



K4059

Preliminary

N-CHANNEL JFET

FIELD EFFECT TRANSISTOR SILICON N CHANNEL JUNCTION TYPE

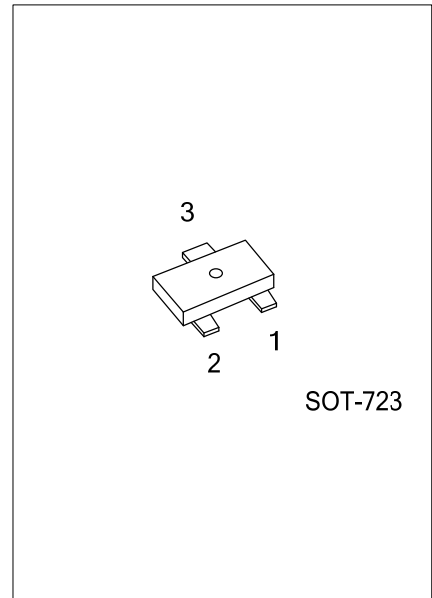
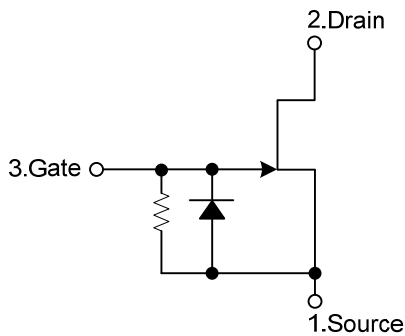
DESCRIPTION

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



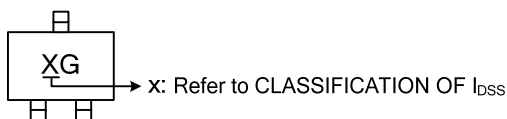
ORDERING INFORMATION

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

Ordering Code	Description	Value
K4059G-x-AQ3-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AQ3: SOT-723
	(3)Rank	(3) x: refer to CLASSIFICATION OF I_{BSS}
	(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.

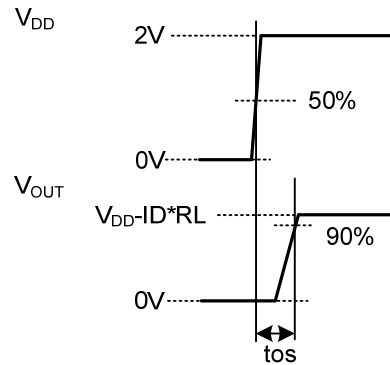
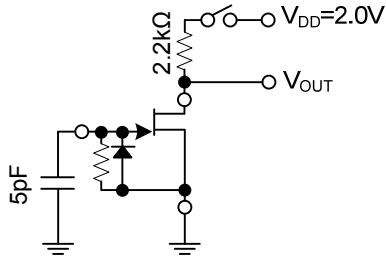
■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

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

■ CLASSIFICATION OF I_{DSS}

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

■ TEST CIRCUIT



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