

JUNCTION FIELD EFFECT TRANSISTOR

2SK3782

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N-CHANNEL SILICON JUNCTION FIELD EFFECT TRANSISTOR

FOR IMPEDANCE CONVERTER OF ECM

DESCRIPTION

The 2SK3782 is suitable for converter of ECM.

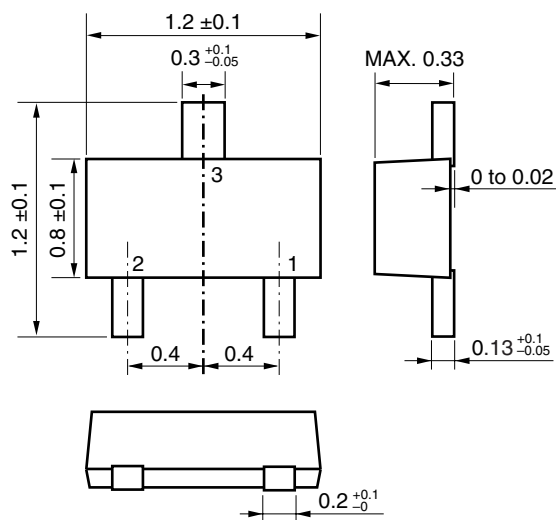
FEATURES

- High gain
-0.5 dB ($V_{DS} = 2.0$ V, $C = 5$ pF, $R_L = 2.2$ k Ω)
- Low noise
-109 dB ($V_{DS} = 2.0$ V, $C = 5$ pF, $R_L = 2.2$ k Ω)
- Ultra thin thickness package
 $t = 0.3$ mm TYP.

ORDERING INFORMATION

PART NUMBER	PACKAGE
2SK3782	3pXSOF03 (0812)

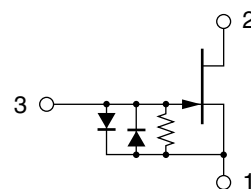
PACKAGE DRAWING (Unit: mm)



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

Drain to Source Voltage ($V_{GS} = -1.0$ 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	$^\circ\text{C}$

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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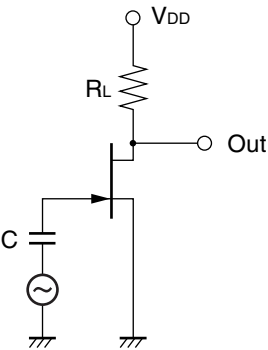
ELECTRICAL CHARACTERISTICS (T_A = 25°C)

CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Cut-off Current	I _{DSS}	V _{DS} = 2.0 V, V _{GS} = 0 V	90	250	430	μA
Gate Cut-off Voltage	V _{GS(off)}	V _{DS} = 2.0 V, I _D = 1.0 μA		−0.37	−1.0	V
Forward Transfer Admittance	y _{fs1}	V _{DS} = 2.0 V, I _D = 30 μA, f = 1.0 kHz	320	470		μS
	y _{fs2}	V _{DS} = 2.0 V, V _{GS} = 0 V, f = 1.0 kHz	800	1600		μS
Input Capacitance	C _{iss}	V _{DS} = 2.0 V, V _{GS} = 0 V, f = 1.0 MHz		4.0		pF
Voltage Gain	G _v	V _{DD} = 2.0 V, C = 5 pF, R _L = 2.2 kΩ, V _{IN} = 10 mV, f = 1 kHz		−0.5		dB
Noise Voltage	NV	V _{DD} = 2.0 V, C = 5 pF, R _L = 2.2 kΩ, A-curve		−109		dB

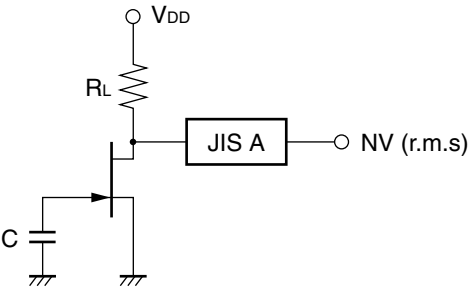
I_{DSS} CLASSIFICATION

MARKING	BE	BF	BH	BJ
I _{DSS} (μA)	90 to 180	150 to 240	210 to 350	320 to 430

GAIN TEST CIRCUIT



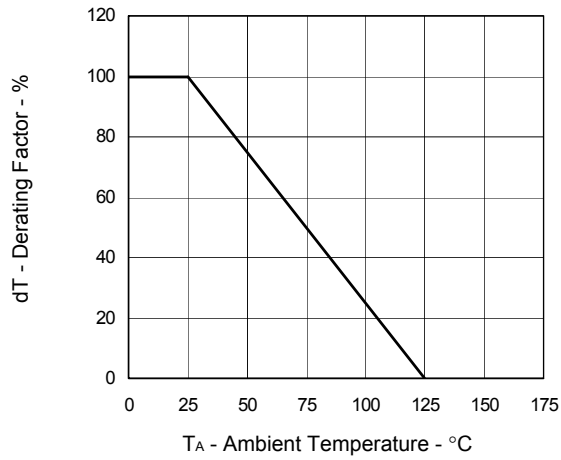
NOISE VOLTAGE TEST CIRCUIT



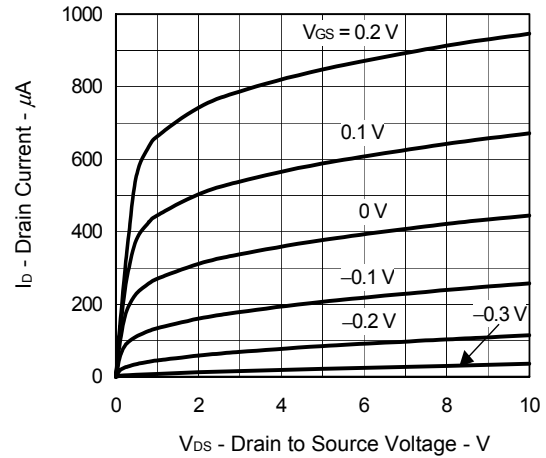
TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

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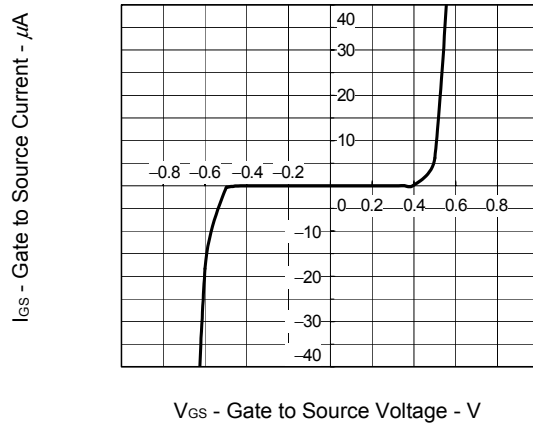
DERATING FACTOR OF POWER DISSIPATION



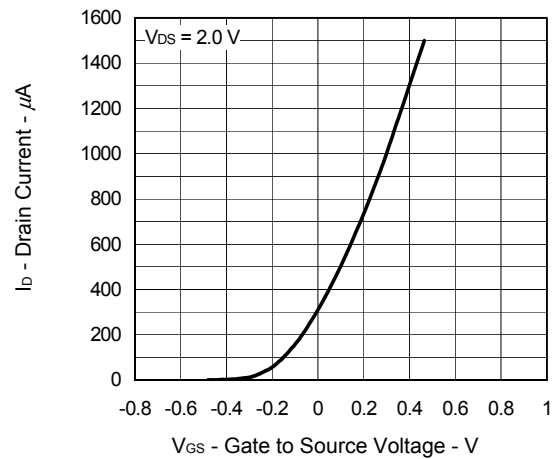
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



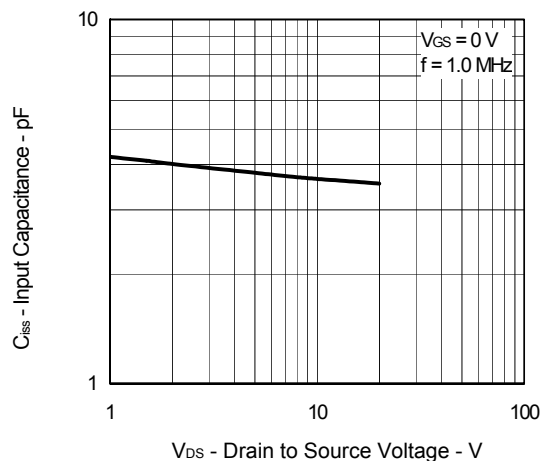
GATE TO SOURCE CURRENT vs. GATE TO SOURCE VOLTAGE



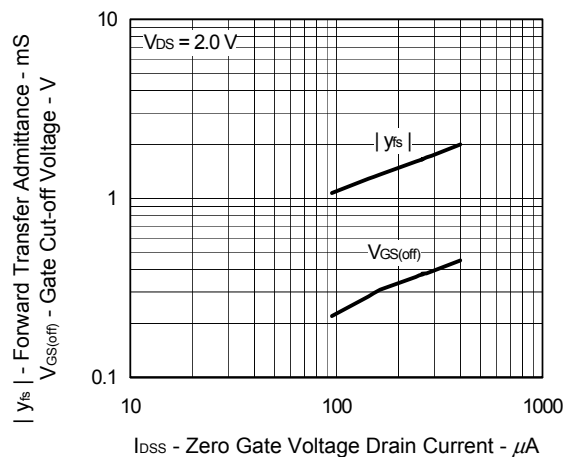
DRAIN CURRENT vs. GATE TO SOURCE VOLTAGE



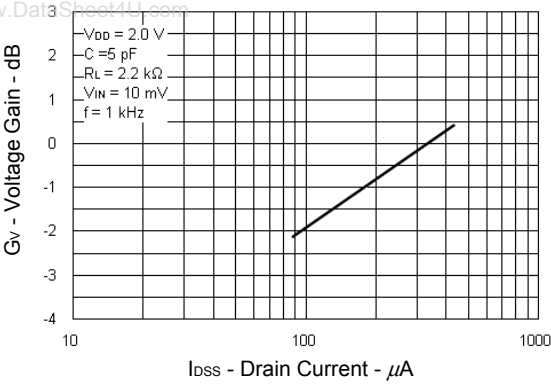
INPUT CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



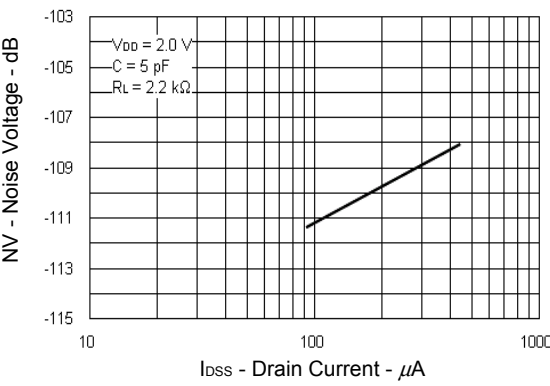
FORWARD TRANSFER ADMITTANCE AND GATE CUT-OFF VOLTAGE vs. ZERO GATE VOLTAGE DRAIN CURRENT



VOLTAGE GAIN vs. DRAIN CURRENT



NOISE VOLTAGE vs. DRAIN CURRENT



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