



TF250TH — N-channel Silicon Junction FET

Electret Condenser Microphone Applications

Features

- Ultrasmall package facilitates miniaturization in end products.
- Especially suited for use in electret condenser microphone for audio equipments and telephones.
- Excellent voltage characteristics.
- Excellent transient characteristics.
- Adoption of FBET process.

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Gate-to-Drain Voltage	V_{GDO}		-20	V
Gate Current	I_G		10	mA
Drain Current	I_D		1	mA
Allowable Power Dissipation	P_D		100	mW
Junction Temperature	T_j		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Drain Breakdown Voltage	$V_{(BR)GDO}$	$I_G=-100\mu\text{A}$	-20			V
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=2\text{V}, I_D=1\mu\text{A}$	-0.1	-0.4	-1.0	V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=2\text{V}, V_{GS}=0\text{V}$	140*		350*	μA
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=2\text{V}, V_{GS}=0\text{V}, f=1\text{kHz}$	0.7	1.3		mS
Input Capacitance	C_{iss}	$V_{DS}=2\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$		2.8		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=2\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$		0.55		pF

Marking: C

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* : The TF250TH is classified by I_{DSS} as follows : (unit : μA)

Rank	4	5
I_{DSS}	140 to 240	210 to 350

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TF250TH

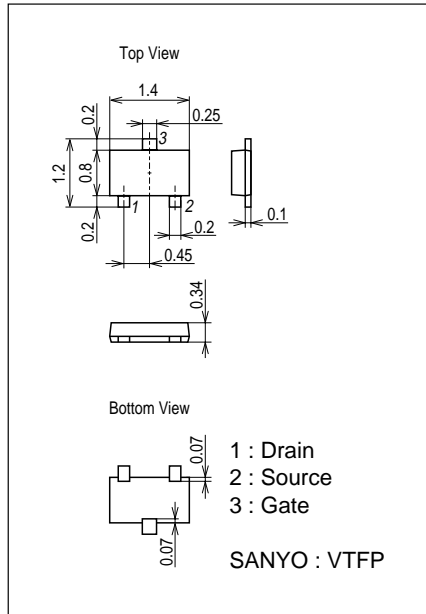
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[Ta=25°C, VCC=2V, RL=2.2kΩ, Cin=5pF, See specified Test Circuit.]						
Voltage Gain	GV	VIN=10mV, f=1kHz		0.8		dB
Reduced Voltage Characteristic	ΔGVV	VIN=10mV, f=1kHz, VCC=2→1.5V		-0.7	-2.0	dB
Frequency Characteristic	ΔGvf	f=1kHz to 110Hz			-1.0	dB
Total Harmonic Distortion	THD	VIN=30mV, f=1kHz		0.6		%
Output Noise Voltage	VNO	VIN=0V, A curve			-100	dB

Package Dimensions

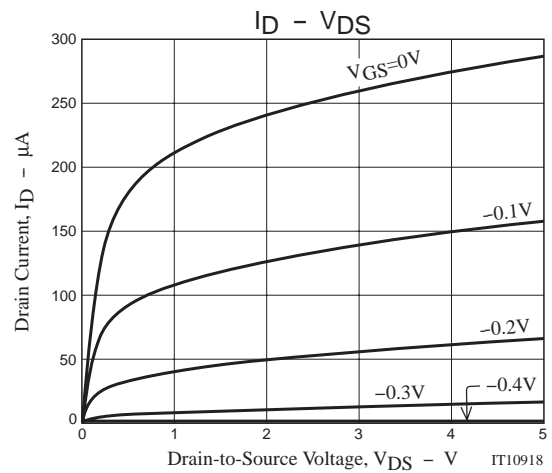
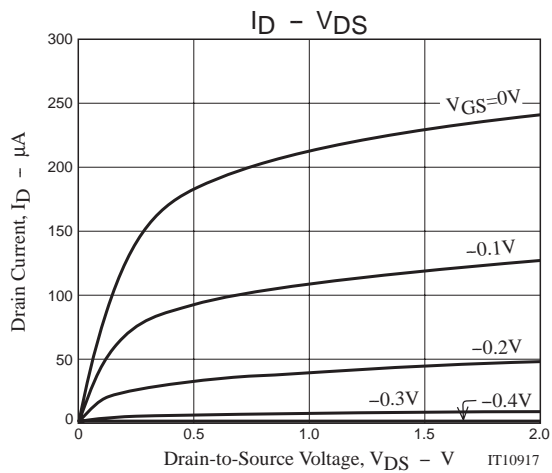
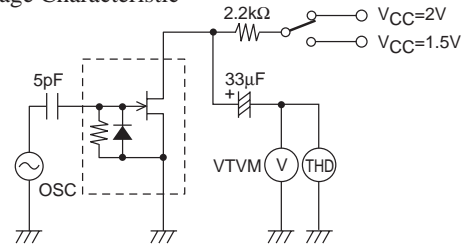
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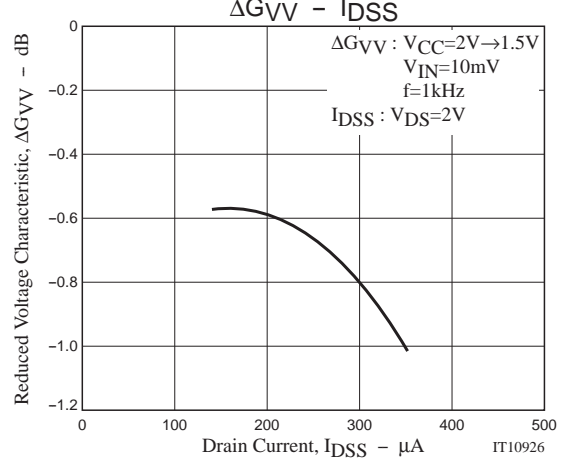
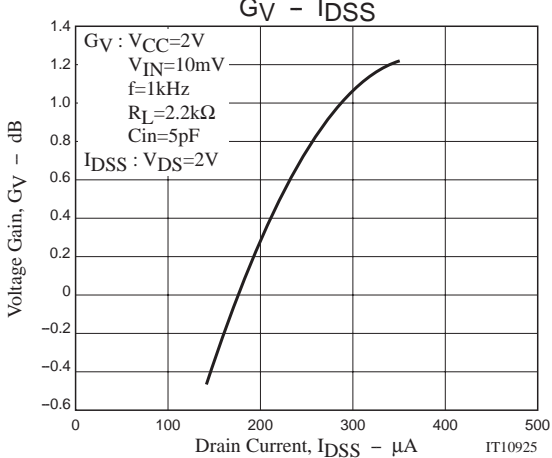
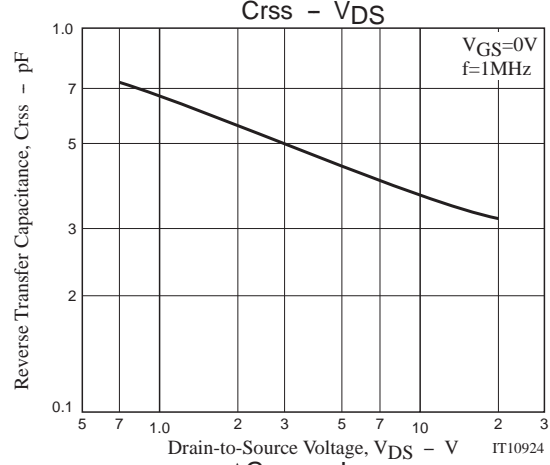
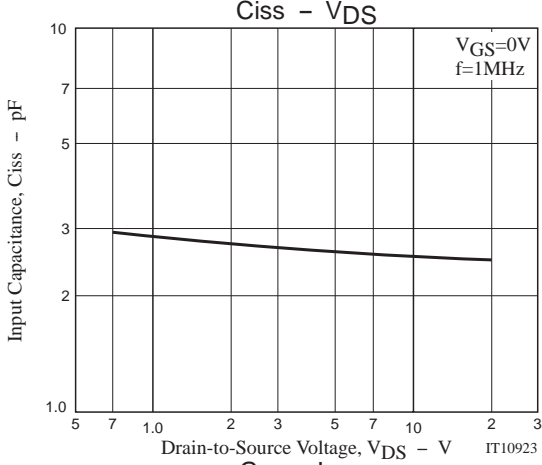
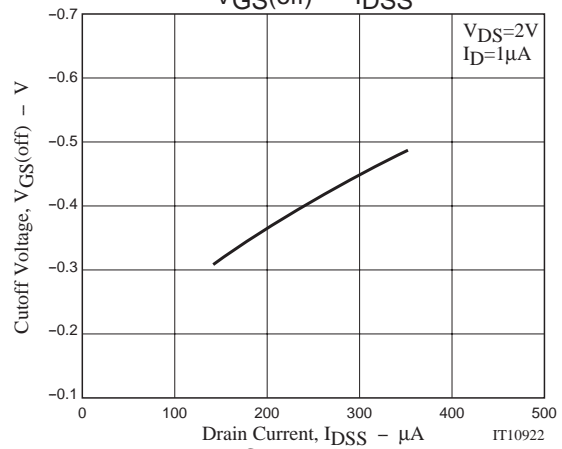
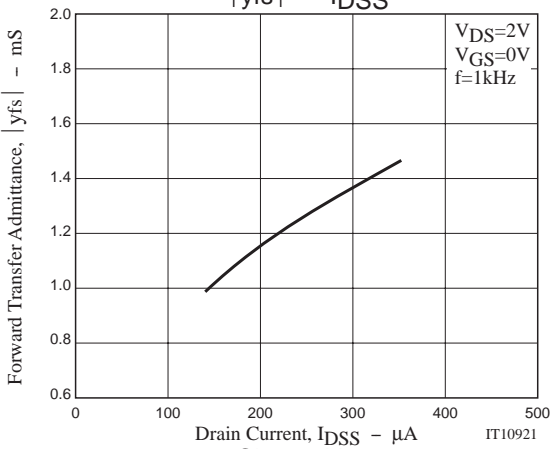
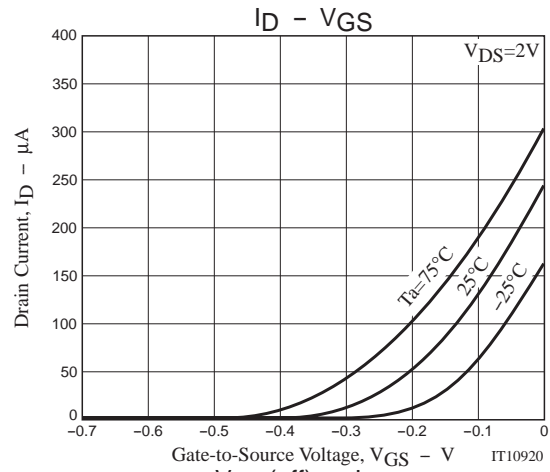
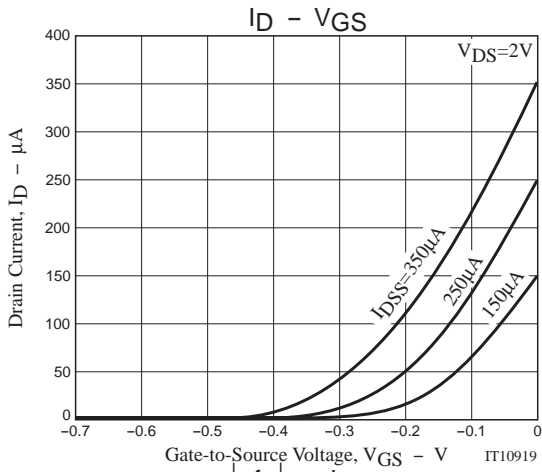


Test Circuit

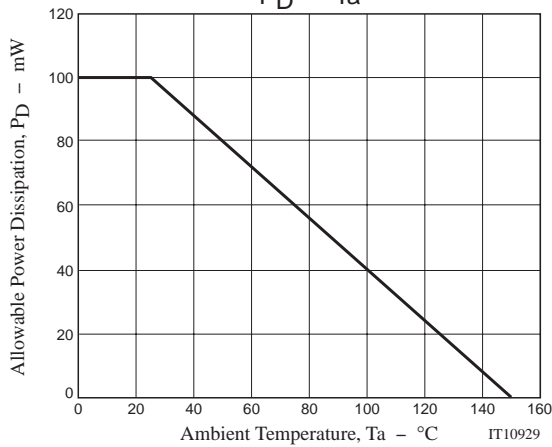
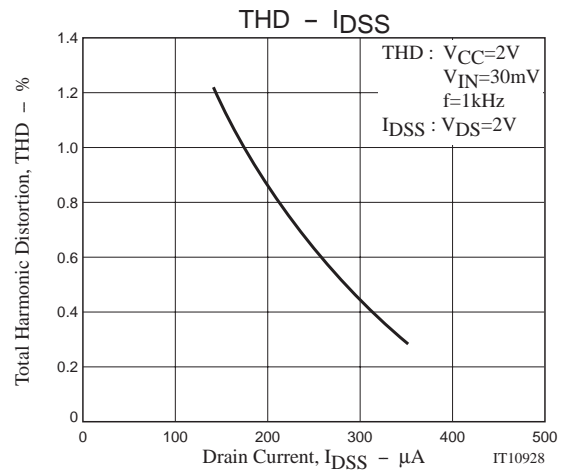
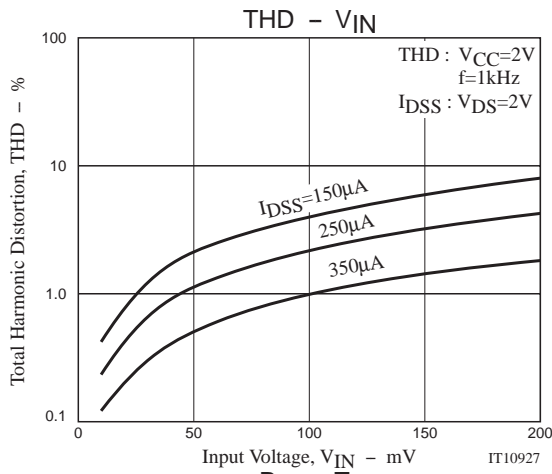
Voltage gain
Frequency Characteristic
Distortion
Reduced Voltage Characteristic



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