



TF112304

JFET

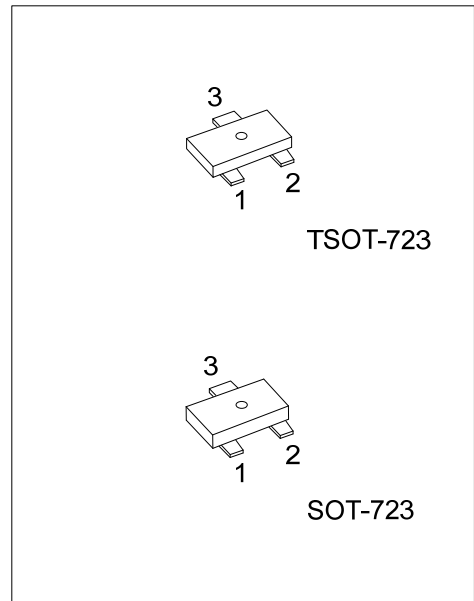
ELECTRET CAPACITOR MICROPHONE APPLICATIONS

DESCRIPTION

The UTC **TF112304** 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

- * is suitable for electret capacitor microphone
- * Very low noise



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
TF112304L-xx-AH7-R	TF112304G-xx-AH7-R	TSOT-723	D	S	G	Tape Reel
TF112304L-xx-AQ3-R	TF112304G-xx-AQ3-R	SOT-723	D	S	G	Tape Reel

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

<p>TF112304G-xx-AH7-R</p>	<p>(1) R: Tape Reel (2) AH7: TSOT-723, AQ3: SOT-723 (3) x: refer to CLASSIFICATION OF I_{BSS} (4) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING

TF112304-JB	TF112304-JC

■ 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)

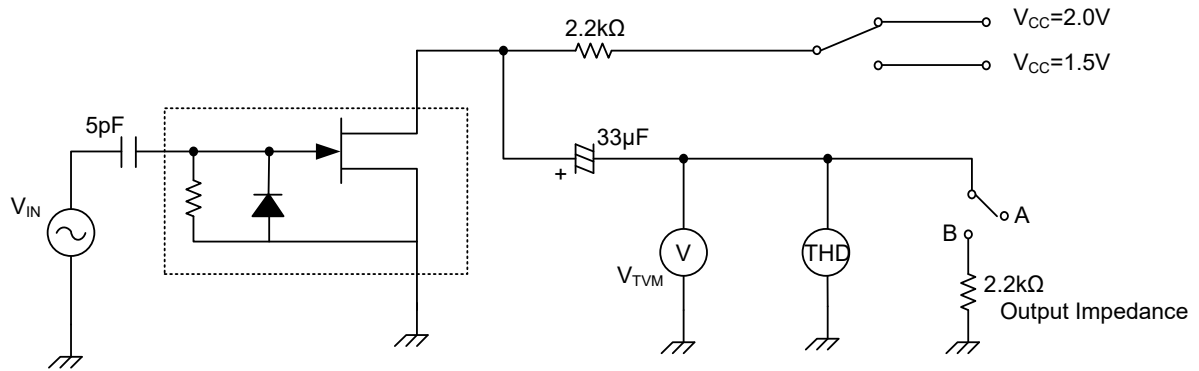
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate Drain Breakdown Voltage	BV_{GDO}	$I_G=-100\mu\text{A}$	-20			V
Gate Source Cut off Voltage	$V_{GS(OFF)}$	$V_{DS}=2\text{V}$, $I_D=1\mu\text{A}$, $I_{DSS}=250\mu\text{A}$		-0.6		V
Drain Current	I_{DSS}	$V_{DS}=2\text{V}$, $V_{GS}=0\text{V}$	140		350	μA
Forward Transfer Admittance	Y_{fs}	$V_{DS}=2\text{V}$, $V_{GS}=0\text{V}$, $I_{DSS}=250\mu\text{A}$		1.0		mS
Input Capacitance	C_{ISS}	$V_{DS}=2\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$		3.5		pF
Voltage Gain	G_V	$V_{DD}=2\text{V}$, $R_L=2.2\text{k}\Omega$, $C_g=5\text{pF}$, $f=1\text{KHz}$ $V_{IN}=10\text{mV}$, $I_{DSS}=250\mu\text{A}$		-1.5		dB
Frequency Characteristic	ΔG_{VF}	$V_{DD}=2\text{V}$, $R_L=2.2\text{k}\Omega$, $C_g=5\text{pF}$, $f=1\text{KHz}$ to 110Hz , $V_{IN}=10\text{mV}$			-1.0	dB
Reduced Voltage Characteristic	ΔG_{VV}	$V_{DD}=2\text{V}$ to 1.5V , $R_L=2.2\text{k}\Omega$, $C_g=5\text{pF}$, $f=1\text{KHz}$, $V_{IN}=10\text{mV}$		1.0	2.0	dB
Output Resistance	Z_O	$V_{DS}=2\text{V}$, $f=1\text{MHz}$, $R_L=2.2\text{k}\Omega$			2.2	$\text{k}\Omega$
Output Noise Voltage	V_{NO}	$V_{DD}=3\text{V}$, $R_L=2.2\text{k}\Omega$, $C_g=5\text{pF}$, A-Curve Filter, $R_L=2.2\text{k}\Omega$			-103	dB
Total Harmonic distortion	THD	$V_{DD}=2\text{V}$, $R_L=2.2\text{k}\Omega$, $C_g=5\text{pF}$, $f=1\text{KHz}$, $V_{IN}=50\text{mV}$, $I_{DSS}=250\mu\text{A}$		1.0		%

■ CLASSIFICATION OF I_{DSS}

RANK	B	C
I_{DSS} (μA)	140 ~ 240	210 ~ 350

■ TEST CIRCUIT

- Voltage Gain
- Frequency Characteristics
- Distortion
- Reduced Voltage Characteristics
- Output Noise Voltage



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