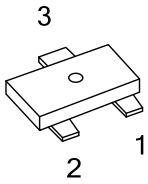
K4059 Preliminary ***N-CHANNEL JFET***

FIELD EFFECT TRANSISTOR SILICON N CHANNEL JUNCTION TYPE



SOT-723

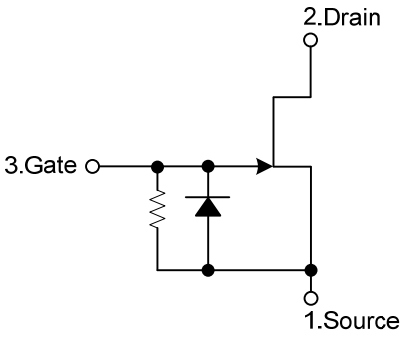
■ DESCRIPTION

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-AQ3-R	K4059G-x-AQ3-R	SOT-723	S	D	G	Tape Reel

K4059L-x-AQ3-R

(1)Packing Type
(2)Package Type
(3)Rank
(4)Lead Free

(1) R: Tape Reel
(2) AQ3: SOT-723
(3) x: refer to CLASSIFICATION OF I_{DSS}
(4) L: Lead Free, G: Halogen Free

■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Gate-Drain Voltage	V_{GDO}	-20	V
Gate-Current	I_G	10	mA
Drain Power Dissipation (T_A=25°C)	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)

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=2.2kΩ, 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=-10μA		-20			V
Gate-Source Cut-Off Voltage	$V_{GS\ (OFF)}$	V_{DS}=2V, I_D=1μA		-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=1MHz			4.0		pF
Voltage Gain	G_V	V_{DD}=2V,R_L=2.2kΩ, C_g=5pF, f=1kHz, V_{IN}=100mV	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=2.2kΩ, C_g=5pF, f=1kHz~100Hz, V_{IN}=100mV			0	-1	dB
Delta Voltage Gain	$\Delta G_{V(V)}$	V_{DD}=2V~1.5V,R_L=2.2kΩ, C_g=5pF, f=1kHz, V_{IN}=100mV	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=1kΩ, C_g=10pF, G_V=80dB, 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=2.2kΩ, C_g=5pF, f=1kHz, V_{IN} =50mV	K4059-A		1.3		%
			K4059-B		0.6		%
			K4059-C		0.1		%
Time Output Stability	t_{OS}	V_{DD}=2V, R_L=2.2kΩ, C_g=5pF			100	200	ms

■ CLASSIFICATION OF I_{DSS}

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

■ TEST CIRCUIT