



N-channel Silicon Junction FET
TF208TH — 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 Ta=25°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	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta=25°C (Value per element)

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Drain Breakdown Voltage	V _{(BR)GDO}	I _G =-100μA	-20			V
Cutoff Voltage	V _{GS(off)}	V _{DS} =2V, I _D =1μA	-0.1		-1.0	V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =2V, V _{GS} =0V	140*		350*	μA
Forward Transfer Admittance	y _{fs}	V _{DS} =2V, V _{GS} =0V, f=1kHz	0.5	1.4		mS
Input Capacitance	C _{iss}	V _{DS} =2V, V _{GS} =0V, f=1MHz		5.0		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =2V, V _{GS} =0V, f=1MHz		1.1		pF
[Ta=25°C, V _{CC} =2.0V, R _L =2.2kΩ, C _{in} =5pF, See specified Test Circuit.]						
Voltage Gain	G _V	V _{IN} =10mV, f=1kHz		-2.0		dB
Reduced Voltage Characteristic	ΔG _{VV}	V _{IN} =10mV, f=1kHz, V _{CC} =2.0→1.5V		-0.6	-2.0	dB
Frequency Characteristic	ΔG _{Vf}	f=1kHz to 110Hz			-1.0	dB

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* : The TF208TH is classified by I_{DSS} as follows : (unit : μA)

Rank	B4	B5
I _{DSS}	140 to 240	210 to 350

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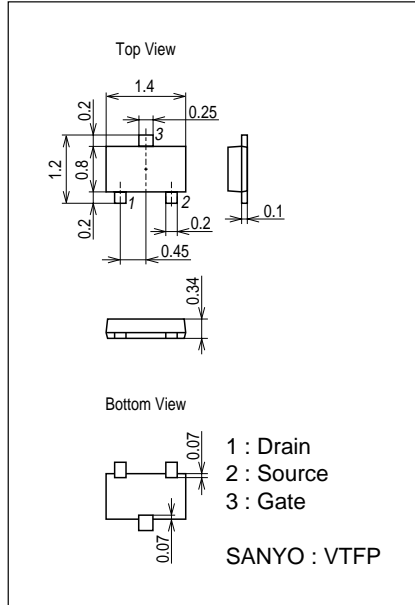
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Harmonic Distortion	THD	$V_{IN}=30mV, f=1kHz$		0.7		%
Output Noise Voltage	V_{NO}	$V_{IN}=0V, A$ curve			-102	dB

Package Dimensions

unit : mm

7031-001



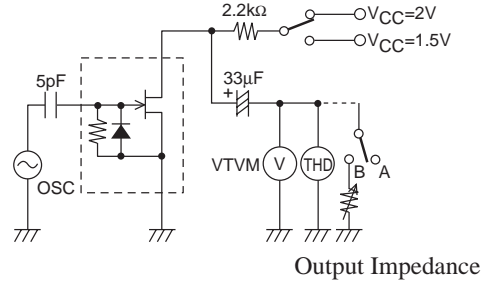
Test Circuit

Voltage gain

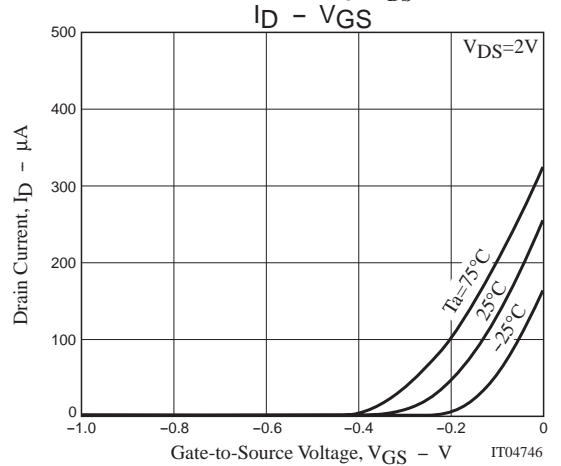
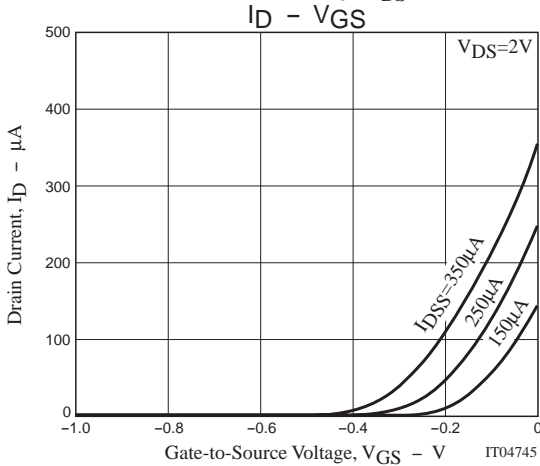
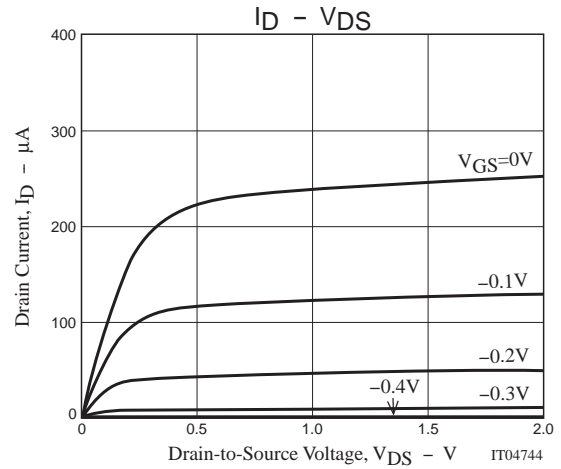
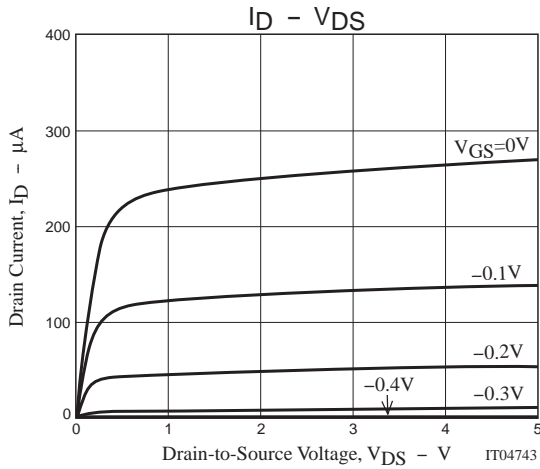
Frequency Characteristic

Distortion

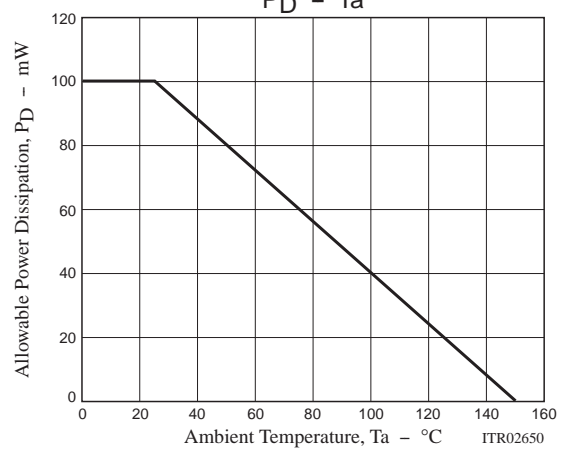
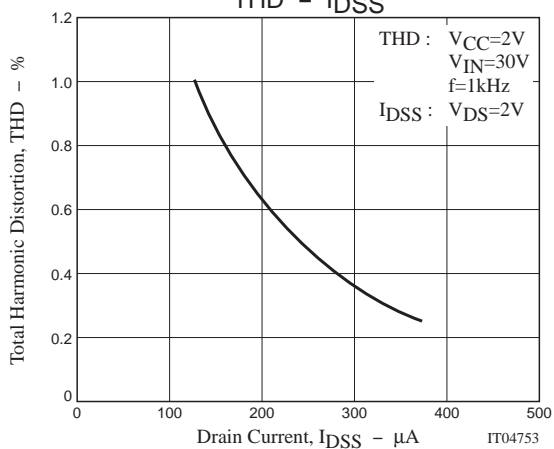
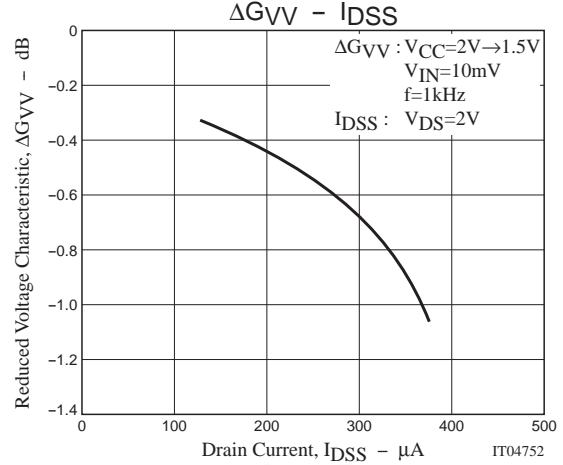
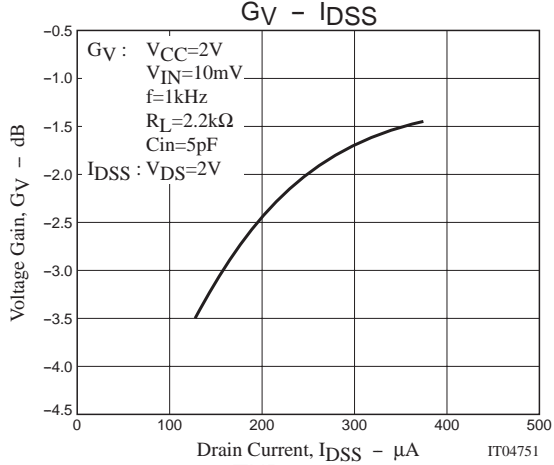
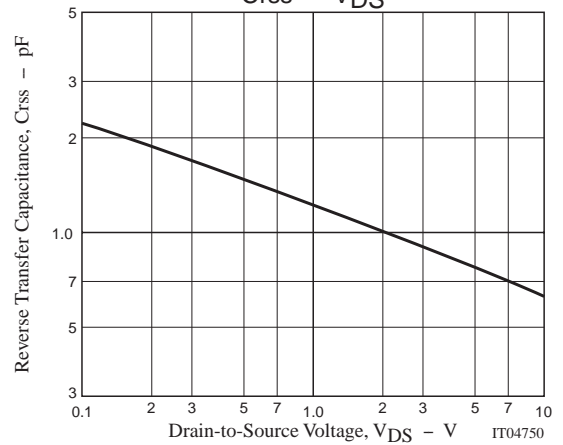
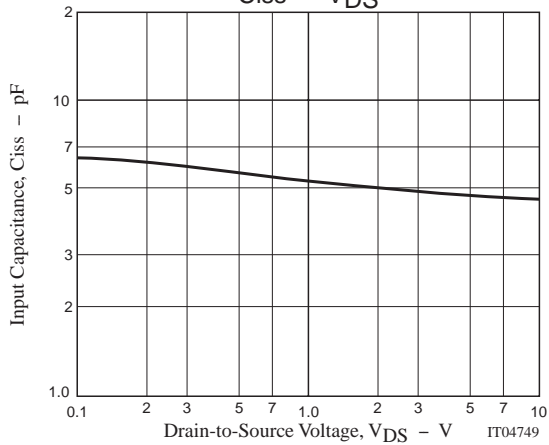
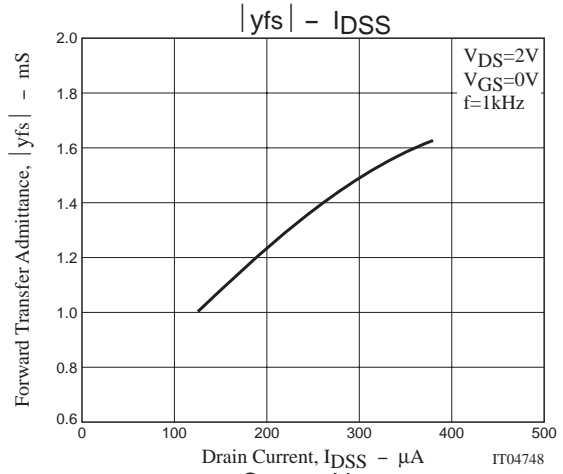
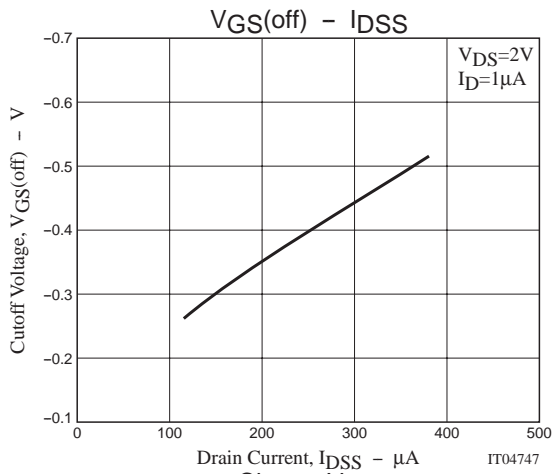
Reduced Voltage Characteristic



Output Impedance



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