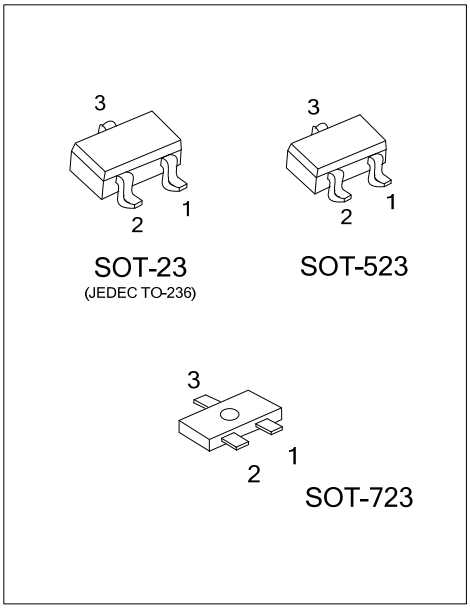
TF2123

N-CHANNEL JFET

N-CHANNEL JFET CAPACITOR MICROPHONE APPLICATIONS



■ DESCRIPTION

The UTC **TF2123** uses advanced trench technology to provide excellent $R_{DS\ (ON)}$, low gate charge and operation with low gate voltages. This device is suitable for use in capacitor microphone applications.

■ FEATURES

*Suited for use in audio, telephone capacitor microphones.
*Good voltage characteristic.
*Good transient characteristic.

ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
TF2123G-xx-AE3-R	SOT-23	S	D	G	Tape Reel
TF2123G-xx-AN3-R	SOT-523	S	D	G	Tape Reel
TF2123G-xx-AQ3-R	SOT-723	S	D	G	Tape Reel

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

TF2123L-xx-AE3-R (1)Packing Type (2)Package Type (3)Rank (4)Green Package	(1) R: Tape Reel (2) AE3: SOT-23, AN3: SOT-523, AQ3: SOT-723 (3) xx: refer to CLASSIFICATION OF I_{DSS} (4) G: Halogen Free and Lead Free

■ MARKING

TF2123-E3	TF2123-E4	TF2123-E5
E3	E4	E5

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

PARAMETER	SYMBOL	RATING	UNIT
Gate Drain Voltage	V_{GDO}	-20	V
Gate Current	I_G	10	mA
Drain Current	I_D	10	mA
Power Dissipation	P_D	100	mW
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55~+150	°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.

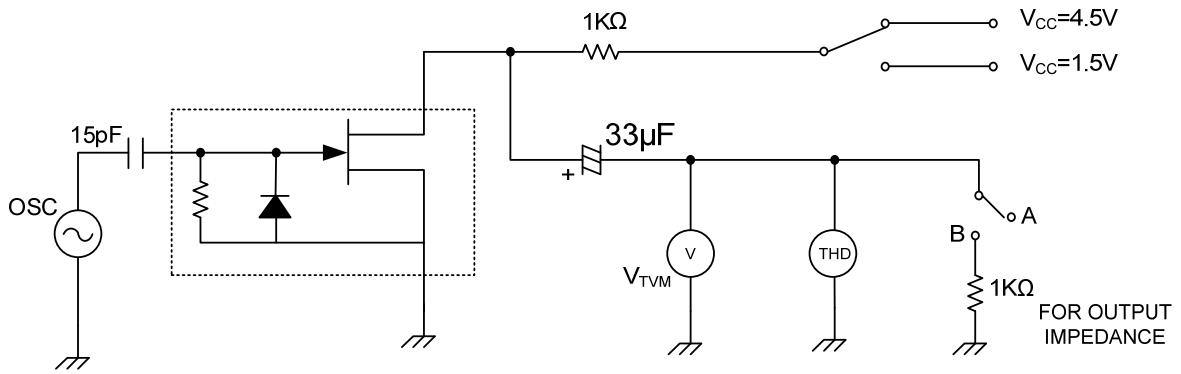
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Gate Drain Breakdown Voltage	BV_{GDO}	I_G=-100μA		-20			V
Gate Source Cut off Voltage	$V_{GS(OFF)}$	V_{DS}=2V, I_D=1μA			-0.38		V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=2V, V_{GS}=0V	TF2123-E3	100		170	μA
			TF2123-E4	150		270	μA
			TF2123-E5	210		350	μA
Drain Current	I_D	V_{DD}=2V, R_L=2.2kΩ, C_g=5pF	I_{DSS}=100μA		98		μA
			I_{DSS}=250μA		244		μA
			I_{DSS}=350μA		337		μA
Forward Transfer Admittance	lyfsl	V_{DS}=2V, V_{GS}=0V			1.43		mS
Input Capacitance	C_{ISS}	V_{DS}=2, V_{GS}=0, f=1MHz			5.0		pF
Voltage Gain	G_V	V_{DD}=2V, R_L=2.2kΩ, C_g=5pF, f=1kHz, V_{IN}=10mV	I_{DSS}=100μA		0.1		dB
			I_{DSS}=250μA		1.95		dB
			I_{DSS}=350μA		2.25		dB
Delta Voltage Gain	ΔG_V	V_{IN}=10mV, R_L=2.2kΩ, C_g=5pF, f=1kH, V_{DD}=2V to1.5V			-0.5		dB
Frequency Characteristic	$\Delta G_V(f)$	V_{IN}=10mV, R_L=2.2kΩ, C_g=5pF, V_{DD}=2V, f=1kHz to 110kHz			-0.2		dB
Output Noise Voltage	V_{NO}	V_{DD}=2V, C_g=5pF, A-curve filter	R_L=1kΩ		-107		dB
			R_L=2.2kΩ		-102		dB
Total Harmonic distortion	THD	V_{DD}=2V, R_L=2.2kΩ, C_g=5pF, f=1kHz, V_{IN}=50mV			0.9		%

■ CLASSIFICATION OF I_{DSS}

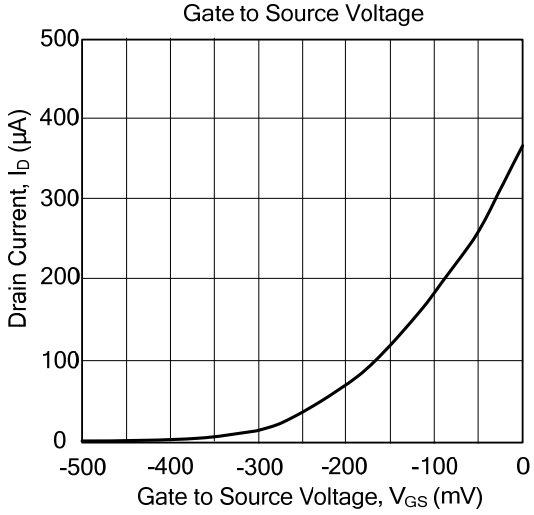
RANK	E3	E4	E5
RANGE	100-170	150-270	210-350

■ TEST CIRCUIT(T_A=25°C)

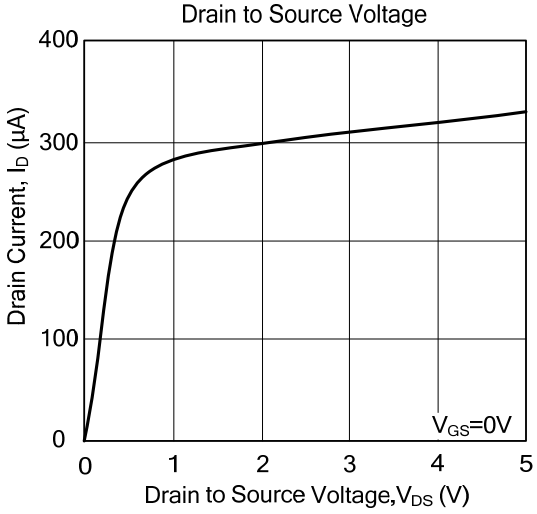


■ TYPICAL CHARACTERISTICS

Drain Current vs.
Gate to Source Voltage



Drain Current vs.
Drain to Source Voltage



Gate Current vs.
Gate Drain Breakdown Voltage