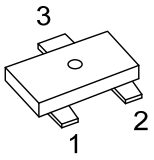
N-CHANNEL JUNCTION FIELD EFFECT TRANSISTOR



SOT-723

■ DESCRIPTION

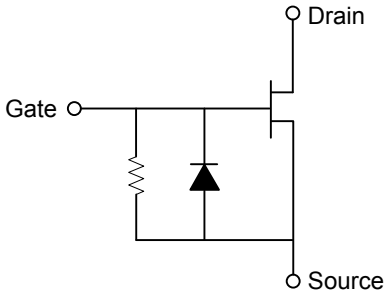
The UTC **TF219** is an N-Channel Junction FET, it uses UTC's advanced technology to provide the customers with high voltage gain, etc.

The UTC **TF219** is suitable for electret capacitor microphone applications.

■ FEATURES

* High voltage gain

■ EQUIVALENT CIRCUIT



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
TF219L-x-AQ3-R	TF219G-x-AQ3-R	SOT-723	D	S	G	Tape Reel

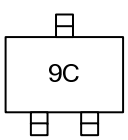
Note: Pin Assignment: D: Drain S: Source G: Gate

TF219G-x-AQ3-R

(1)Packing Type
(2)Package Type
(3)Rank
(4)Green Package

(1) R: Tape Reel
(2) AQ3: SOT-723
(3) x: Refer to Classification of I_{DSS}
(4) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Gate to Drain Voltage	V_{GDO}	-20	V
Drain Current	I_D	10	mA
Gate Current	I_G	10	mA
Allowable Power Dissipation	P_D	100	mW
Junction Temperature	T_J	+125	°C
Storage Temperature Range	T_{STG}	-55 ~ +125	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

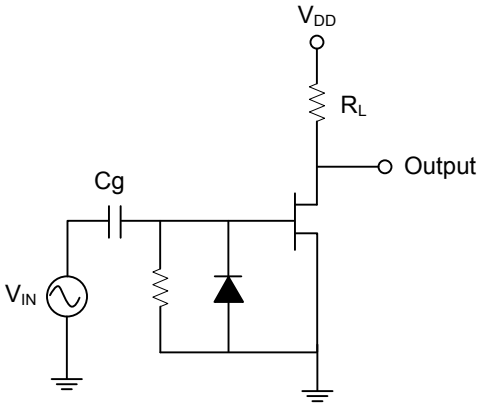
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate to Drain Breakdown Voltage	$V_{(BR)GDO}$	I_G=-100μA	-20			V
Drain Current	I_{DSS}	V_{DS}=2V, V_{GS}=0V	210		350	μA
Gate Off Voltage	$V_{GS(OFF)}$	V_{DS}=2V, I_D=1μA, I_{DSS}=250μA		-0.3		V
Forward Transfer Admittance	|Yfs|	V_{DS}=2V, V_{GS}=0V, I_{DSS}=250μA		2.1		mS
Input Capacitance	C_{ISS}	V_{DS}=2V, V_{GS}=0V, f =1MHz		9.0		pF
Voltage Gain	G_V	V_{DD}=2V, R_L=2.2kΩ, Cg=5pF, f=1kHz, V_{IN}=10mV, I_{DSS}=100μA		1.3		dB
		V_{DD}=2V, R_L=2.2kΩ, Cg=5pF, f=1kHz, V_{IN}=10mV, I_{DSS}=250μA		3.4		dB
		V_{DD}=2V, R_L=2.2kΩ, Cg=5pF, f=1kHz, V_{IN}=10mV, I_{DSS}=350μA		3.6		dB
Delta Voltage Gain	$\triangle G_V$(V)	V_{DD}=2V~1.5V, R_L=2.2kΩ, Cg=5pF, f=1kHz, V_{IN}=10mV		-0.7		dB
Frequency Characteristics	$\triangle G_V$(f)	V_{DD}=2V, R_L=2.2kΩ, Cg=5pF, f=1kHz~110Hz, V_{IN}=10mV		-0.2		dB
Output Noise Voltage	V_{NO}	V_{DD}=3V, Cg=5pF, A-Curve Filter, R_L=1.0kΩ I_{DSS}=250μA		-106		dB
		V_{DD}=3V, Cg=5pF, A-Curve Filter, R_L=2.2kΩ I_{DSS}=250μA		-103		dB
Total Harmonic Distortion	THD	V_{DD}=2V, R_L=2.2kΩ, Cg=5pF, f=1kHz, V_{IN}=30mV, I_{DSS}=250μA		1.0		%

■ CLASSIFICATION OF I_{DSS}

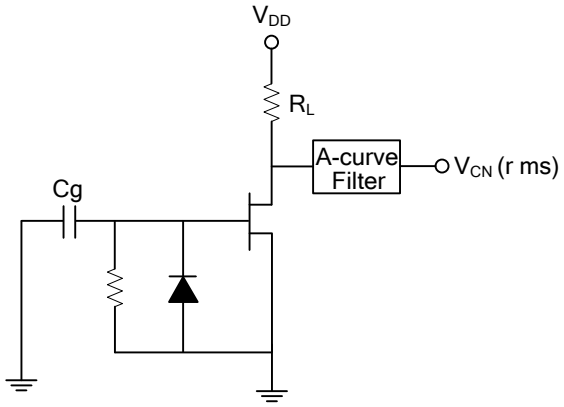
RANK	C
I_{DSS} (μA)	210 ~ 350

■ TEST CIRCUITS

Voltage Gain
Frequency Characteristics
Total Harmonic Distortion

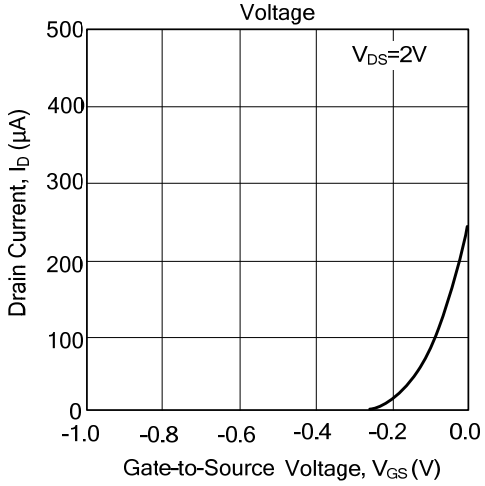


Output Noise Voltage

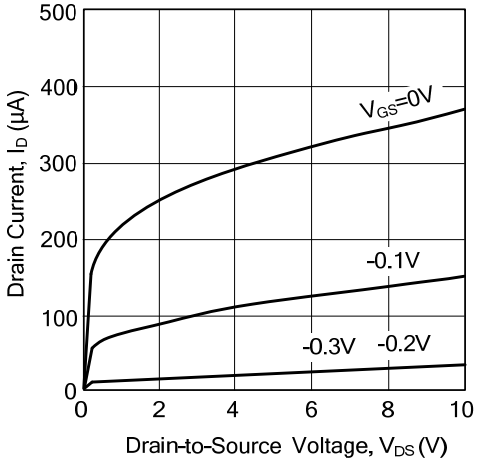


■ TYPICAL CHARACTERISTICS

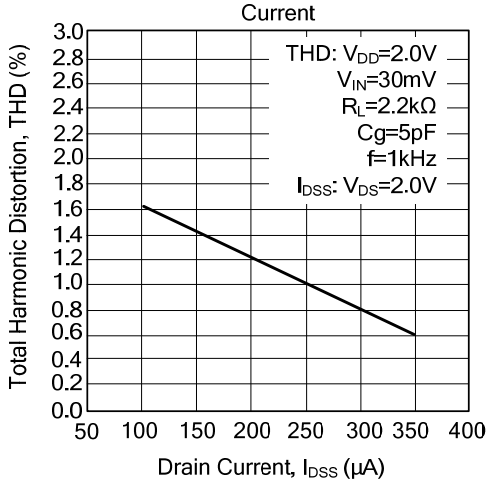
Drain Current vs. Gate-to-Source Voltage



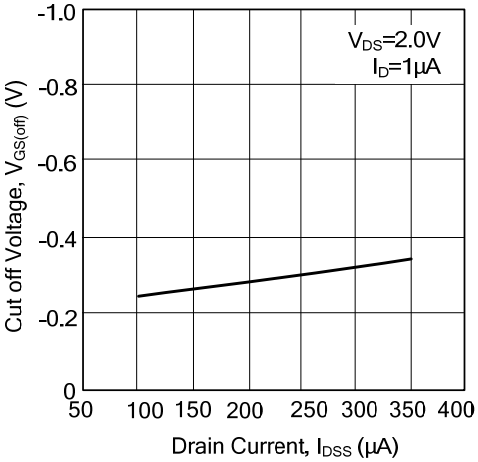
Drain Current vs. Drain-to-Source



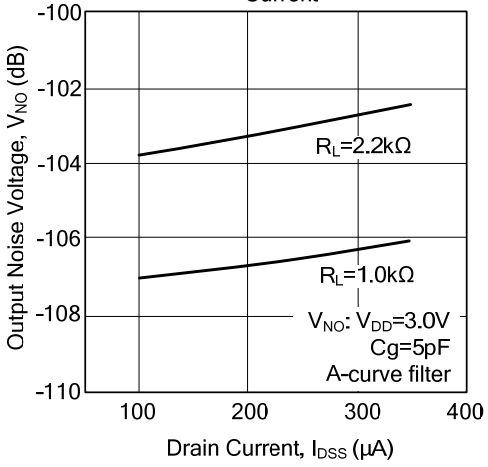
Total Harmonic Distortion vs. Drain Current



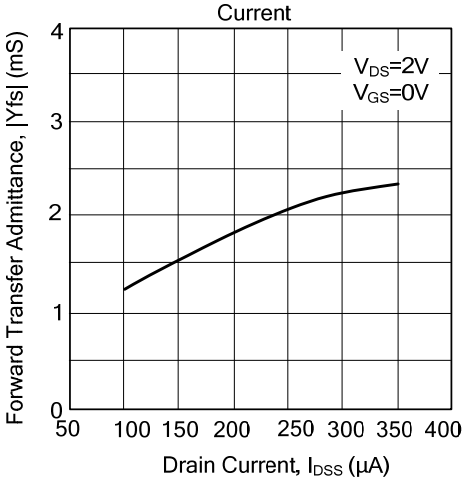
Cut off Voltage vs. Drain Current



Output Noise Voltage vs. Drain Current

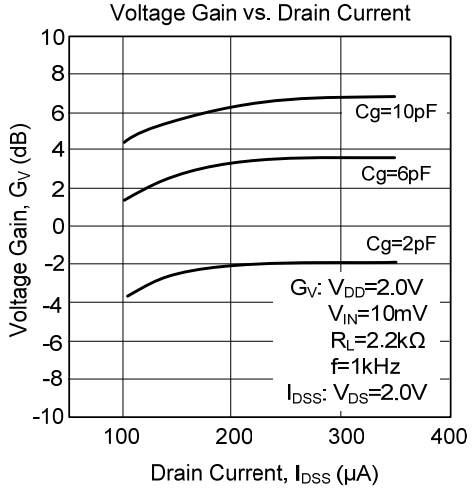


Forward Transfer Admittance vs. Drain Current

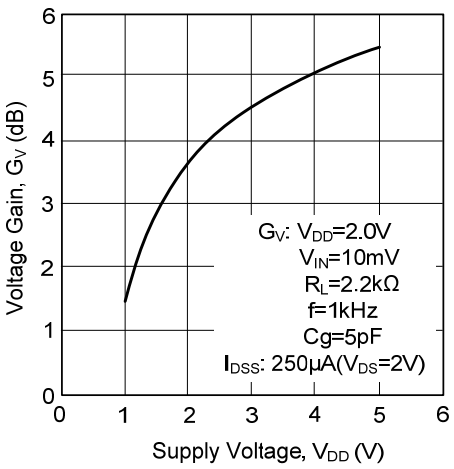


■ TYPICAL CHARACTERISTICS (Cont.)

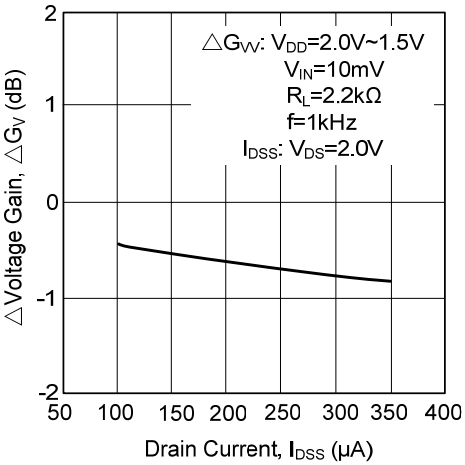
Voltage Gain vs. Drain Current



Voltage Gain vs. Supply Voltage



△Voltage Gain vs. Drain Current



Input Capacitance vs. Drain-to-Source Voltage