



TF202

N-CHANNEL JFET

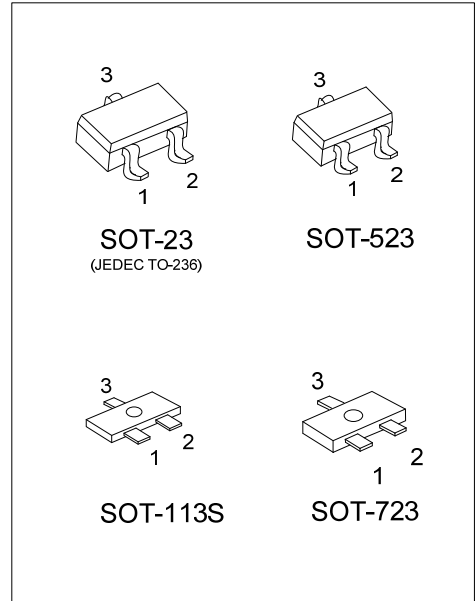
N-CHANNEL JFET CAPACITOR MICROPHONE APPLICATIONS

■ DESCRIPTION

The UTC **TF202** 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
Lead Free	Halogen Free		1	2	3	
TF202L-xx-AE3-R	TF202G-xx-AE3-R	SOT-23	D	S	G	Tape Reel
TF202L-xx-AN3-R	TF202G-xx-AN3-R	SOT-523	D	S	G	Tape Reel
TF202L-xx-A3C-R	TF202G-xx-A3C-R	SOT-113S	D	S	G	Tape Reel
TF202L-xx-AQ3-R	TF202G-xx-AQ3-R	SOT-723	D	S	G	Tape Reel

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

<p>TF202G-xx-AE3-R</p>	<p>(1) R: Tape Reel (2) A3C: SOT-113S, AE3: SOT-23, AN3: SOT-523, AQ3: SOT-723 (3) x: refer to CLASSIFICATION OF I_{DSS} (4) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ MARKING

TF202-E3	TF202-E4	TF202-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.

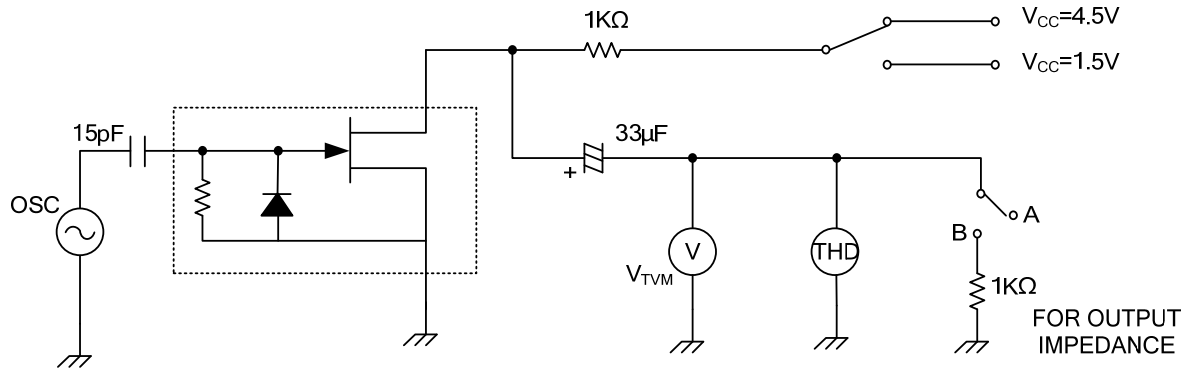
■ ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

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}	$V_{DS}=2\text{V}, V_{GS}=0\text{V}$	100		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}	$V_{DS}=2, V_{GS}=0, f=1\text{MHz}$		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	$V_{IN}=10\text{mV}, R_L=2.2\text{k}\Omega, C_g=5\text{pF}, f=1\text{kHz}, V_{DD}=2\text{V to }1.5\text{V}$		-0.5		dB
Frequency Characteristic	$\Delta G_V(f)$	$V_{IN}=10\text{mV}, R_L=2.2\text{k}\Omega, C_g=5\text{pF}, V_{DD}=2\text{V}, f=1\text{kHz to }110\text{kHz}$		-0.2		dB
Output Noise Voltage	V_{NO}	$V_{DD}=2\text{V}, C_g=5\text{pF}, A\text{-curve filter}$	$R_L=1\text{k}\Omega$	-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		%

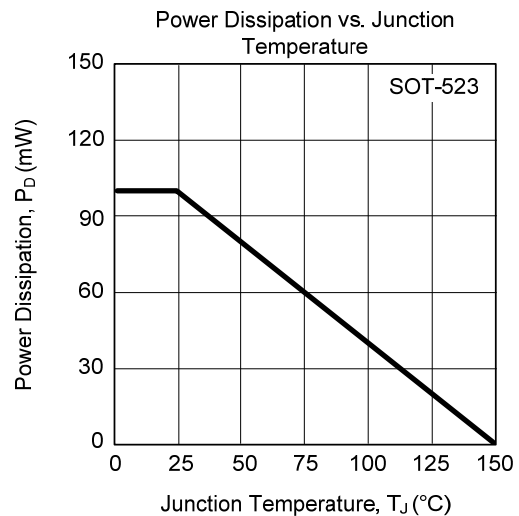
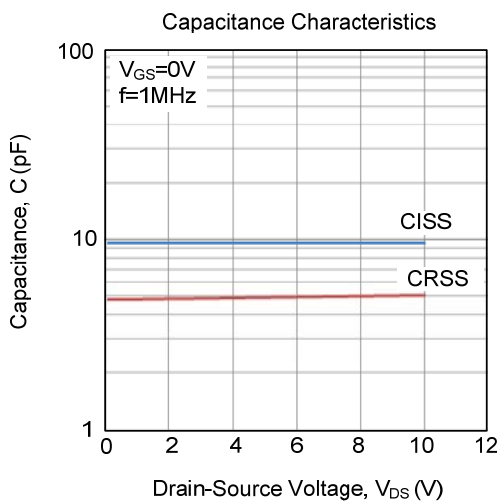
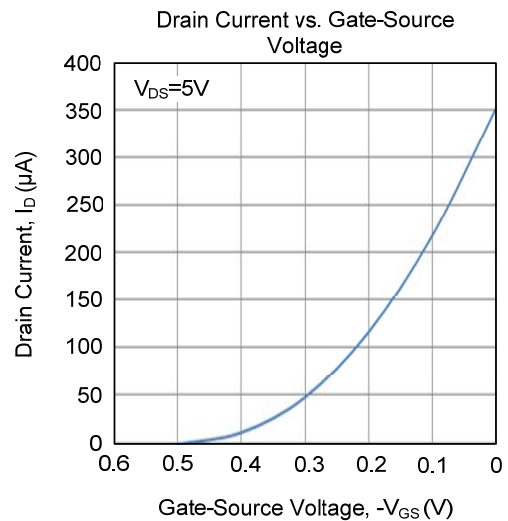
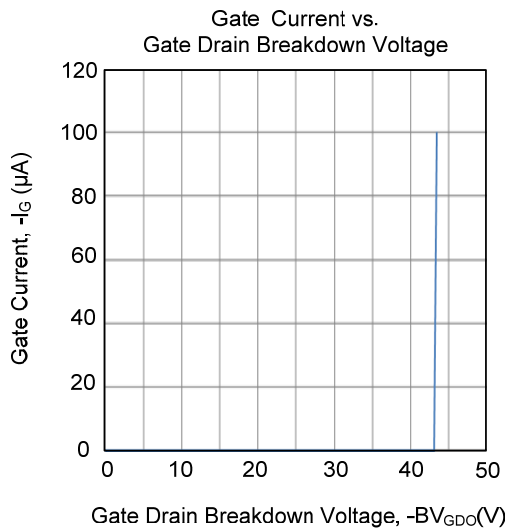
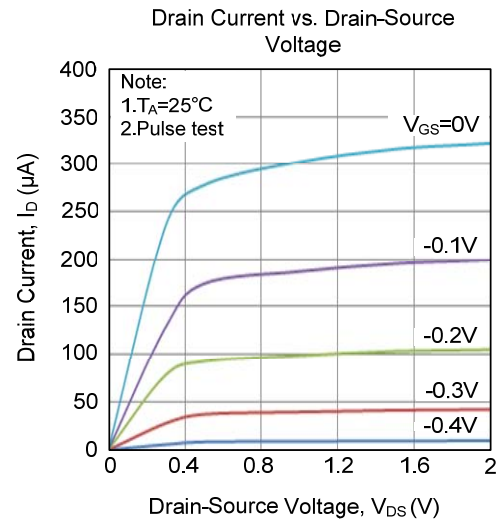
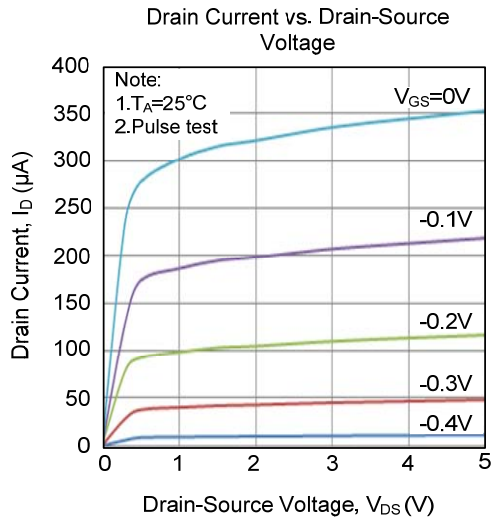
■ CLASSIFICATION OF I_{DSS}

RANK	E3	E4	E5
RANGE	100-170	140-240	210-350

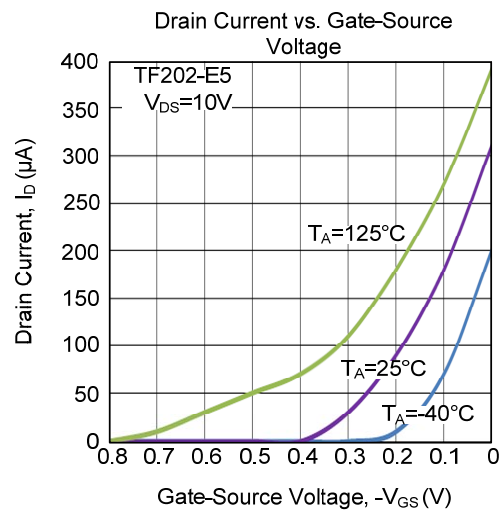
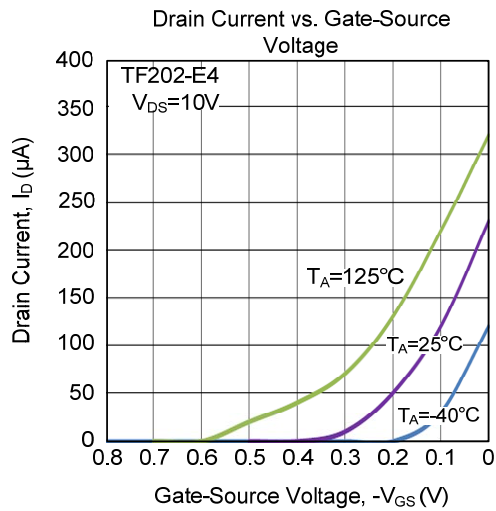
■ TEST CIRCUIT ($T_A=25^\circ\text{C}$)



■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS



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