

**K4059**

Preliminary

N-CHANNEL JFET

FIELD EFFECT TRANSISTOR

SILICON N CHANNEL

JUNCTION TYPE

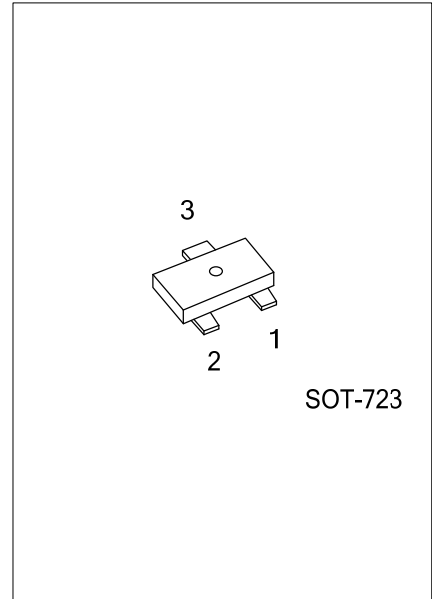
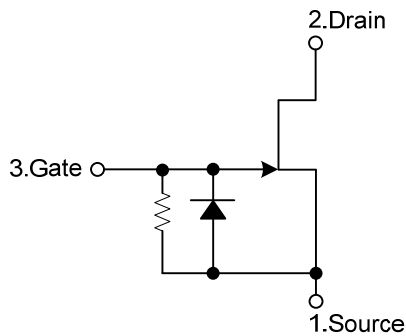
DESCRIPTION

The UTC **K4059** is an N-channel JFET, it uses UTC's advanced technology to provide customers with low input capacitance and low forward transfer admittance.

FEATURES

- * Low forward transfer admittance
- * Low input capacitance

EQUIVALENT CIRCUIT



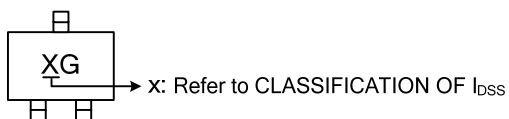
ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
K4059G-x-AQ3-R	SOT-723	S	D	G	Tape Reel

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

	(1) Packing Type	(1) R: Tape Reel
	(2) Package Type	(2) AQ3: SOT-723
	(3) Rank	(3) x: refer to CLASSIFICATION OF I_{DSS}
	(4) Green Package	(4) G: Halogen Free and Lead Free

MARKING



■ **ABSOLUTE MAXIMUM RATINGS** ($T_A=25^{\circ}\text{C}$,unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Gate-Drain Voltage	V_{GDO}	-20	V
Gate-Current	I_G	10	mA
Drain Power Dissipation ($T_A=25^{\circ}\text{C}$)	P_D	100	mW
Junction Temperature	T_J	125	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55~125	$^{\circ}\text{C}$

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.

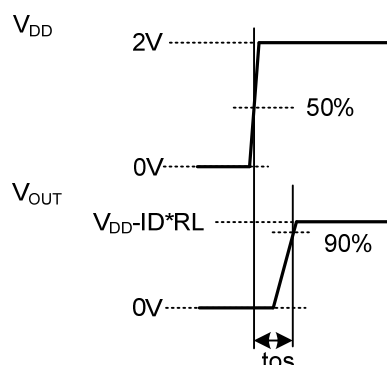
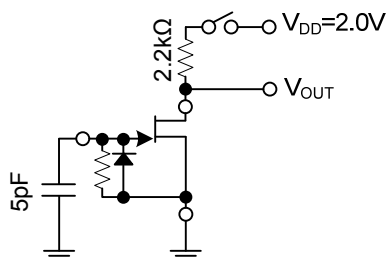
■ **ELECTRICAL CHARACTERISTICS** ($T_A=25^{\circ}\text{C}$,unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Drain Current	I_{DSS}	$V_{GS}=0, V_{DS}=2\text{V}$	K4059-A	140	240	μA
			K4059-B	210	350	μA
			K4059-C	320	500	μA
Drain Current	I_D	$V_{DD}=2\text{V}, R_L=2.2\text{k}\Omega, C_g=5\text{pF}$	K4059-A	125	260	μA
			K4059-B	190	370	μA
			K4059-C	290	500	μA
Gate-Drain Voltage	$V_{(BR)GDO}$	$I_G=-10\mu\text{A}$	-20			V
Gate-Source Cut-Off Voltage	$V_{GS(OFF)}$	$V_{DS}=2\text{V}, I_D=1\mu\text{A}$	-0.1		-1.0	V
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS}=2\text{V}, V_{GS}=0\text{V}$	1.35	1.85		mS
Input Capacitance	C_{ISS}	$V_{DS}=2\text{V}, V_{GS}=0, f=1\text{MHz}$		4.0		pF
Voltage Gain	G_V	$V_{DD}=2\text{V}, R_L=2.2\text{k}\Omega, C_g=5\text{pF}, f=1\text{kHz}, V_{IN}=100\text{mV}$	K4059-A	-1.2	+0.9	dB
			K4059-B	-0.2	+1.4	dB
			K4059-C	+0.5	+1.8	dB
Delta Voltage Gain	$\Delta G_{V(f)}$	$V_{DD}=2\text{V}, R_L=2.2\text{k}\Omega, C_g=5\text{pF}, f=1\text{kHz}\sim 100\text{Hz}, V_{IN}=100\text{mV}$		0	-1	dB
Delta Voltage Gain	$\Delta G_{V(V)}$	$V_{DD}=2\text{V}\sim 1.5\text{V}, R_L=2.2\text{k}\Omega, C_g=5\text{pF}, f=1\text{kHz}, V_{IN}=100\text{mV}$	K4059-A	-0.6	-1.1	dB
			K4059-B	-0.8	-1.7	dB
			K4059-C	-1.4	-3.2	dB
Noise Voltage	V_N	$V_{DD}=2\text{V}, R_L=1\text{k}\Omega, C_g=10\text{pF}, G_V=80\text{dB}, \text{A-Curve Filter}$	K4059-A	33	75	mV
			K4059-B	38	80	mV
			K4059-C	42	90	mV
Total Harmonic Distortion	THD	$V_{DD}=2\text{V}, R_L=2.2\text{k}\Omega, C_g=5\text{pF}, f=1\text{kHz}, V_{IN}=50\text{mV}$	K4059-A	1.3		%
			K4059-B	0.6		%
			K4059-C	0.1		%
Time Output Stability	t_{OS}	$V_{DD}=2\text{V}, R_L=2.2\text{k}\Omega, C_g=5\text{pF}$		100	200	ms

■ **CLASSIFICATION OF I_{DSS}**

RANK	A	B	C
RANGE	140-240	210-350	320-500

■ TEST CIRCUIT



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