Ordering number:ENN4755

N-Channel Junction Silicon FET

2SK2219

Capacitor Microphone Applications

Features

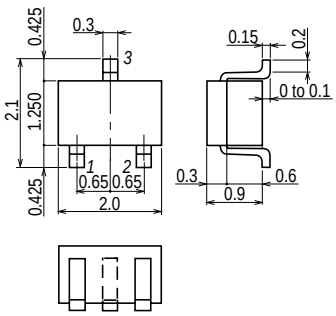
- Ultrasmall-sized package permitting 2SK2219-applied sets to be made small and slim.
- Especially suited for use in audio, telephone capacitor microphones.
- Excellent voltage characteristic.
- Excellent transient characteristic.
- Adoption of FBET process.

Package Dimensions

unit:mm

2058A

[2SK2219]



1 : Source
2 : Drain
3 : Gate
SANYO : MCP

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Gate-to-Drain Voltage	V_{GDO}		–20	V
Gate Current	I_G		10	mA
Drain Current	I_D		1	mA
Allowable Power Dissipation	P_D		100	mW
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

Electrical Characteristics at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Drain Breakdown Voltage	$V_{(BR)GDO}$	I_G=–100µA	–20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=5V, V_{GS}=0	140*		500*	µA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=5V, I_D=1µA	–0.2	–0.6	–1.2	V
Forward Transfer Admittance	| yfs |	V_{DS}=5V, V_{GS}=0, f=1kHz	0.5	1,2		mS
Input Capacitance	Ciss	V_{DS}=5V, V_{GS}=0, f=1MHz		4.1		pF
Reverse Transfer Capacitance	Crss	V_{DS}=5V, V_{GS}=0, f=1MHz		0.88		pF

* : The 2SK2219 is classified by I_{DSS} as follows : (unit : µA)

Continued on next page.

140	21	240	210	22	350	320	23	500

Marking : D
I_{DSS} rank : 21, 22, 23

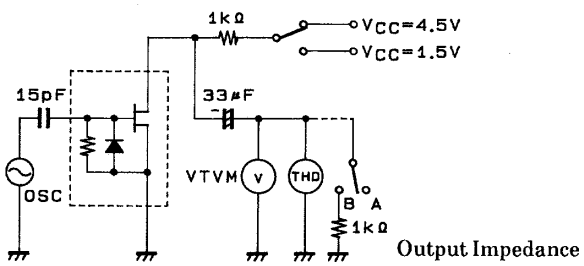
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

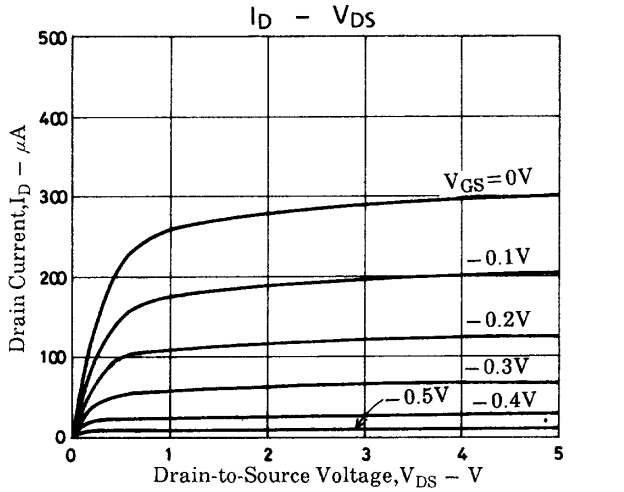
Continued from preceding page.

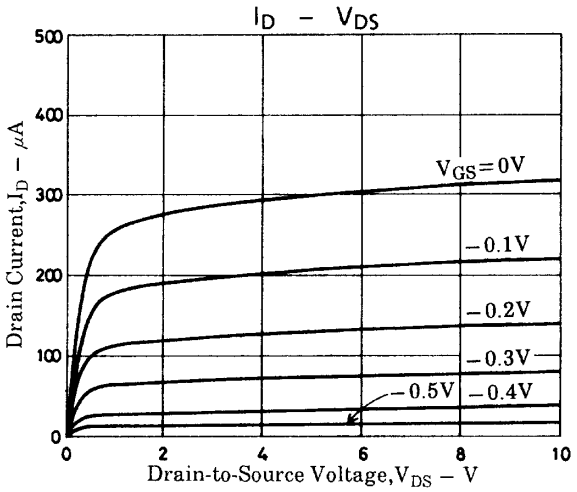
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Ta=25°C, V_{CC}=4.5V, R_L=1kΩ, Cin=15pF, See specified Test Circuit						
Voltage Gain	G_V	V_{IN}=10mV, f=1kHz		–3.0		dB
Reduced Voltage Characteristic	ΔG_{VV}	V_{IN}=10mV, f=1kHz, V_{CC}=4.5 →1.5V		–1.2	–3.5	dB
Frequency Characteristic	ΔG_{Vf}	f=1kHz to 110Hz			–1.0	dB
Input Impedance	Zin	f=1kHz	25			MΩ
Output Impedance	Zo	f=1kHz			700	Ω
Total Harmonic Distortion	THD	V_{IN}=30mV, f=1kHz		1.0		%
Output Noise Voltage	V_{NO}	V_{IN}=0, A curve			–110	dB

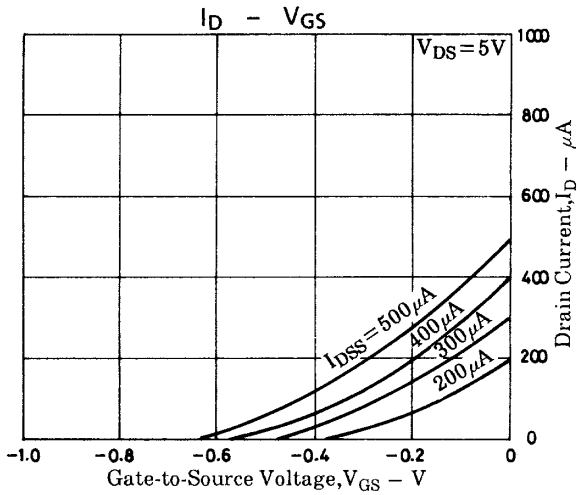
Test Circuit

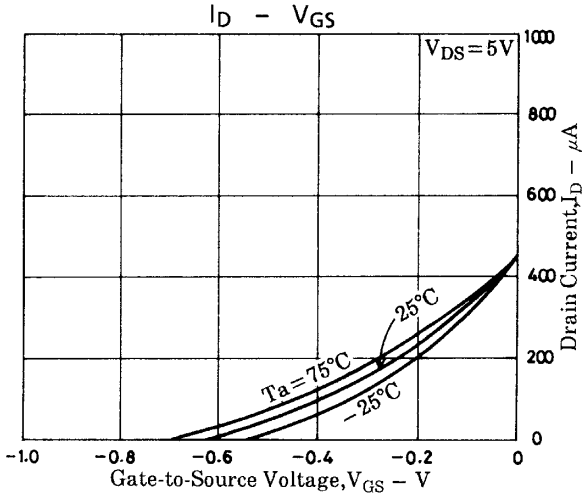
Voltage Gain
Frequency Characteristic
Distortion
Reduced Voltage Characteristic

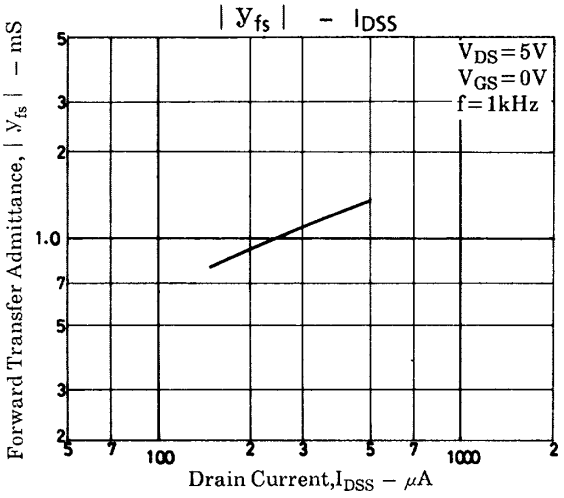


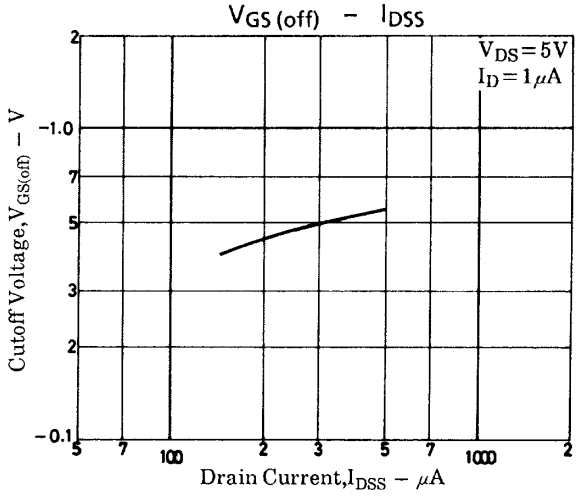


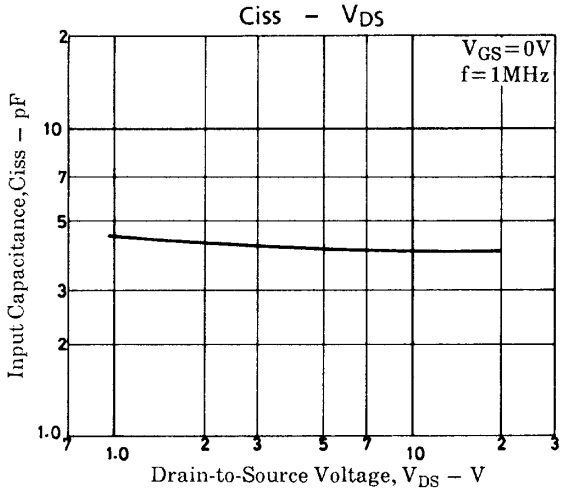


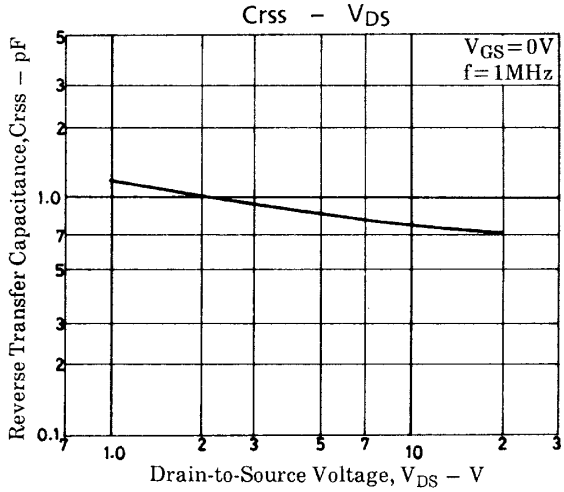


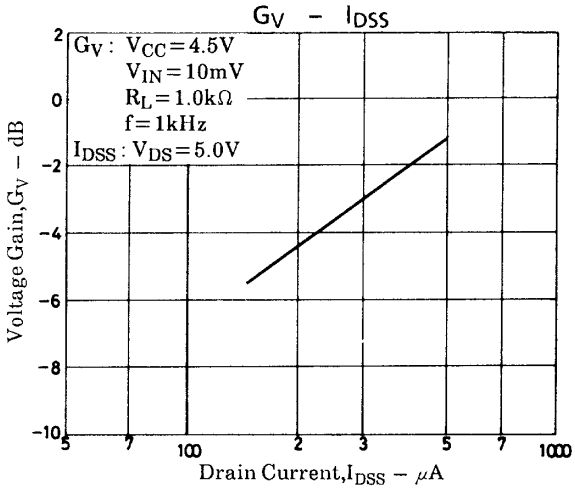


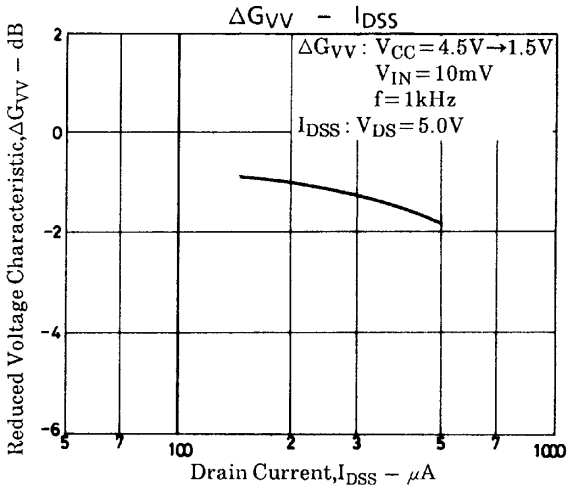

| yfs | – IDSS
VDS=5V
VGS=0V
f=1kHz
Forward Transfer Admittance, | yfs | – mS
Drain Current, IDSS – μA

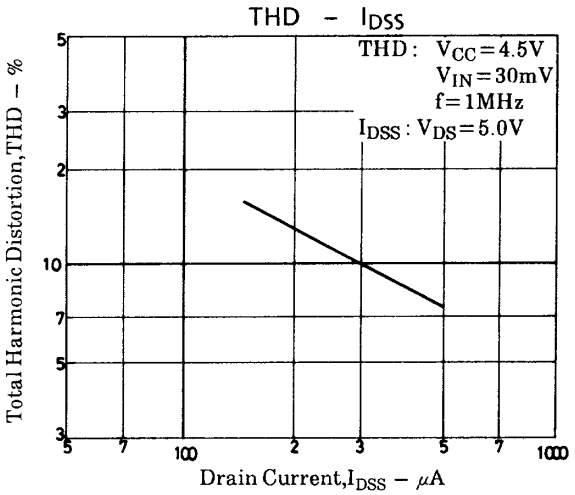

VGS (off) – IDSS
VDS=5V
ID=1μA
Cutoff Voltage, VGS(off) – V
Drain Current, IDSS – μA

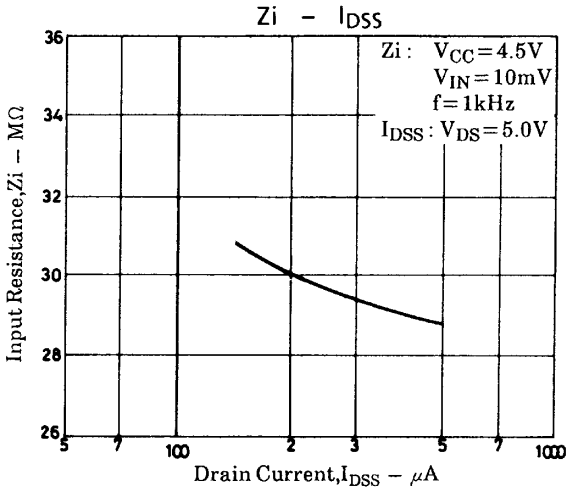

Ciss – VDS
VGS=0V
f=1MHz
Input Capacitance, Ciss – pF
Drain-to-Source Voltage, VDS – V


Crss – VDS
VGS=0V
f=1MHz
Reverse Transfer Capacitance, Crss – pF
Drain-to-Source Voltage, VDS – V


GV – IDSS
GV : VCC=4.5V
VIN=10mV
RL=1.0kΩ
f=1kHz
IDSS : VDS=5.0V
Voltage Gain, GV – dB
Drain Current, IDSS – μA


ΔGVV – IDSS
ΔGVV : VCC=4.5V→1.5V
VIN=10mV
f=1kHz
IDSS : VDS=5.0V
Reduced Voltage Characteristic, ΔGVV – dB
Drain Current, IDSS – μA


THD – IDSS
THD : VCC=4.5V
VIN=30mV
f=1MHz
IDSS : VDS=5.0V
Total Harmonic Distortion, THD – %
Drain Current, IDSS – μA


Zi – IDSS
Zi : VCC=4.5V
VIN=10mV
f=1kHz
IDSS : VDS=5.0V
Input Resistance, Zi – MΩ
Drain Current, IDSS – μA