



## K4059

## N-CHANNEL JFET

### FIELD EFFECT TRANSISTOR SILICON N CHANNEL JUNCTION TYPE

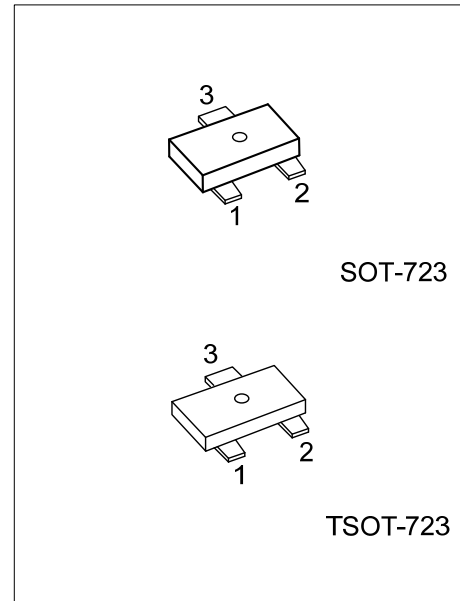
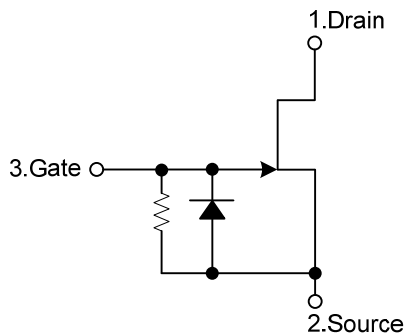
#### DESCRIPTION

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



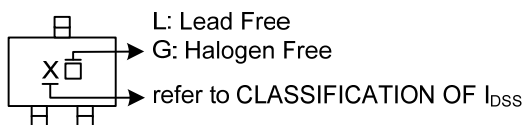
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
K4059L-x-AH7-R	K4059G-x-AH7-R	TSOT-723	D	S	G	Tape Reel
K4059L-x-AQ3-R	K4059G-x-AQ3-R	SOT-723	D	S	G	Tape Reel

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

Ordering Number	(1)Packing Type	(1) R: Tape Reel
K4059G-x-AH7-R	(2)Package Type	(2) AH7: TSOT-723, AQ3: SOT-723
	(3)Rank	(3) x: refer to CLASSIFICATION of I <sub>DSS</sub>
	(4)Green Package	(4) G: Halogen Free and Lead Free, L: 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.

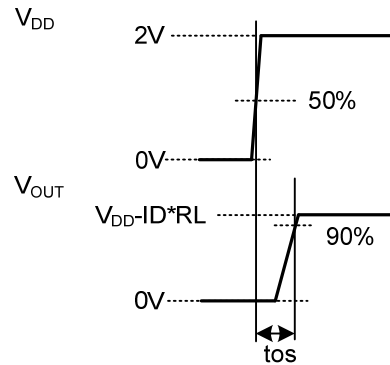
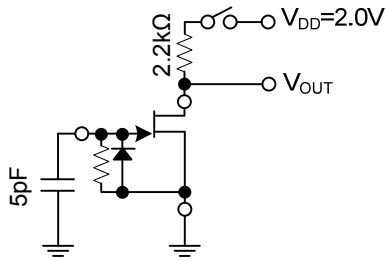
■ ELECTRICAL CHARACTERISTICS (  $T_A=25^{\circ}\text{C}$  ,unless otherwise specified )

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Drain Current	$I_{DSS}$	$V_{GS}=0, V_{DS}=2V$	K4059-A	140	240	$\mu\text{A}$	
			K4059-B	210	350	$\mu\text{A}$	
			K4059-C	320	500	$\mu\text{A}$	
Drain Current	$I_D$	$V_{DD}=2V, R_L=2.2k\Omega, C_g=5pF$	K4059-A	125	260	$\mu\text{A}$	
			K4059-B	190	370	$\mu\text{A}$	
			K4059-C	290	500	$\mu\text{A}$	
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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