

JUNCTION FIELD EFFECT TRANSISTOR 2SK3718

N-CHANNEL SILICON JUNCTION FIELD EFFECT TRANSISTOR FOR IMPEDANCE CONVERTER OF ECM

DESCRIPTION

The 2SK3718 is suitable for converter of ECM.

FEATURES

- Low noise
- ★ NV = -117 dB TYP. ($V_{DS} = 4.5\text{ V}$, $C = 10\text{ pF}$, $R_L = 1.0\text{ k}\Omega$)
- Especially suitable for telephone, cellular phone & audio
- Small package SC-89 (TUSM)

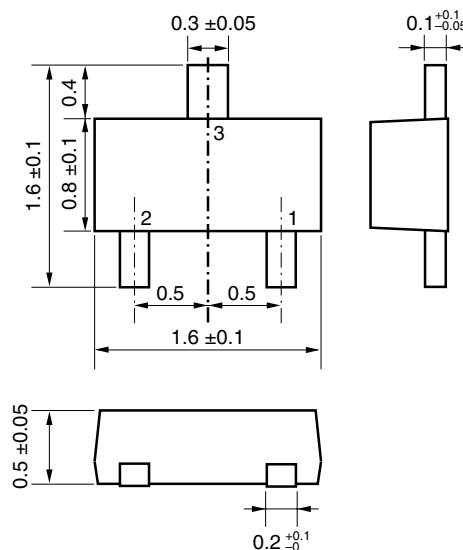
ORDERING INFORMATION

| PART NUMBER | PACKAGE |
|-------------|--------------|
| 2SK3718 | SC-89 (TUSM) |

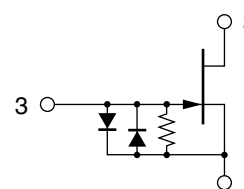
ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

| | | | |
|--|-----------|-------------|------------------|
| Drain to Source Voltage ($V_{GS} = -1.0\text{ V}$) | V_{DSX} | 20 | V |
| Gate to Drain Voltage | V_{GDO} | -20 | V |
| Drain Current | I_D | 10 | mA |
| Gate Current | I_G | 10 | mA |
| Total Power Dissipation | P_T | 100 | mW |
| Junction Temperature | T_J | 125 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -55 to +125 | $^\circ\text{C}$ |

PACKAGE DRAWING (Unit: mm)



EQUIVALENT CIRCUIT



1: Source
2: Drain
3: Gate

Caution Please take care of ESD (Electro Static Discharge) when you handle the device in this document.

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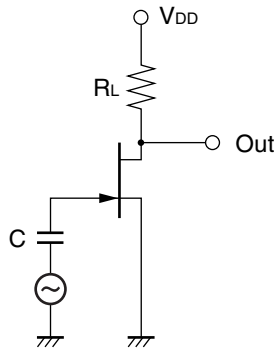
★ ELECTRICAL CHARACTERISTICS (T_A = 25°C)

| CHARACTERISTICS | SYMBOL | TEST CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|---|----------------------|--|------|--------|------|------|
| Zero Gate Voltage Drain Cut-off Current | I _{DSS} | V _{DS} = 5.0 V, V _{GS} = 0 V | 90 | 250 | 430 | μA |
| Gate Cut-off Voltage | V _{GS(off)} | V _{DS} = 5.0 V, I _D = 1.0 μA | | -0.37 | -1.0 | V |
| Forward Transfer Admittance | y _{fs1} | V _{DS} = 5.0 V, I _D = 30 μA, f = 1.0 kHz | 300 | 480 | | μS |
| | y _{fs2} | V _{DS} = 5.0 V, V _{GS} = 0 V, f = 1.0 kHz | 750 | 1600 | | μS |
| Input Capacitance | C _{iss} | V _{DS} = 5.0 V, V _{GS} = 0 V, f = 1.0 MHz | | 3.9 | | pF |
| Voltage Gain | G _v | V _{DD} = 4.5 V, C = 10 pF, R _L = 1 kΩ, V _{IN} = 10 mV, f = 1 kHz | | -1.3 | | dB |
| Noise Voltage | NV1 | V _{DD} = 2.0 V, C = 5 pF, R _L = 2.2 kΩ, A-curve | | -109.5 | | dB |
| | NV2 | V _{DD} = 4.5 V, C = 10 pF, R _L = 1 kΩ, A-curve | | -117 | -112 | dB |

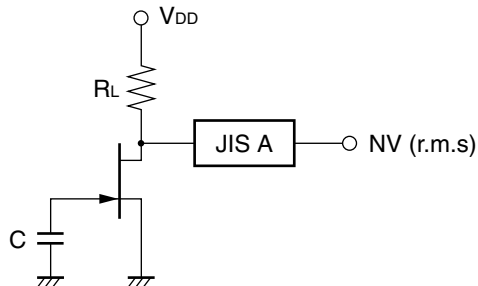
I_{DSS} CLASSIFICATION

| MARKING | AE | AF | AH | AJ |
|-----------------------|-----------|------------|------------|------------|
| I _{DSS} (μA) | 90 to 180 | 150 to 240 | 210 to 350 | 320 to 430 |

★ VOLTAGE GAIN TEST CIRCUIT

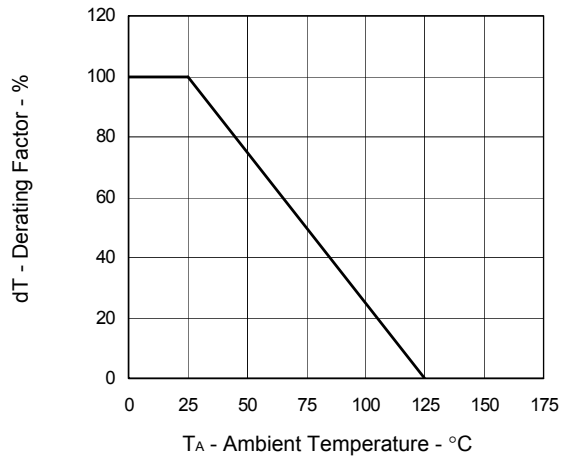


NOISE VOLTAGE TEST CIRCUIT

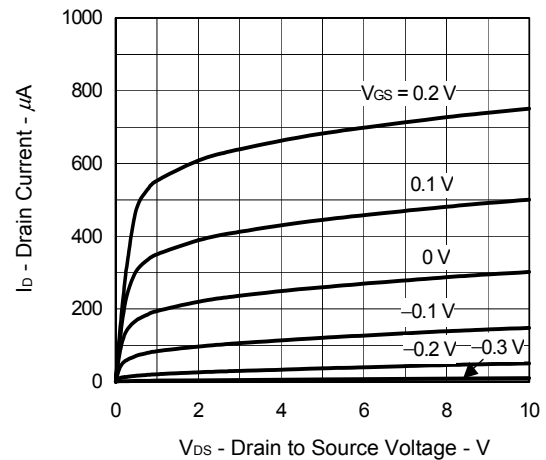


TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

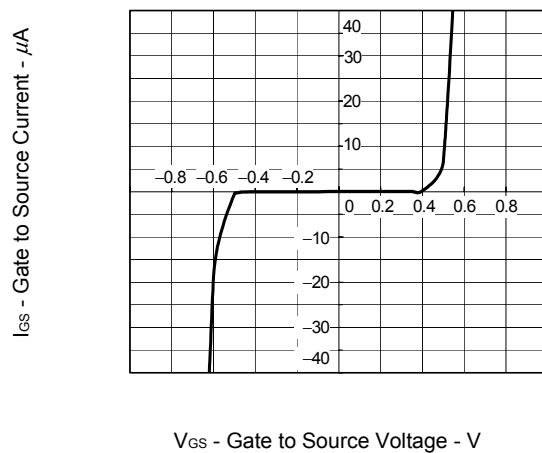
DERATING FACTOR OF POWER DISSIPATION



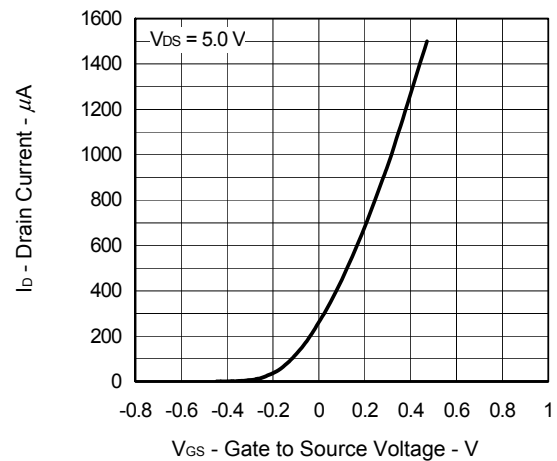
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



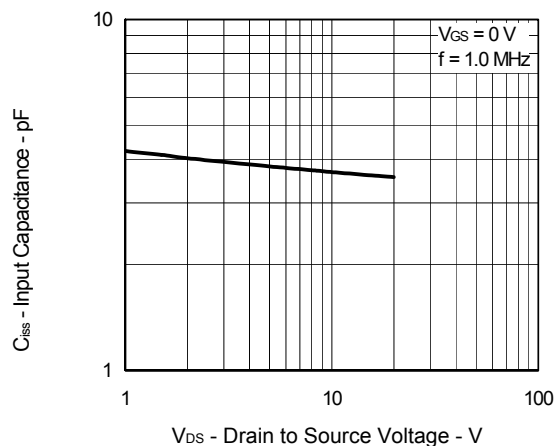
GATE TO SOURCE CURRENT vs. GATE TO SOURCE VOLTAGE



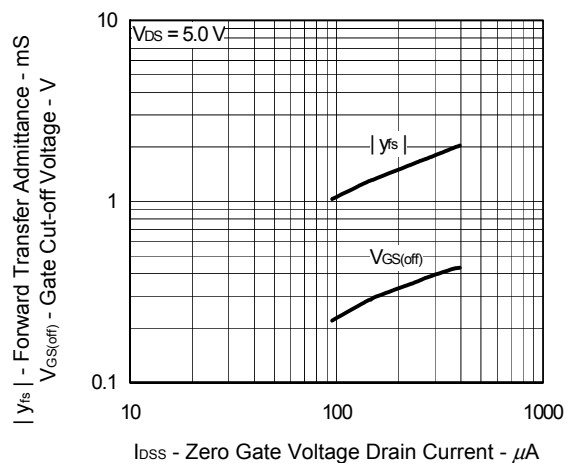
DRAIN CURRENT vs. GATE TO SOURCE VOLTAGE

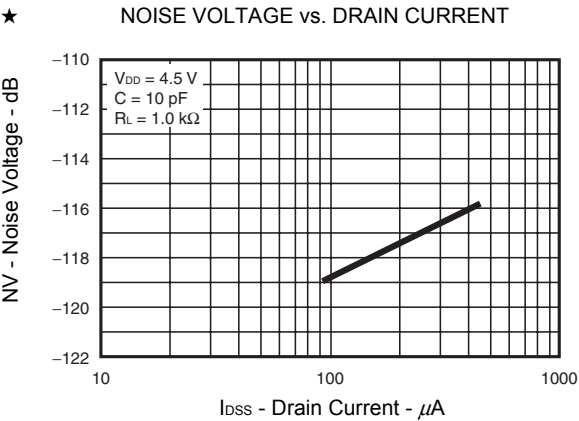
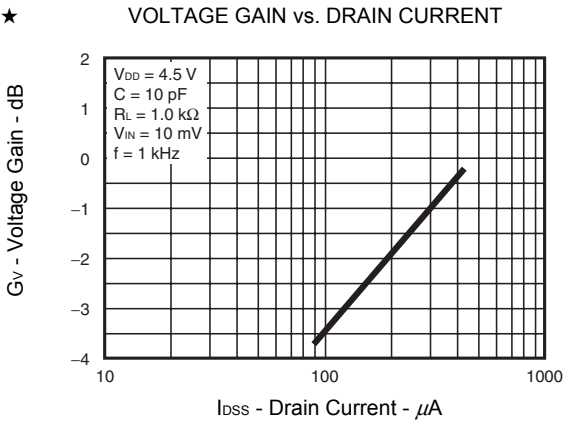


INPUT CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



FORWARD TRANSFER ADMITTANCE AND GATE CUT-OFF VOLTAGE vs. ZERO GATE VOLTAGE DRAIN CURRENT





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