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SANYO Semiconductors

DATA SHEET

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	Tj		150	°C
Storage Temperature	Tstg		-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	$\|yfs\|$	V_{DS}=2V, V_{GS}=0V, f=1kHz	0.5	1.4		mS
Input Capacitance	Ciss	V_{DS}=2V, V_{GS}=0V, f=1MHz		5.0		pF
Reverse Transfer Capacitance	Crss	V_{DS}=2V, V_{GS}=0V, f=1MHz		1.1		pF
[Ta=25°C, V_{CC}=2.0V, R_L=2.2kΩ, Cin=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

Continued on next page.

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

Rank	B4	B5
I_{DSS}	140 to 240	210 to 350

SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

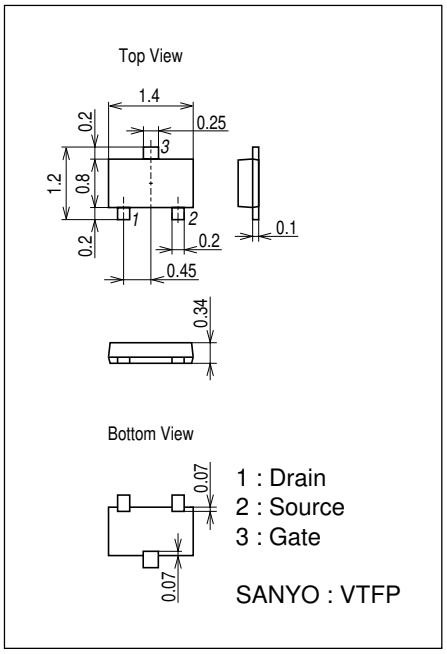
Continued from preceding page.

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

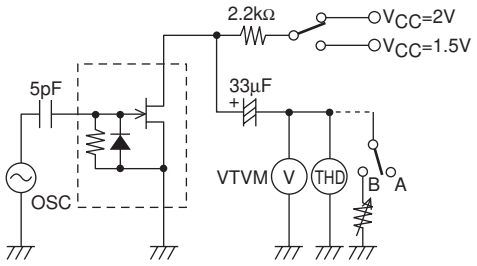
unit : mm

7031-001

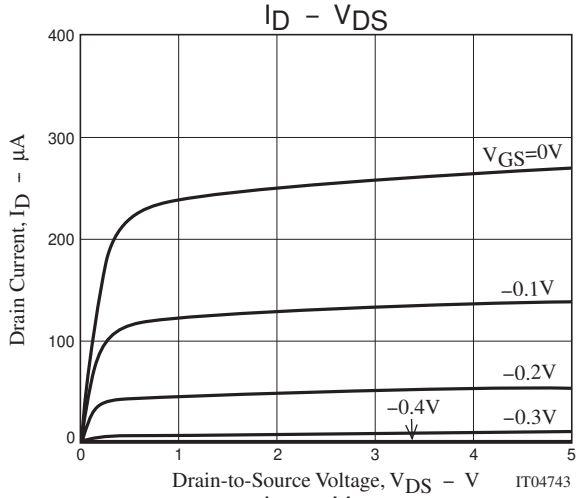


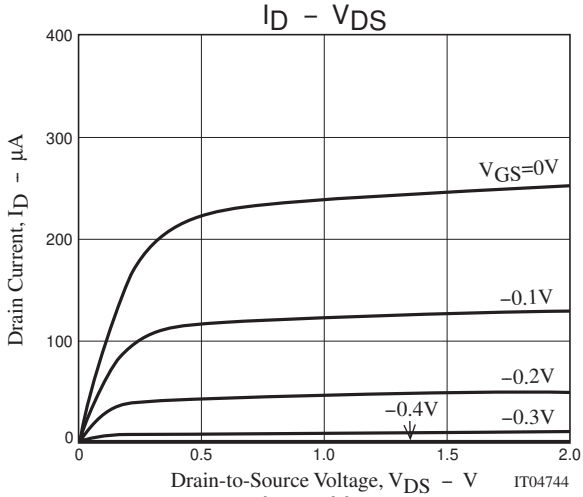
Test Circuit

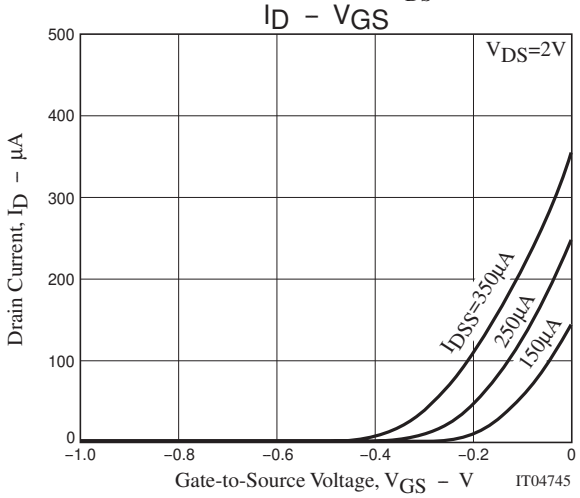
Voltage gain
Frequency Characteristic
Distortion
Reduced Voltage Characteristic

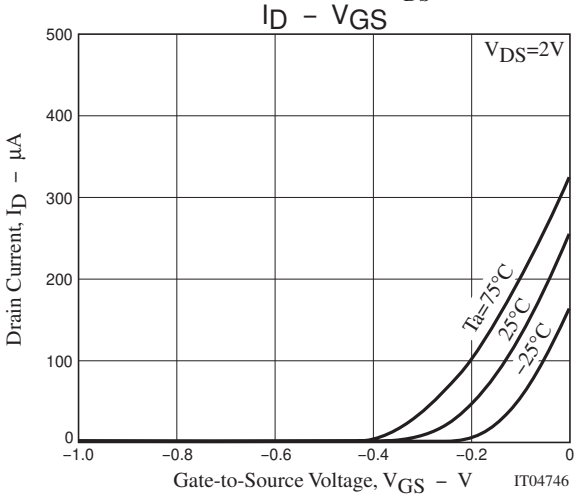


Output Impedance

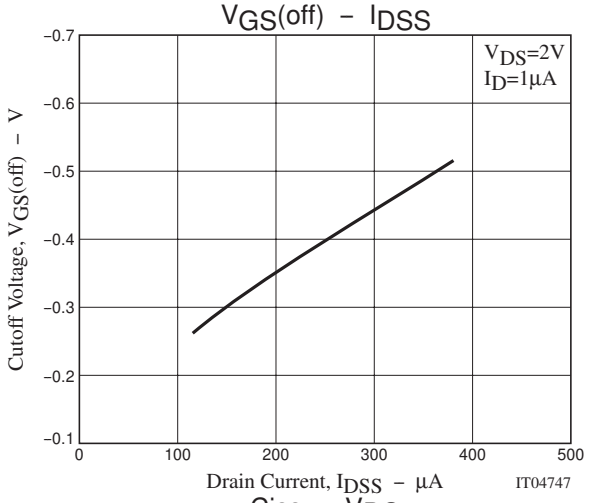




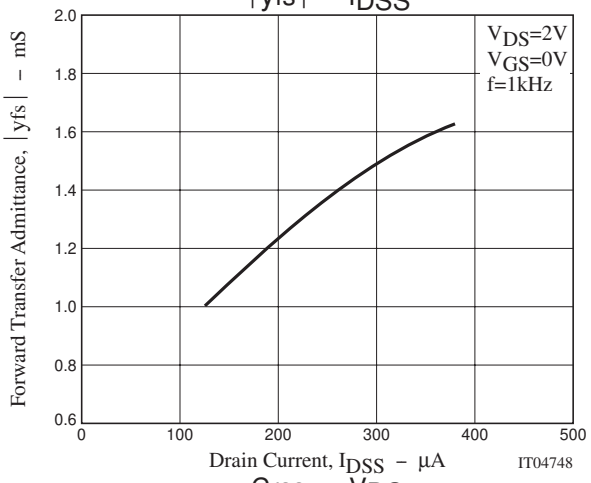




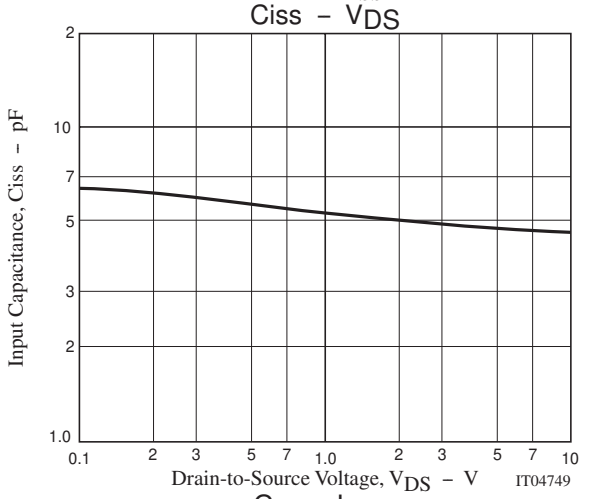
$V_{GS(off)}$ – I_{DSS}



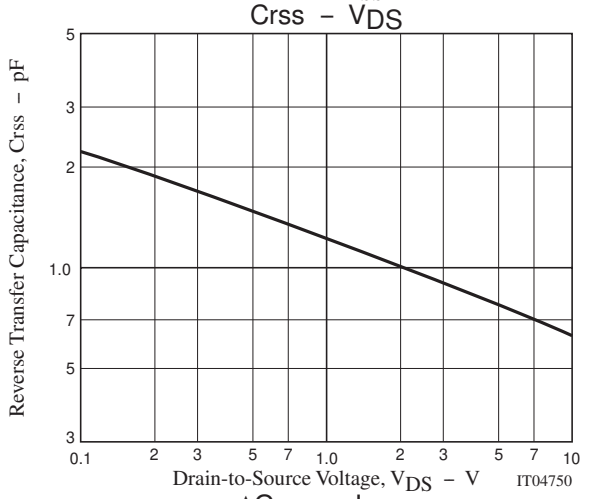
$|yfs|$ – I_{DSS}



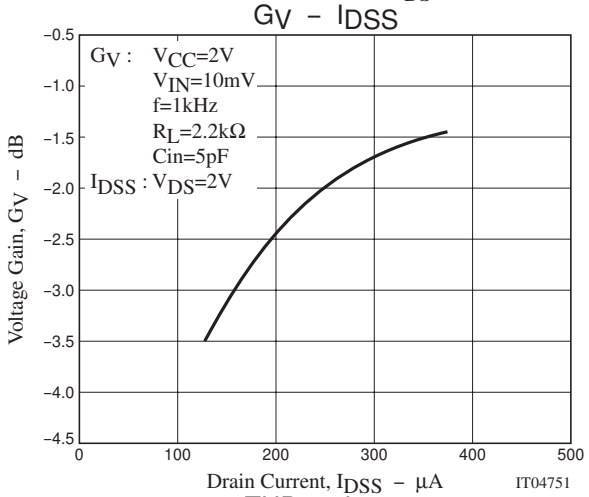
Ciss – V_{DS}



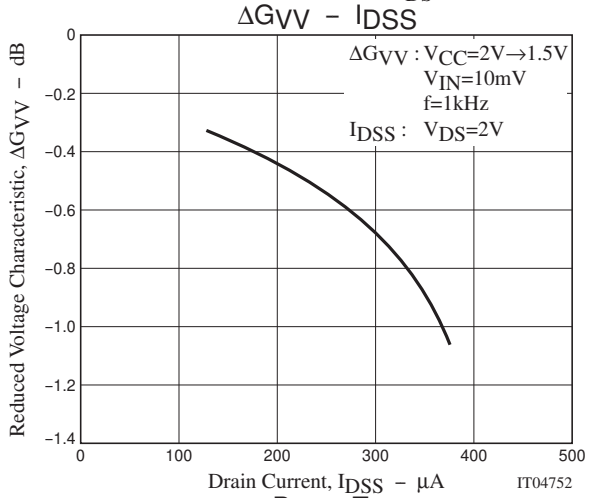
Crss – V_{DS}



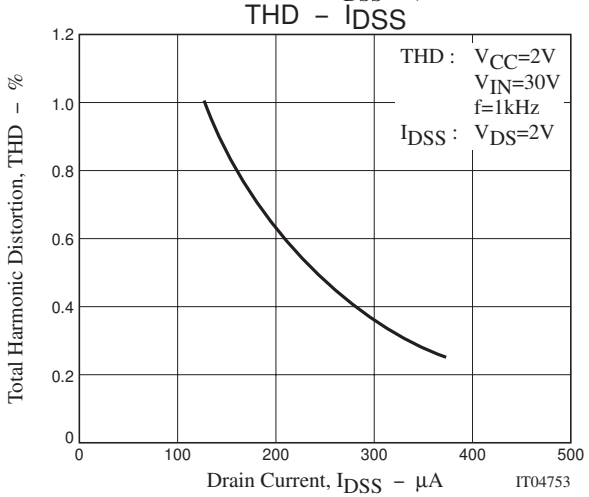
G_V – I_{DSS}



ΔG_{VV} – I_{DSS}



THD – I_{DSS}



P_D – Ta