NEC
ELECTRON DEVICE

N-CHANNEL JUNCTION FIELD-EFFECT TRANSISTOR

2SK49

DESCRIPTION The 2SK49 is designed for use in FM tuner of a potable RADIO RECIVER.

FEATURES

- High Forward Transfer Admittance. : 5.5 mS TYP.
  $|Yfs|_2$ (V_{DS} = 5.0 V, V_{GS} = 0)
- Low Feedback Capacitance. : 0.07 pF TYP.
  C_{rss} (V_{DS} = 5.0 V, V_{GS} = 0)

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature . . . . . −55 to +125 °C

Junction Temperature . . . . . +80 °C Maximum

Maximum Power Dissipation (Ta = 25 °C)

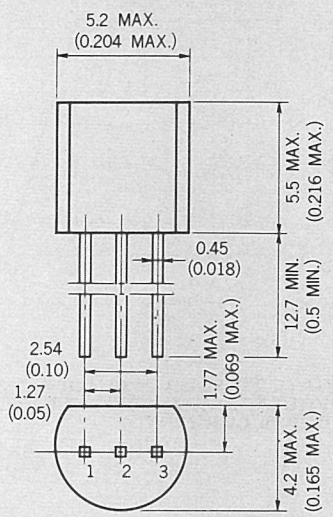
Total Power Dissipation . . . . . 72 mW

Maximum Voltages and Currents (Ta = 25 °C)

V_{GDO}	Gate to Drain Voltage	-20 V
V_{GSO}	Gate to Source Voltage	-1.0 V
V_{DSX}	Drain to Source Voltage	20 V
I_D	Drain Current	10 mA
I_G	Gate Current	10 mA

PACKAGE DIMENSIONS

in millimeters (inches)



1. GATE
2. SOURCE
3. DRAIN

EIAJ : SC-43A
JEDEC : TO-92
IEC : PA33

ELECTRICAL CHARACTERISTICS (Ta = 25 °C)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
I_{DSS}	Zero-Gate Voltage Drain Current	0.5	2.0	6.0	mA	V_{DS}=5.0 V, V_{GS}=0
$\|Yfs\|_1$	Forward Transfer Admittance	1.9	2.8		mS	V_{DS}=5.0 V, I_D=0.5 mA, f=1.0 kHz
$\|Yfs\|_2$	Forward Transfer Admittance	1.9	5.5		mS	V_{DS}=5.0 V, V_{GS}=0, f=1.0 kHz
C_{iss}	Input Capacitance		5.0	6.5	pF	V_{DS}=5.0 V, V_{GS}=0, f=1.0 MHz
C_{rss}	Feedback Capacitance		0.07	0.25	pF	V_{DS}=5.0 V, V_{GS}=0, f=1.0 MHz
C_{oss}	Output Capacitance		3.8	4.5	pF	V_{DS}=5.0 V, V_{GS}=0, f=1.0 MHz
G_{ps}	Power Gain	9.0	18		dB	V_{DS}=5.0 V, V_{GS}=0, Z_{in}, Z_{out}=50 Ω f=100 MHz, See test circuit
NF	Noise Figure		3.5	6.0	dB	V_{DS}=5.0 V, V_{GS}=0, Z_{in}, Z_{out}=50 Ω f=100 MHz, See test circuit
I_{GSS}	Gate Cutoff Current			-50	nA	V_{GS}=−0.5 V, V_{DS}=0
$V_{GS(off)}$	Gate to Source Cutoff Voltage		-0.8	-2.5	V	V_{DS}=5.0 V, I_D=10 μA

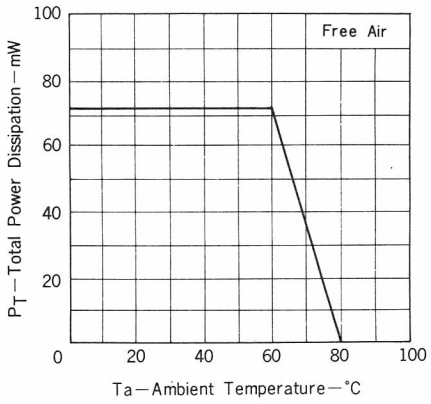
Classification of I_{DSS}

Rank	E	F	H
I_{DSS}(mA)	0.5 −1.5	1.0 − 3.0	2.0 − 6.0

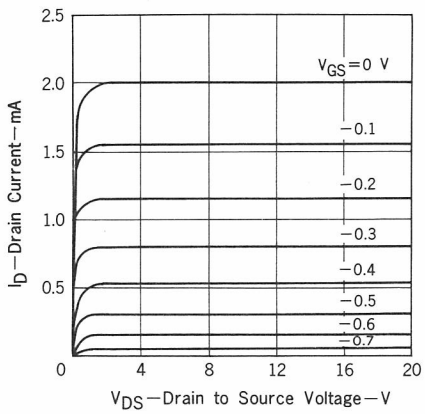
I_{DSS} Test Conditions : V_{DS} = 5.0 V, V_{GS} = 0

TYPICAL CHARACTERISTICS (Ta = 25 °C unless otherwise noted)

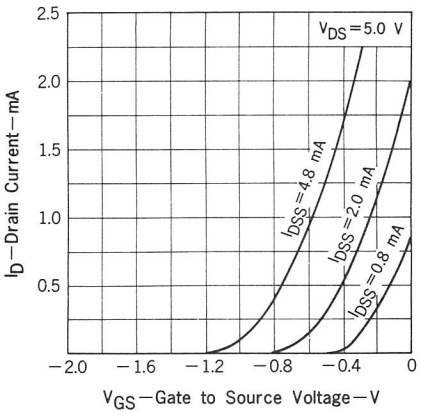
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



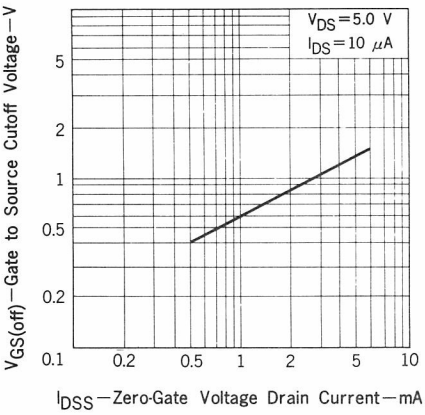
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



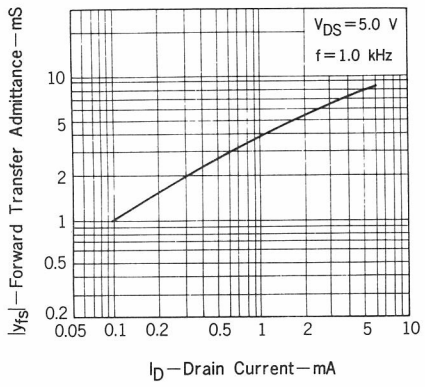
DRAIN CURRENT vs. GATE TO SOURCE VOLTAGE



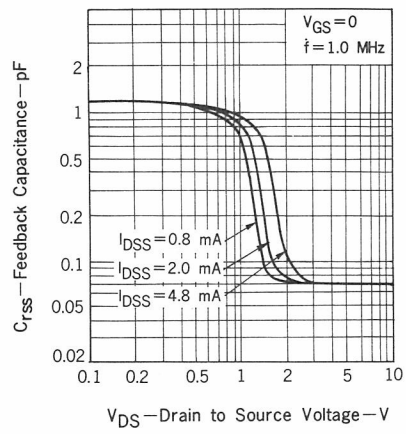
GATE TO SOURCE CUTOFF VOLTAGE vs. ZERO–GATE VOLTAGE DRAIN CURRENT



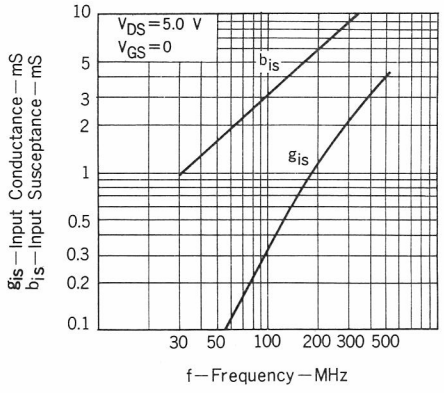
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



FEEDBACK CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



INPUT ADMITTANCE vs. FREQUENCY



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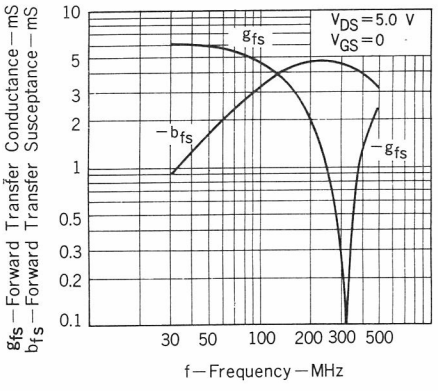
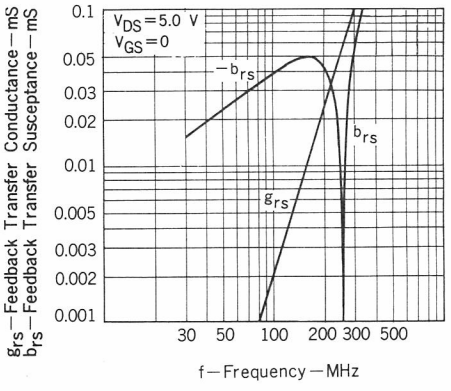
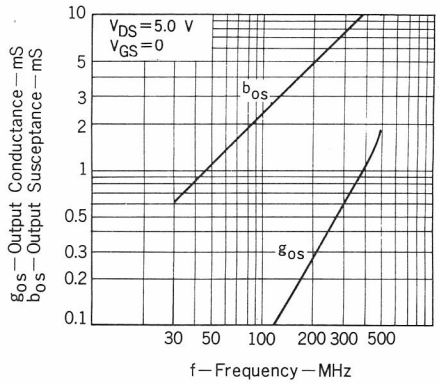


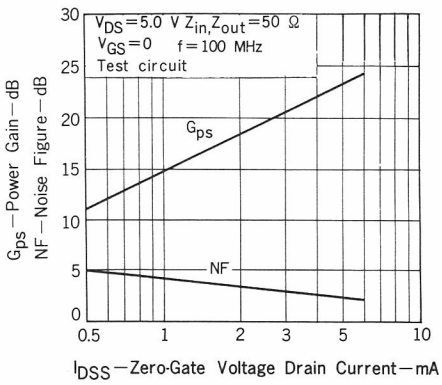
FEEDBACK TRANSFER ADMITTANCE vs. FREQUENCY



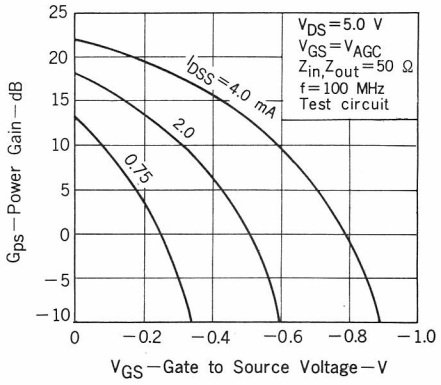
OUTPUT ADMITTANCE vs. FREQUENCY



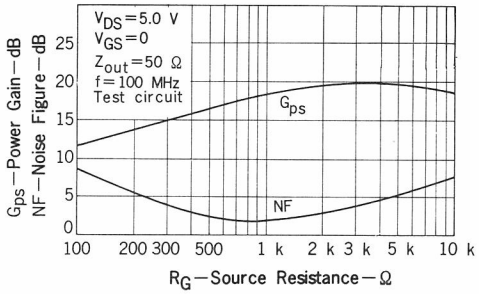
POWER GAIN AND NOISE FIGURE vs. ZERO-GATE VOLTAGE DRAIN CURRENT



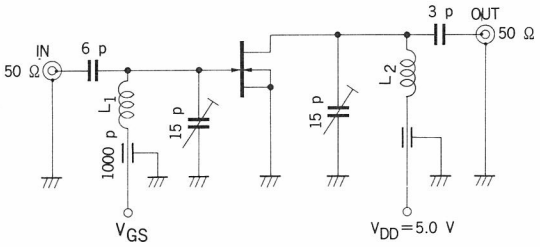
POWER GAIN vs. GATE TO SOURCE VOLTAGE



POWER GAIN AND NOISE FIGURE vs. SOURCE RESISTANCE



NOISE FIGURE and POWER GAIN TEST CIRCUIT (f = 100 MHz)



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