Ordering number:EN4178A

N-Channel Junction FET

2SK1578

Capacitor Microphone Applications

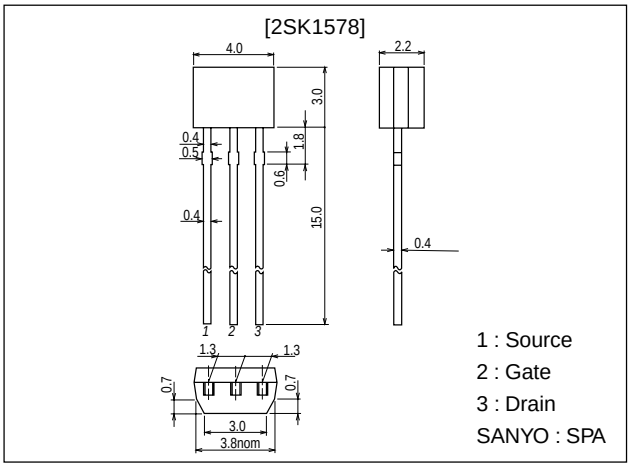
Features

- Especially suited for use in audio, telephone capacitor microphones.
- Excellent voltage characteristics.
- Excellent transient characteristics.
- Adoption of FBET process.

Package Dimensions

unit:mm

2034A



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
Channel 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
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=5V, I_D=1µA	–0.2	–0.6	–1.5	V
Zero-Gate Votlage Drain Current	I_{DSS}	V_{DS}=5V, V_{GS}=0	100*		800*	µA
Forward Transfer Admittance	| yfs |	V_{DS}=5V, V_{GS}=0, f=1MHz	0.4	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 2SK1578 is classified by I_{DSS} as follows : (unit : µA)

100	A	170	150	B	240	210	C	350	320	D	480	440	E	800

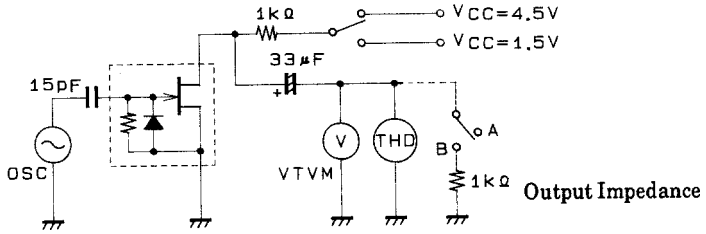
SANYO Electric Co.,Ltd. Semiconductor Company

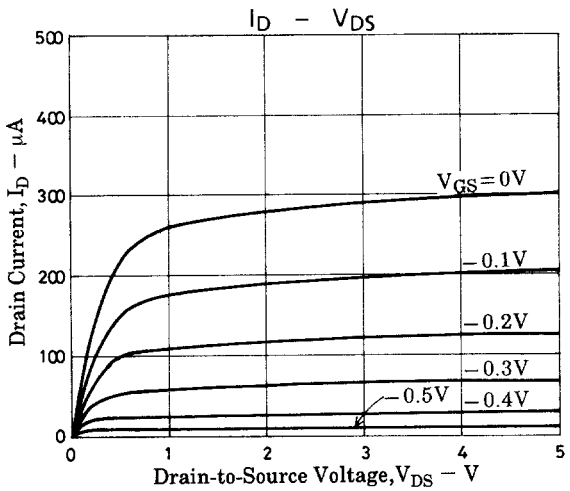
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

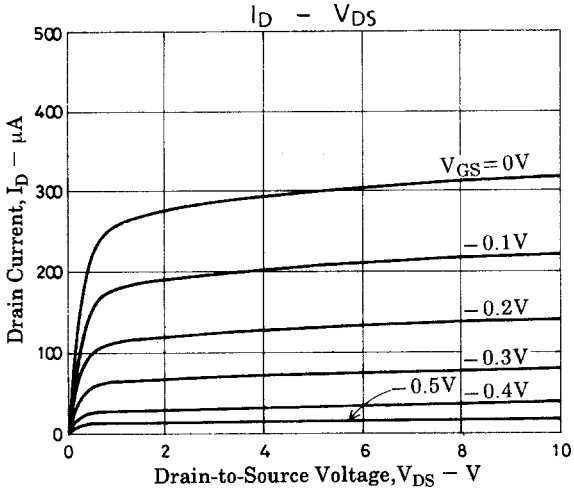
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[Ta=25°C, V_{CC}=4.5V, R_L=1kΩ, C_{IN}=15pF, See specified Test Circuit.]						
Voltage Gain	G_V	V_{IN}=10mV, f=1kHz		–3.0		dB
Reduced Voltage Characteristics	ΔG_{VV}	V_{IN}=10mV, f=1kHz, V_{CC}=4.5 →1.5V		–1.2	–3.5	dB
Frequency Characteristics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

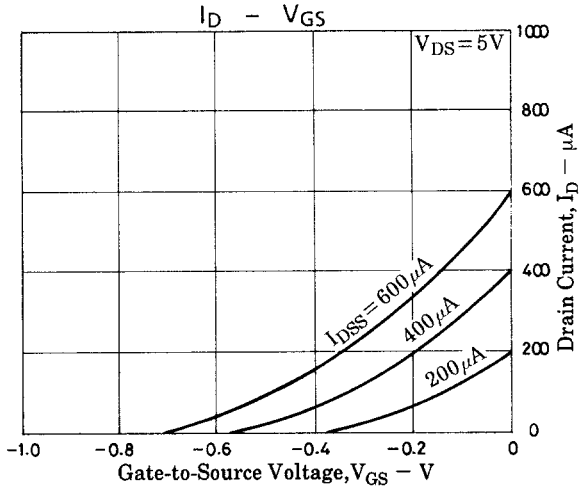
Test Circuit

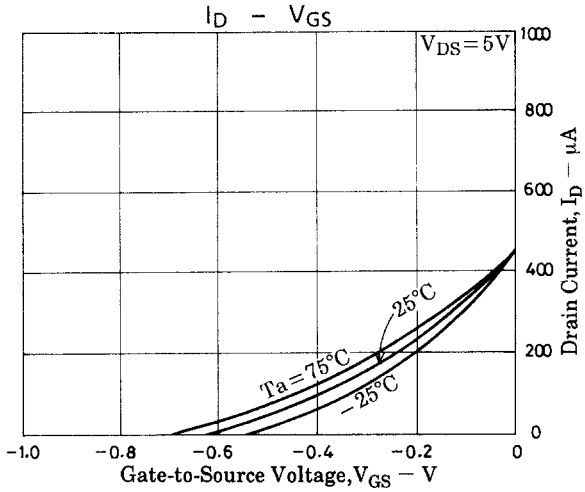
Voltage Gain
Frequency Characteristics
Distortion
Reduced Voltage Characteristics

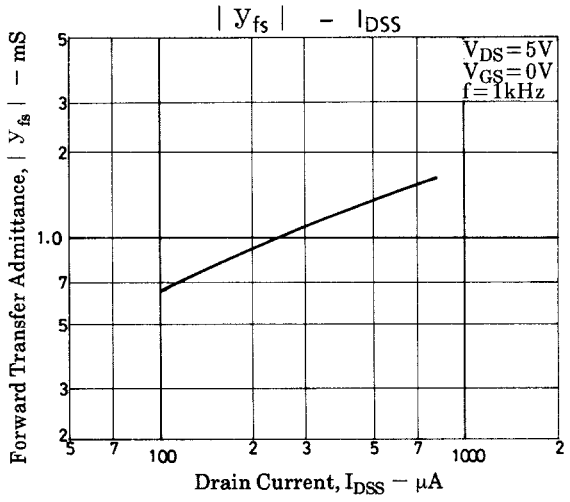


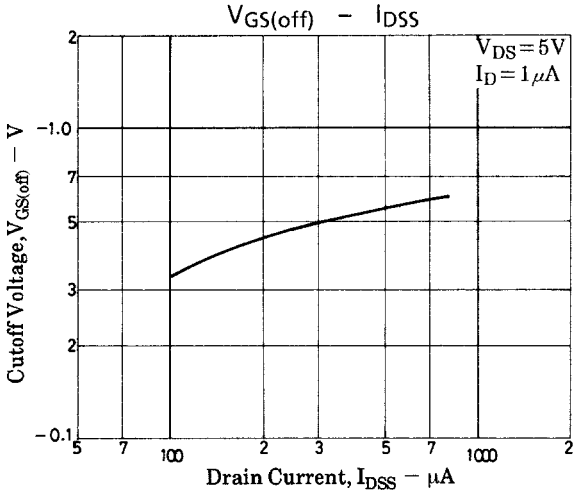


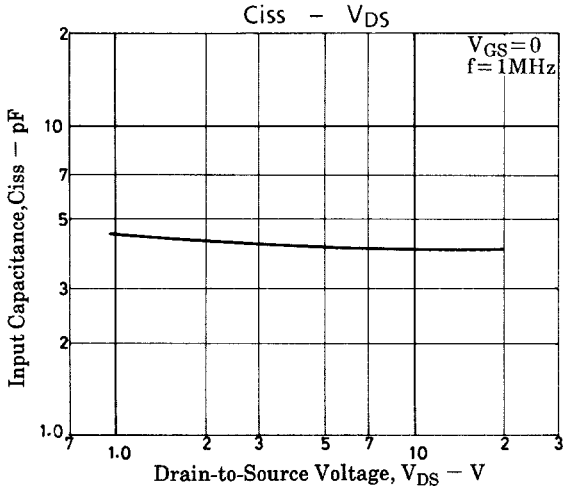


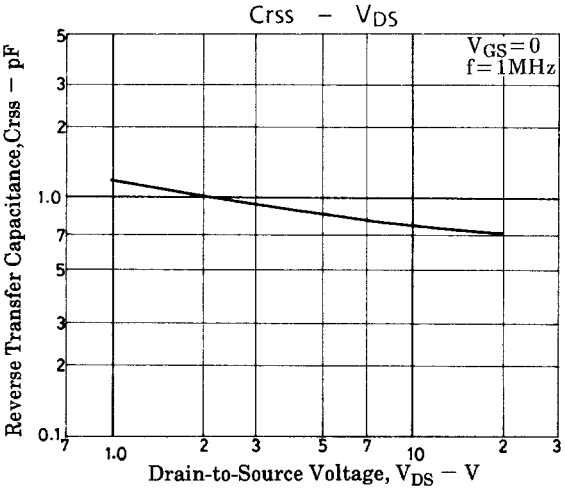


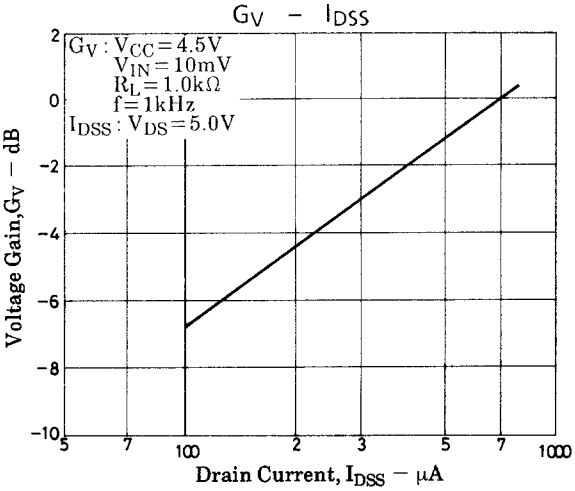


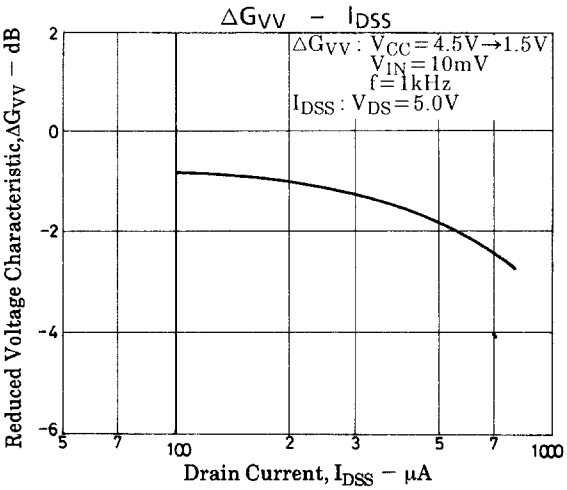

| yfs | – IDSS
VDS=5V
VGS=0V
f=1kHz
Forward Transfer Admittance, | yfs | – mS
Drain Current, IDSS – μA

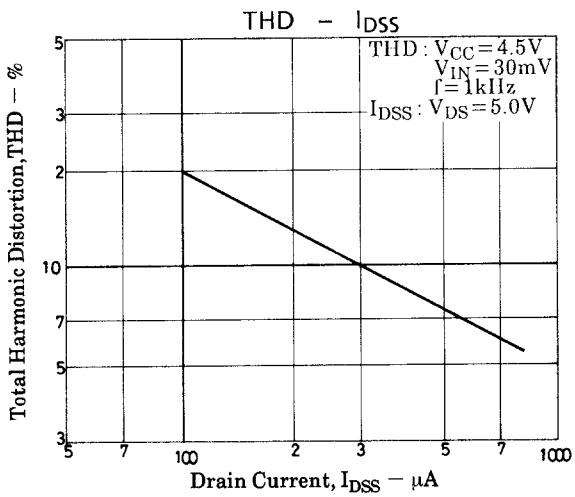

VGS(off) – IDSS
VDS=5V
ID=1μA
Cutoff Voltage, VGS(off) – V
Drain Current, IDSS – μA

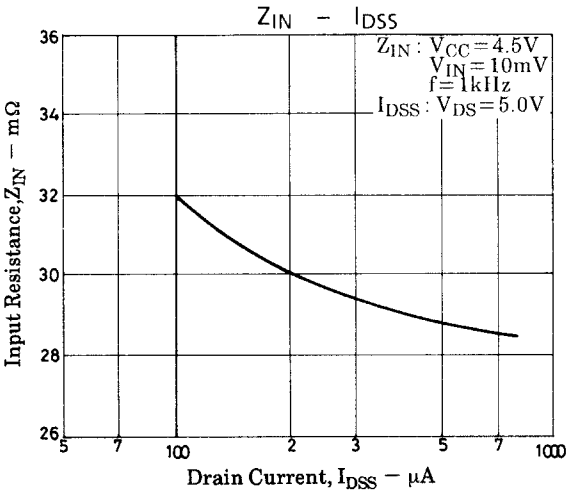

Ciss – VDS
VGS=0
f=1MHz
Input Capacitance, Ciss – pF
Drain-to-Source Voltage, VDS – V


Crss – VDS
VGS=0
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=1kHz
IDSS : VDS=5.0V
Total Harmonic Distortion, THD – %
Drain Current, IDSS – μA


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