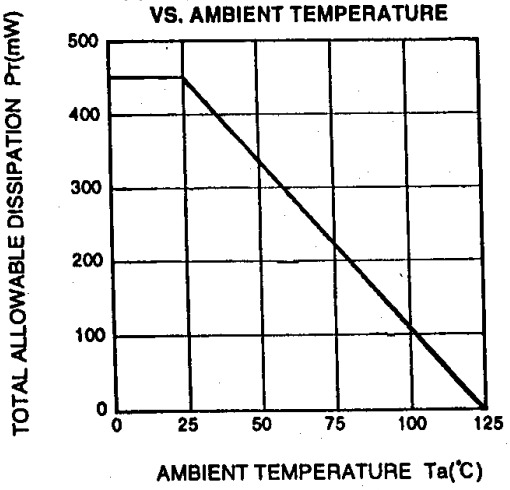
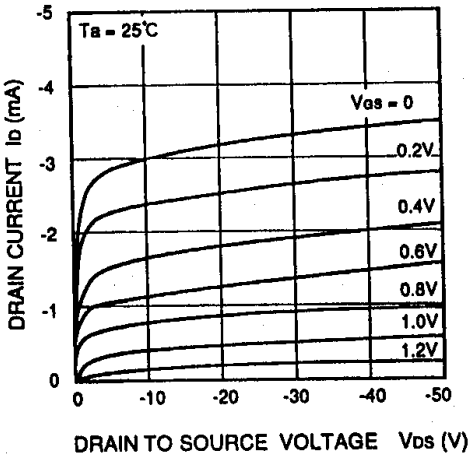
## TYPICAL CHARACTERISTICS

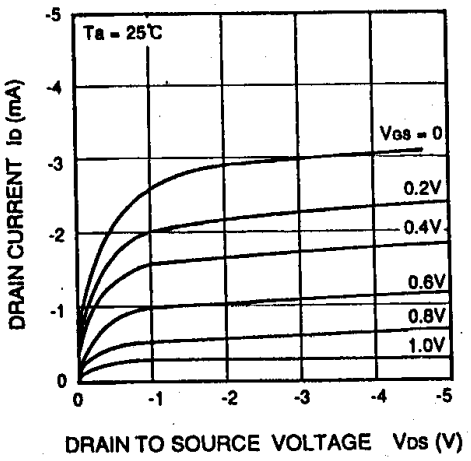
TOTAL ALLOWABLE DISSIPATION VS. AMBIENT TEMPERATURE



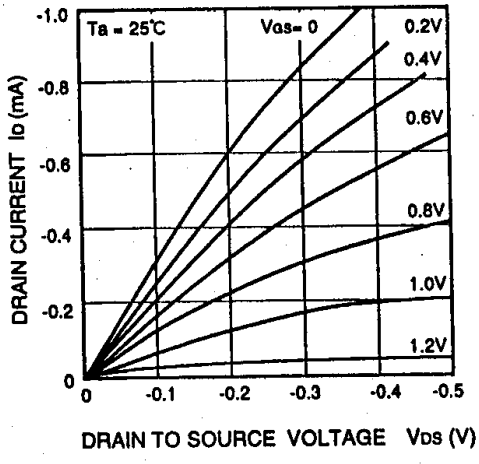

COMMON SOURCE OUTPUT (1)



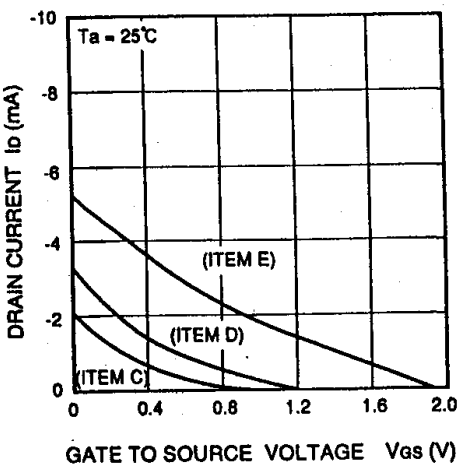

COMMON SOURCE OUTPUT (2)



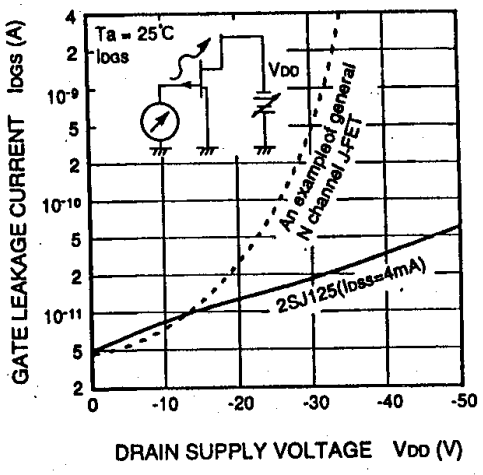

COMMON SOURCE OUTPUT (3)




COMMON SOURCE TRANSFER




GATE LEAKAGE CURRENT VS. DRAIN SUPPLY VOLTAGE



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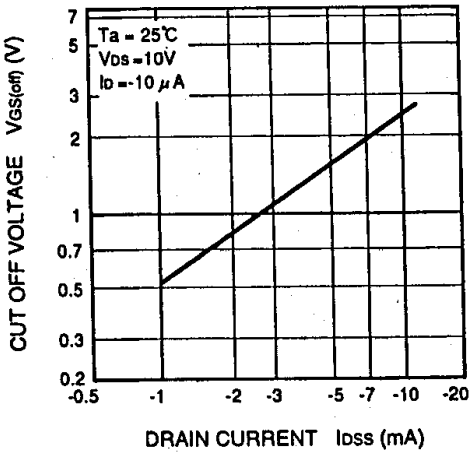
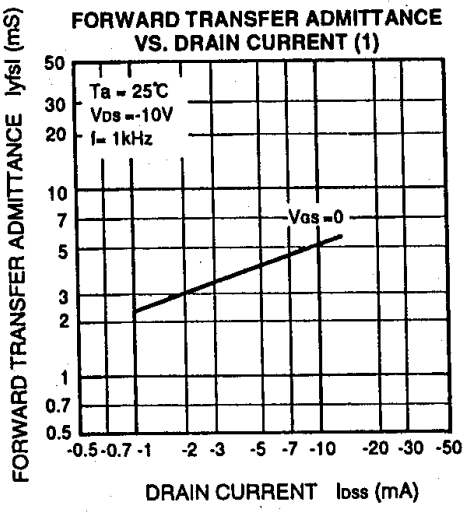
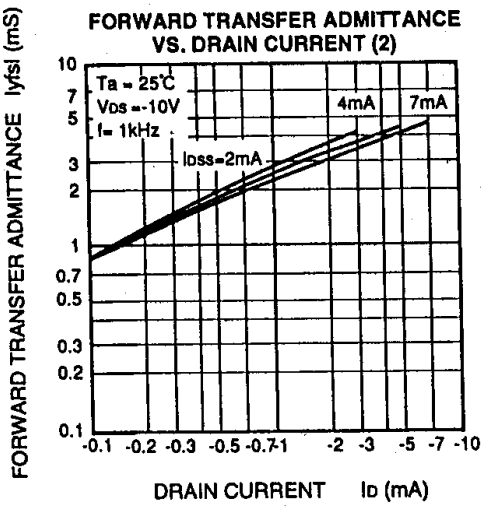
**CUT OFF VOLTAGE VS. DRAIN CURRENT**



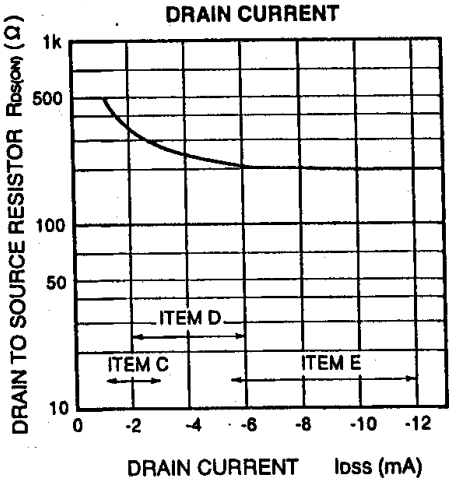

**FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT (1)**



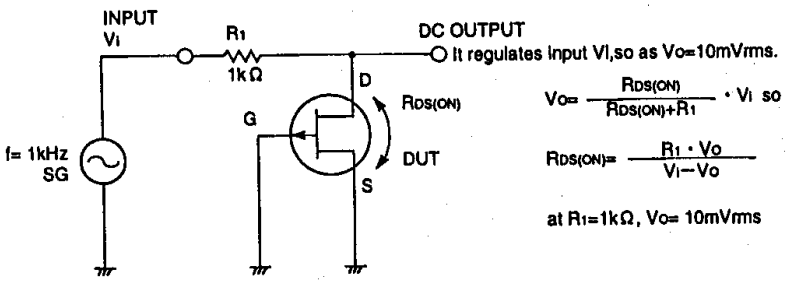

**FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT (2)**




**DRAIN TO SOURCE RESISTOR VS. DRAIN CURRENT**




**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 $R_1$=1kΩ, $V_O$= 10mVrms

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http://www.idc-com.co.jp
6-41, TSUKUBA, ISAHAYA, NAGASAKI, 854-0065, JAPAN

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