



Capacitor Microphone Applications

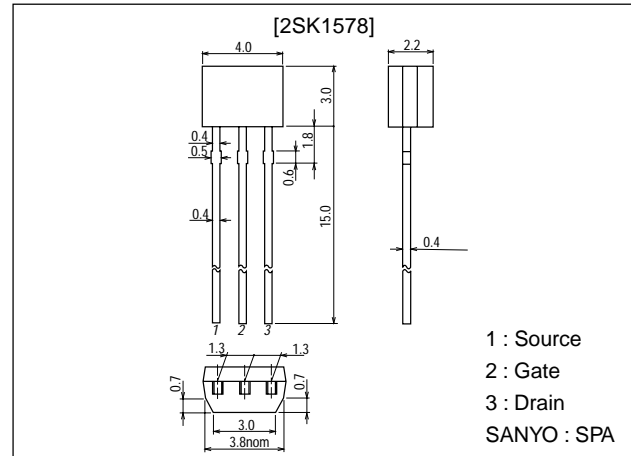
Features

- 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 $T_a = 25^\circ\text{C}$

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	T_j		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Drain Breakdown Voltage	$V_{(BR)GDO}$	$I_G = -100\mu\text{A}$	-20			V
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 5\text{V}, I_D = 1\mu\text{A}$	-0.2	-0.6	-1.5	V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 5\text{V}, V_{GS} = 0$	100*		800*	μA
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = 5\text{V}, V_{GS} = 0, f = 1\text{MHz}$	0.4	1.2		mS
Input Capacitance	C_{iss}	$V_{DS} = 5\text{V}, V_{GS} = 0, f = 1\text{MHz}$		4.1		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = 5\text{V}, V_{GS} = 0, f = 1\text{MHz}$		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
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2SK1578

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

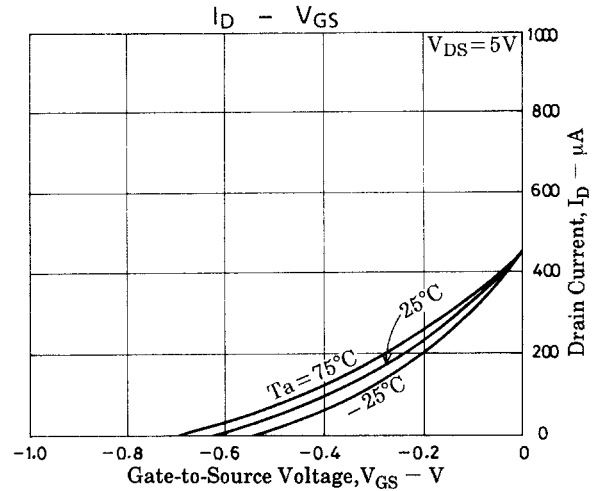
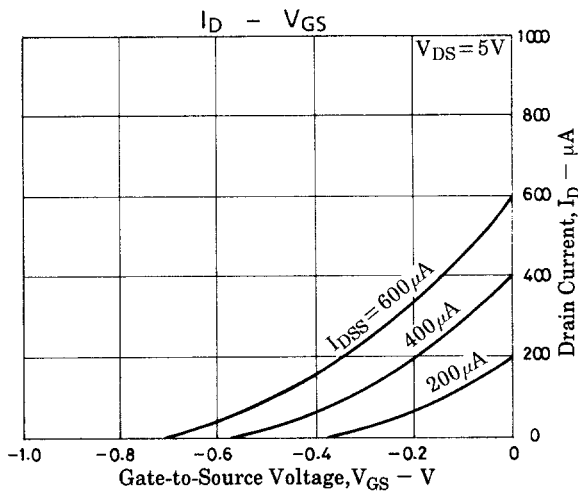
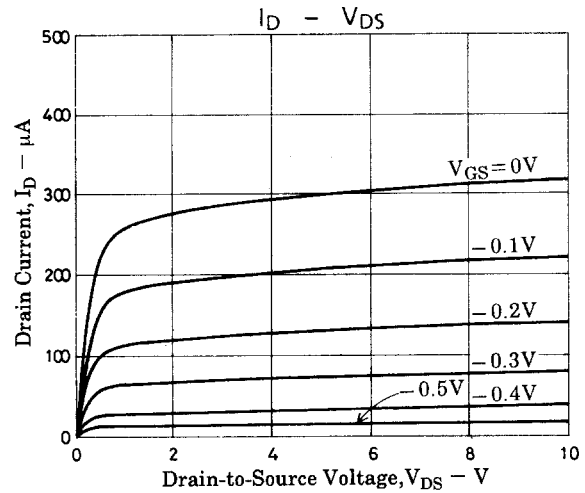
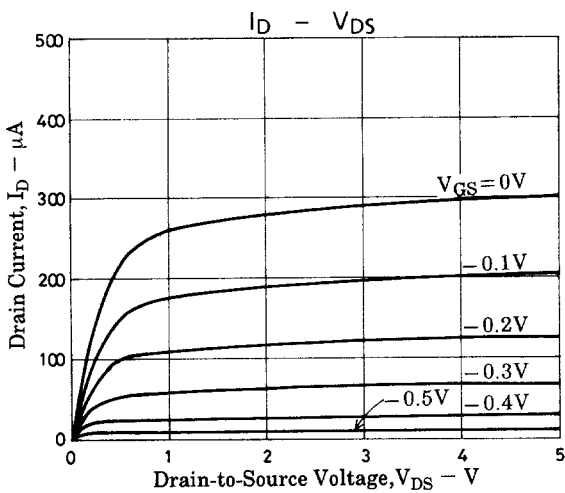
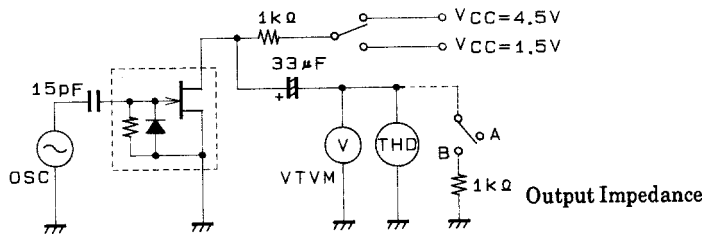
Test Circuit

Voltage Gain

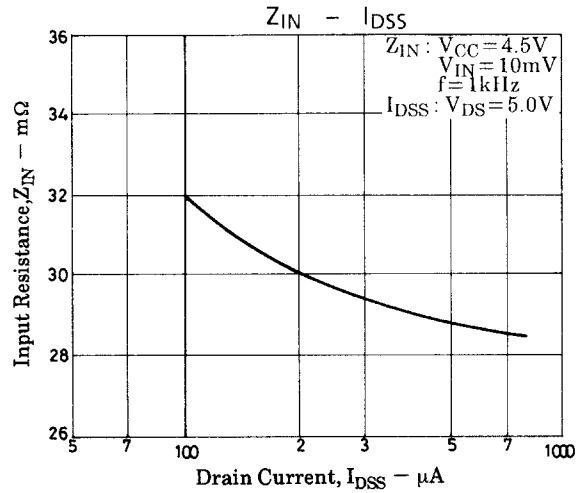
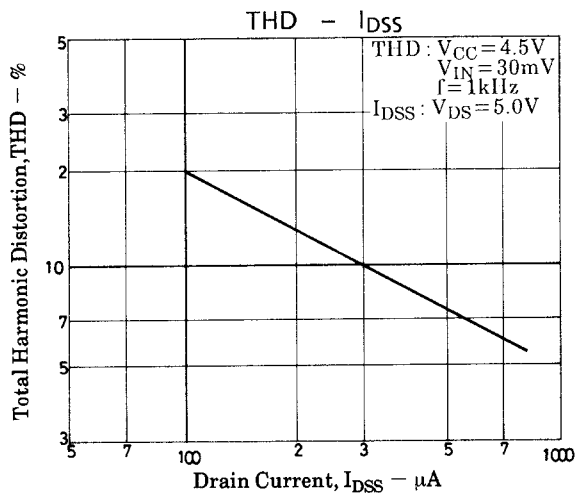
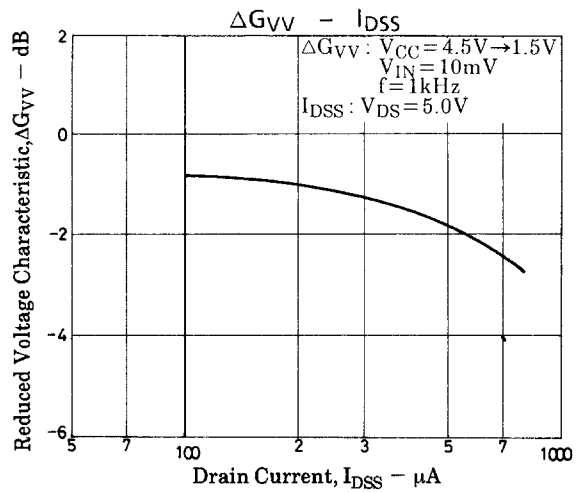
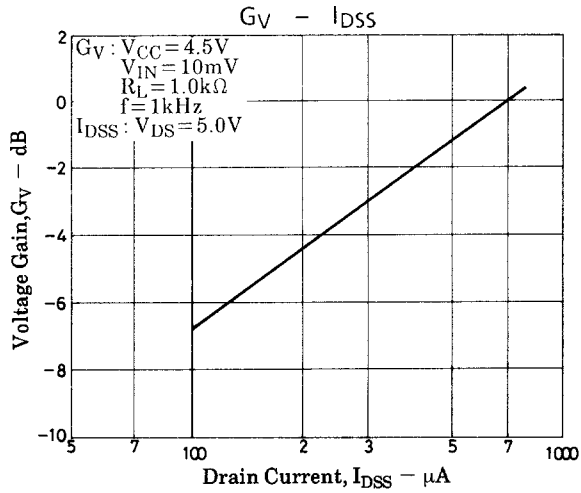
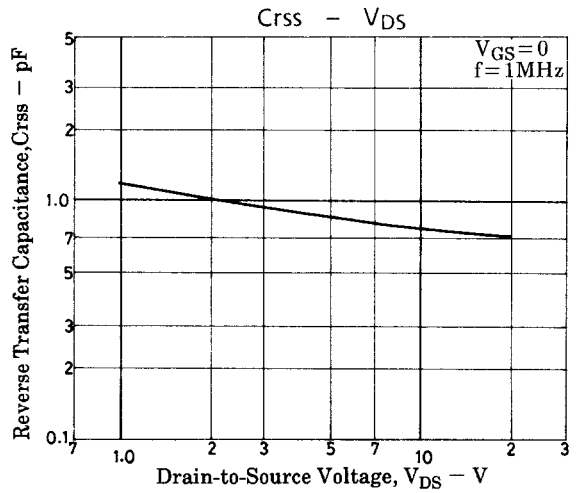
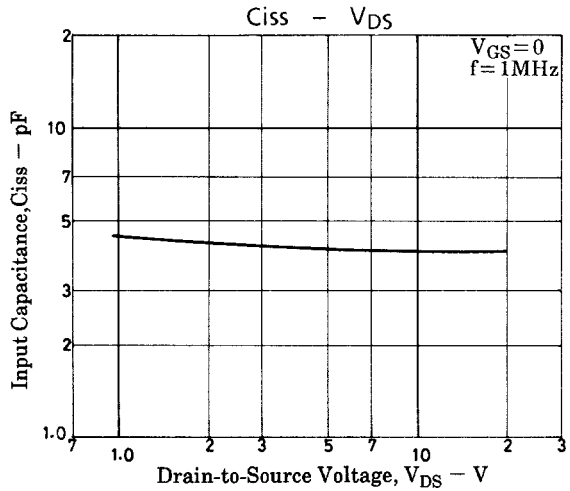
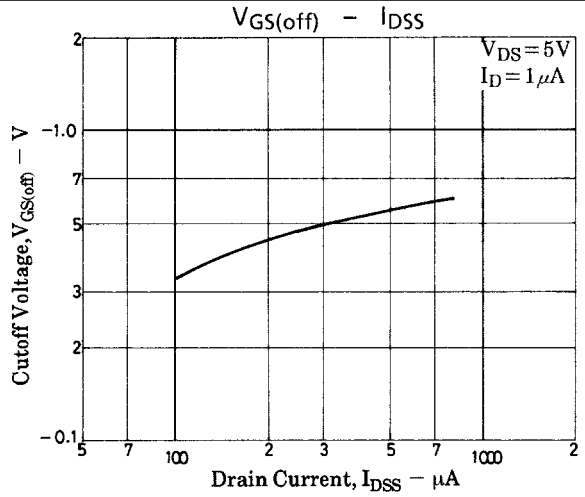
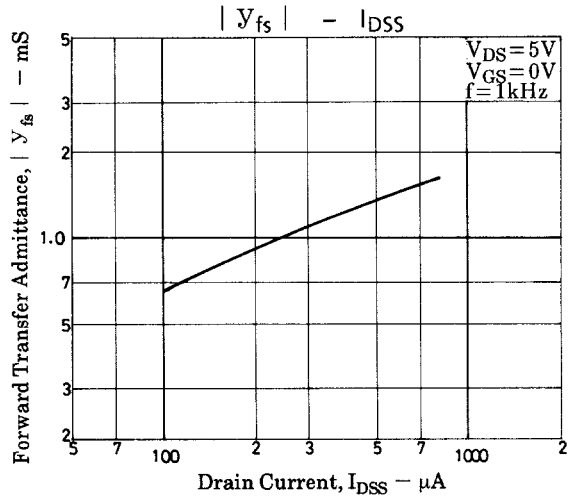
Frequency Characteristics

Distortion

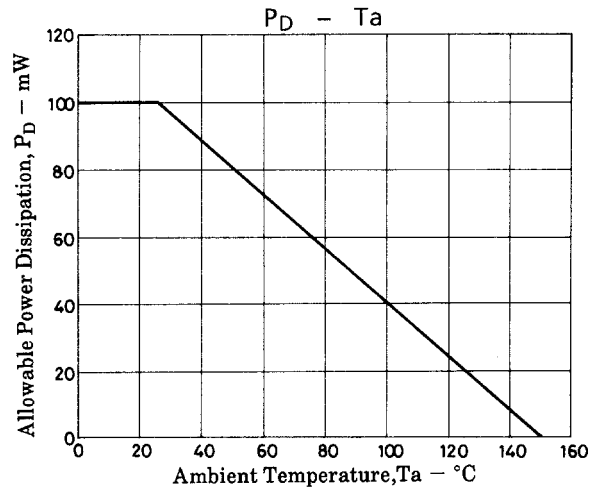
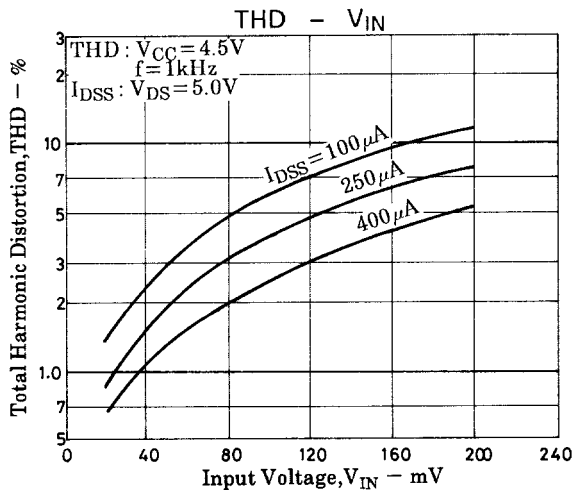
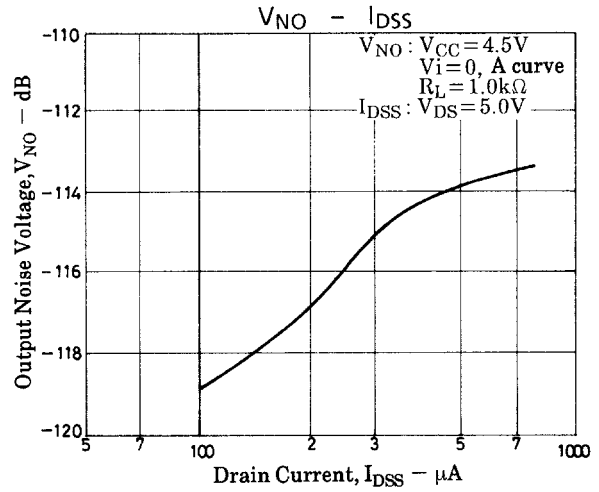
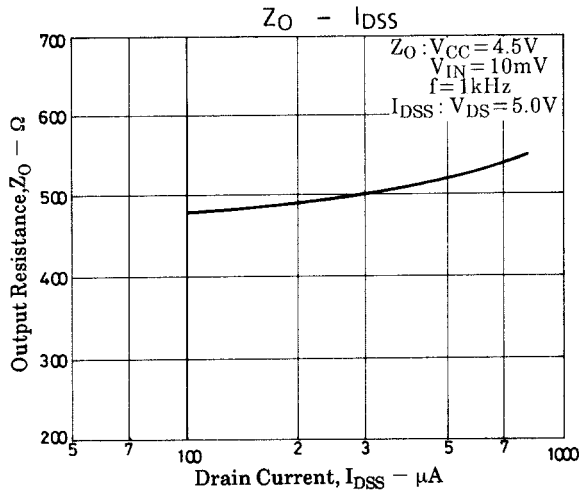
Reduced Voltage Characteristics



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