



TF2123

N-CHANNEL JFET

N-CHANNEL JFET CAPACITOR MICROPHONE APPLICATIONS

DESCRIPTION

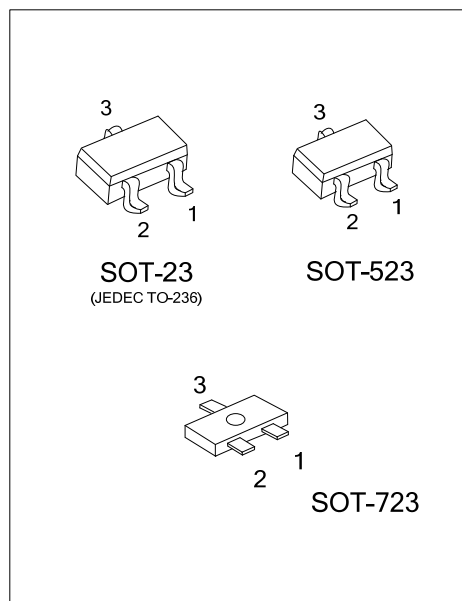
The UTC **TF2123** uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device is suitable for use in capacitor microphone applications.

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
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MARKING

TF2123-E3	TF2123-E4	TF2123-E5

■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$, 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	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}\text{C}$

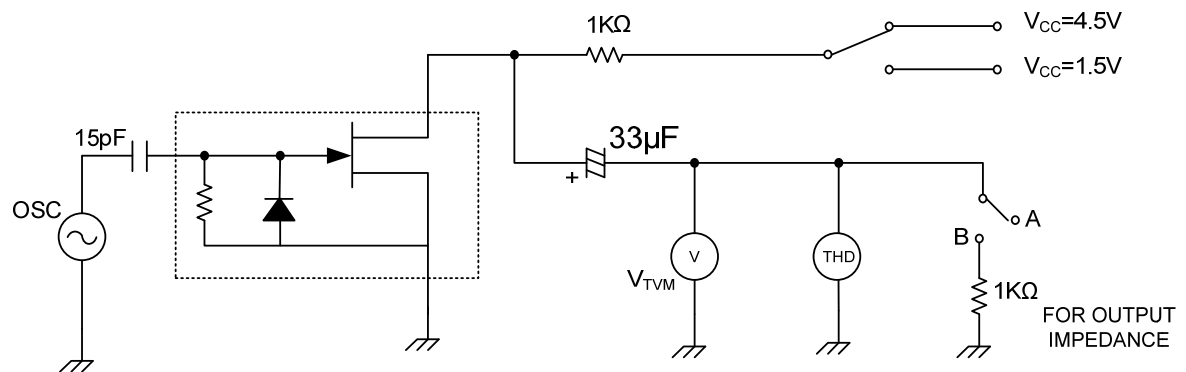
Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

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

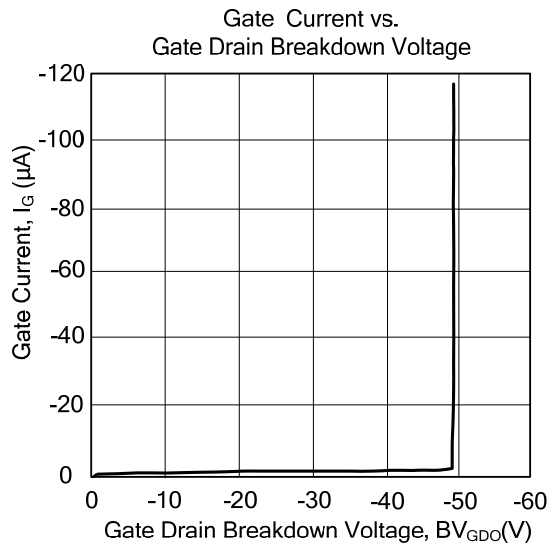
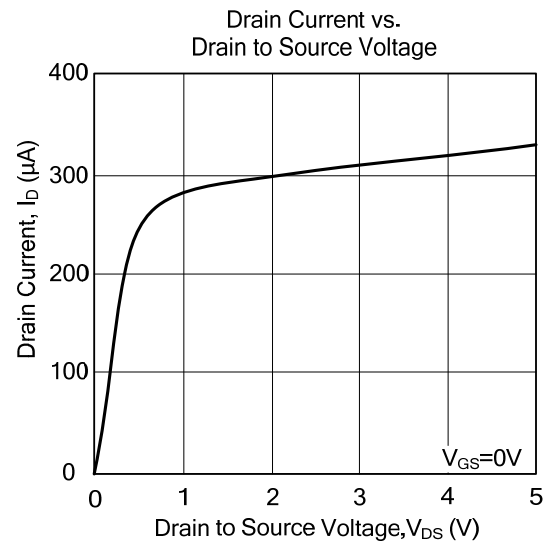
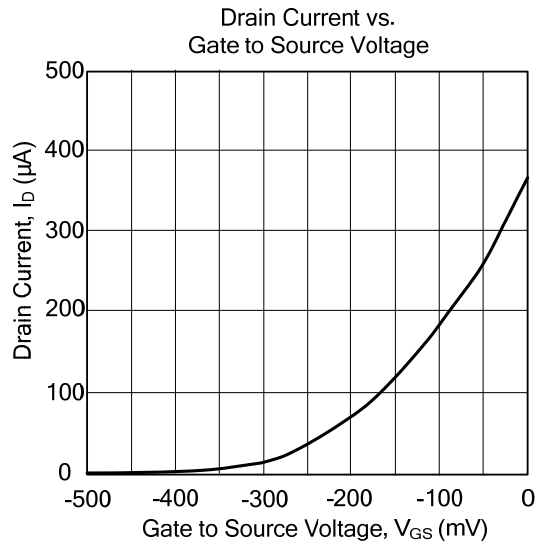
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate Drain Breakdown Voltage	BV_{GDO}	$I_G=-100\mu\text{A}$	-20			V
Gate Source Cut off Voltage	$V_{GS(OFF)}$	$V_{DS}=2\text{V}$, $I_D=1\mu\text{A}$		-0.38		V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=2\text{V}$, $V_{GS}=0\text{V}$	TF2123-E3	100	170	μA
			TF2123-E4	150	270	μA
			TF2123-E5	210	350	μA
Drain Current	I_D	$V_{DD}=2\text{V}$, $R_L=2.2\text{k}\Omega$, $C_g=5\text{pF}$	$I_{DSS}=100\mu\text{A}$	98		μA
			$I_{DSS}=250\mu\text{A}$	244		μA
			$I_{DSS}=350\mu\text{A}$	337		μA
Forward Transfer Admittance	Y_{fs}	$V_{DS}=2\text{V}$, $V_{GS}=0\text{V}$		1.43		mS
Input Capacitance	C_{ISS}	$V_{DS}=2\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$		5.0		pF
Voltage Gain	G_V	$V_{DD}=2\text{V}$, $R_L=2.2\text{k}\Omega$, $C_g=5\text{pF}$, $f=1\text{kHz}$, $V_{IN}=10\text{mV}$	$I_{DSS}=100\mu\text{A}$	0.1		dB
			$I_{DSS}=250\mu\text{A}$	1.95		dB
			$I_{DSS}=350\mu\text{A}$	2.25		dB
Delta Voltage Gain	ΔG_V	$V_{IN}=10\text{mV}$, $R_L=2.2\text{k}\Omega$, $C_g=5\text{pF}$, $f=1\text{kHz}$, $V_{DD}=2\text{V}$ to 1.5V		-0.5		dB
Frequency Characteristic	$\Delta G_V(f)$	$V_{IN}=10\text{mV}$, $R_L=2.2\text{k}\Omega$, $C_g=5\text{pF}$, $V_{DD}=2\text{V}$, $f=1\text{kHz}$ to 110kHz		-0.2		dB
Output Noise Voltage	V_{NO}	$V_{DD}=2\text{V}$, $C_g=5\text{pF}$, A-curve filter	$R_L=1\text{k}\Omega$	-107		dB
			$R_L=2.2\text{k}\Omega$	-102		dB
Total Harmonic distortion	THD	$V_{DD}=2\text{V}$, $R_L=2.2\text{k}\Omega$, $C_g=5\text{pF}$, $f=1\text{kHz}$, $V_{IN}=50\text{mV}$		0.9		%

■ CLASSIFICATION OF I_{DSS}

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

■ TEST CIRCUIT ($T_A=25^\circ\text{C}$)

TYPICAL CHARACTERISTICS



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.