Ordering number : ENN7617

N-Channel Silicon Junction FET

EC3A01T

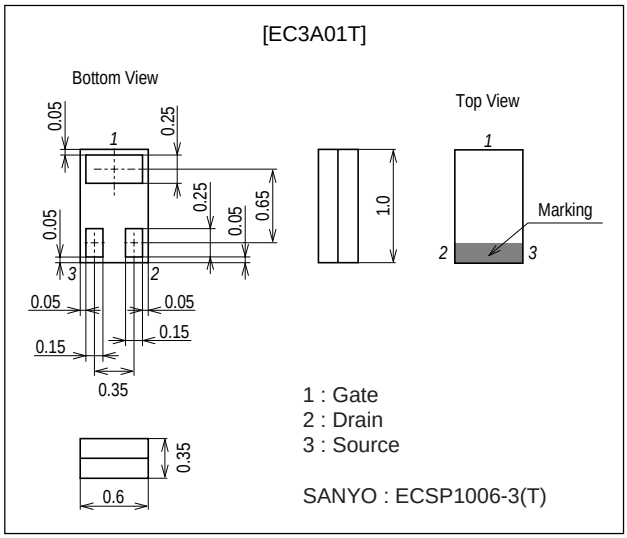
Electret Condenser Microphone Applications

Features

- Ultrasmall (1006 size) and thin (0.35mm) leadless package.
- Especially suited for use in electret condenser microphone for audio equipments and telephones.
- Excellent voltage characteristics.
- Excellent transient characteristics.
- Adoption of FBET process.

Package Dimensions

unit : mm
2223



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

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}=5V, I_D=1μA	-0.2	-0.6	-1.2	V
Drain Current	I_{DSS}	V_{DS}=5V, V_{GS}=0	140*		350*	μA
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=5V, V_{GS}=0, f=1kHz	0.5	1.2		mS
Input Capacitance	Ciss	V_{DS}=5V, V_{GS}=0, f=1MHz		3.5		pF
Reverse Transfer Capacitance	Crss	V_{DS}=5V, V_{GS}=0, f=1MHz		0.65		pF

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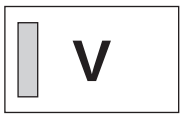
[Ta=25°C, V_{CC}=4.5V, R_L=1kΩ, Cin=15pF, See Specified Test Circuit]

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Voltage Gain	G_V	f=1kHz, V_{IN}=10mV		-3.0		dB
Reduced Voltage Characteristic	ΔG_{VV}	f=1kHz, V_{IN}=10mV, V_{CC}=4.5→1.5V		-1.2	-3.5	dB
Frequency Characteristic	ΔGvf	f=1kHz to 110Hz			-1.0	dB
Input Impedance	Z_{IN}	f=1kHz	25			MΩ
Output Impedance	Z_O	f=1kHz		1000		Ω
Total Harmonic Distortion	THD	f=1kHz, V_{IN}=30mV		1.2		%
Output Noise Voltage	V_{NO}	V_{IN}=0, A Curve			-110	dB

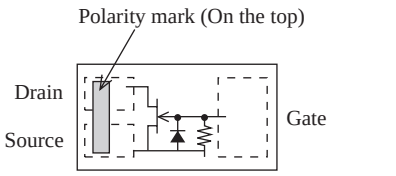
*The EC3A01T is classified by I_{DSS} as follows.(unit : μA)

Rank	V4	V5
I_{DSS}	140 to 240	210 to 350

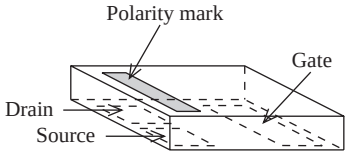
Type No. Indication (Top view)



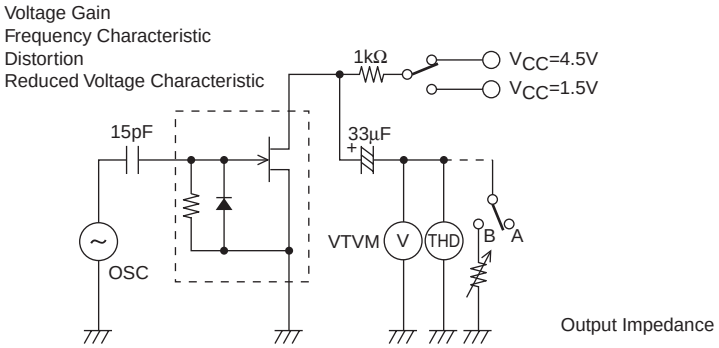
Electrical Connection (Top view)

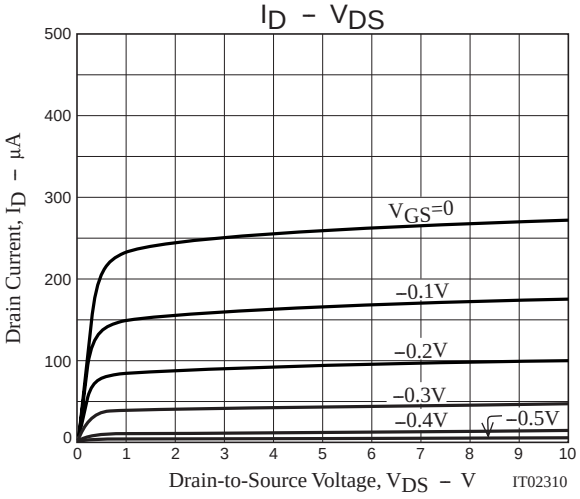


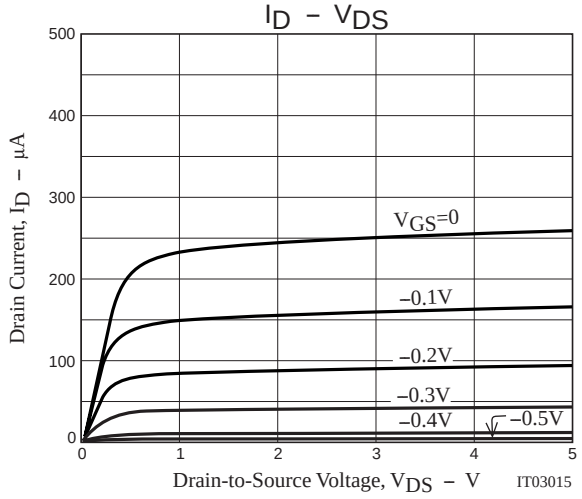
*Electrodes : On the bottom



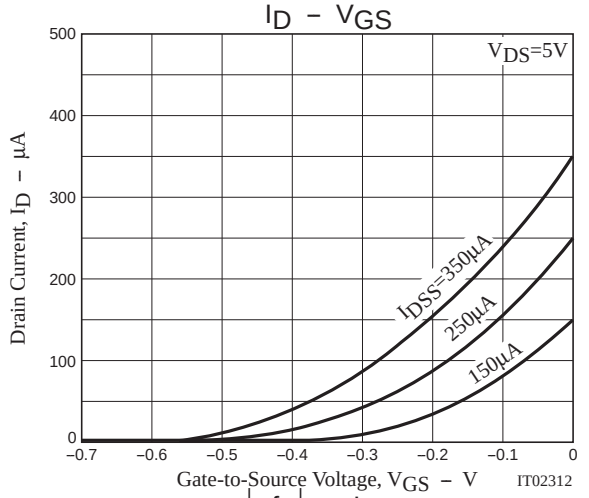
Test Circuit



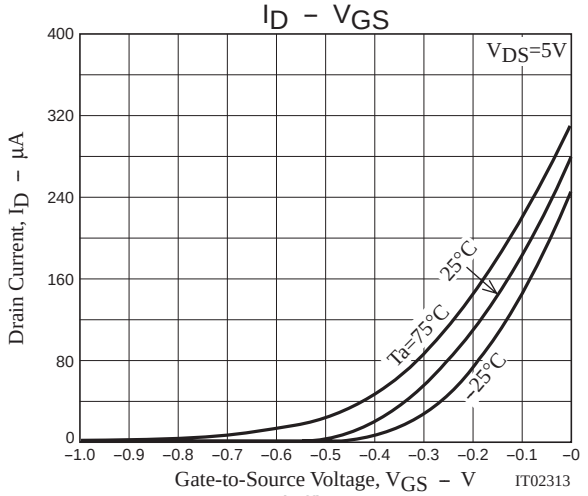




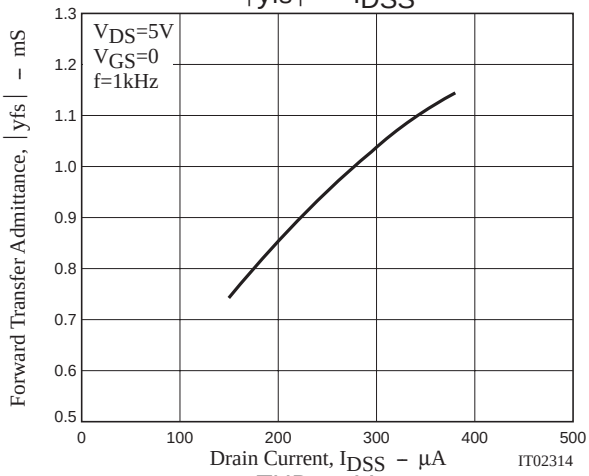
I_D – V_{GS}



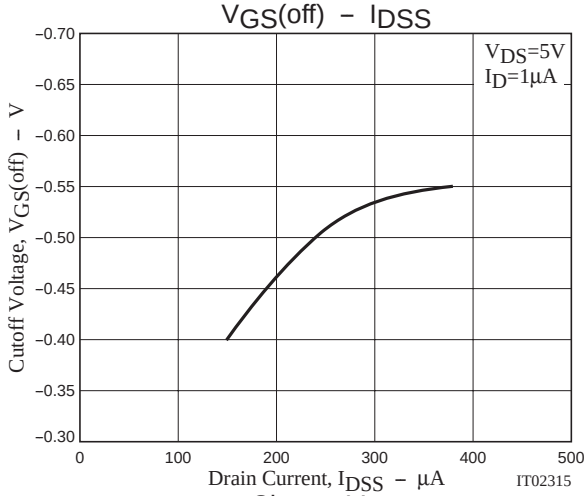
I_D – V_{GS}



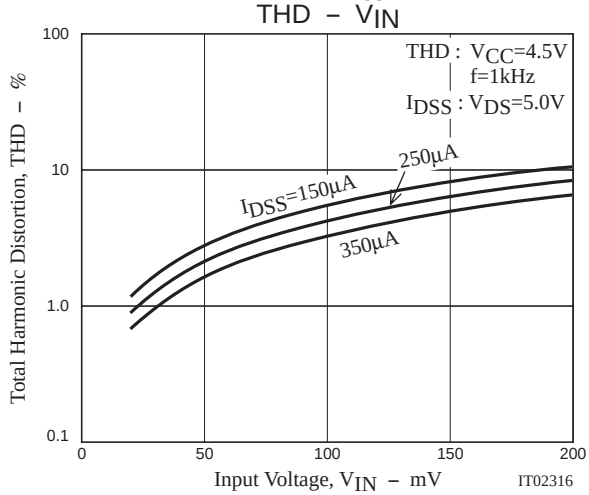
$|yfs|$ – I_{DSS}



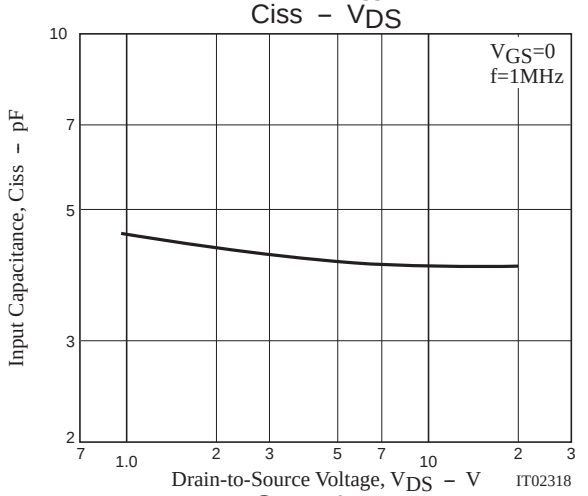
$V_{GS(off)}$ – I_{DSS}



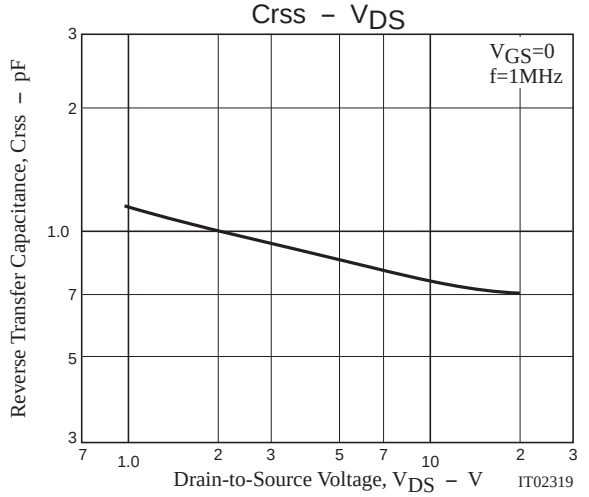
THD – V_{IN}



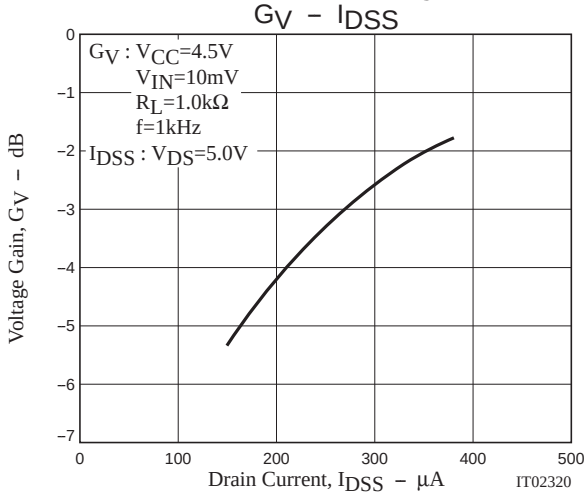
Ciss – V_{DS}



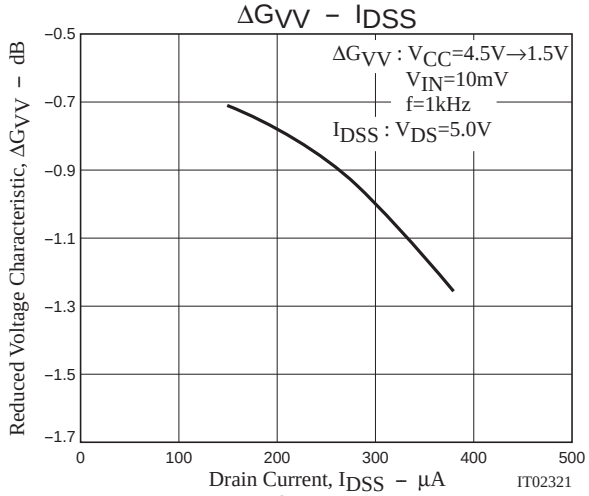
Crss – V_{DS}



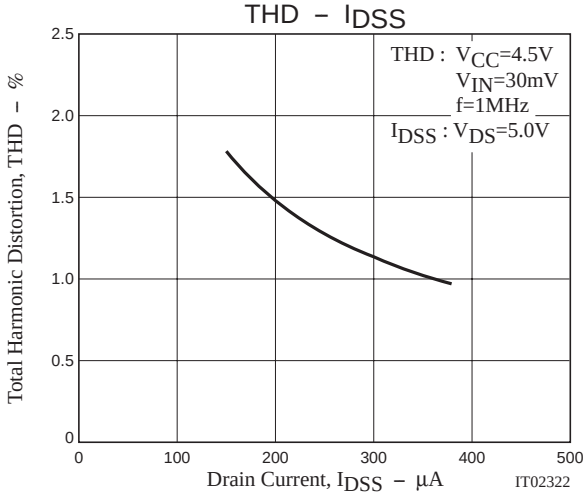
G_V – I_{DSS}



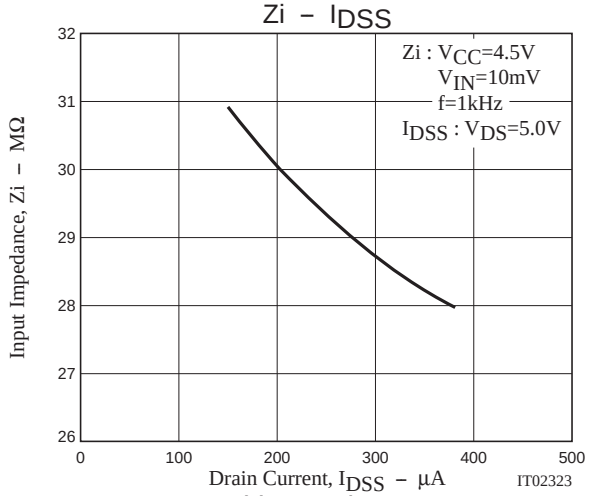
ΔG_{VV} – I_{DSS}



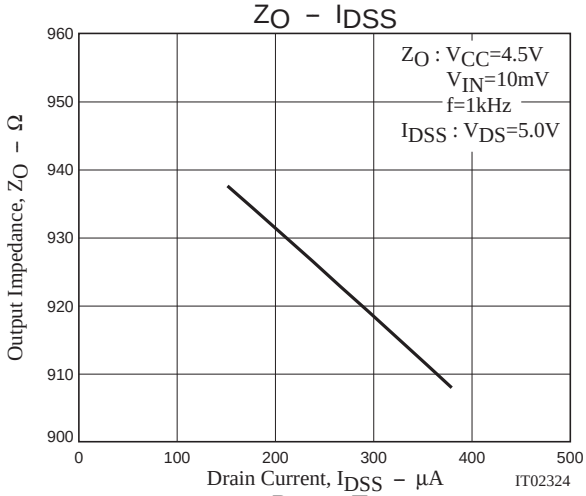
THD – I_{DSS}



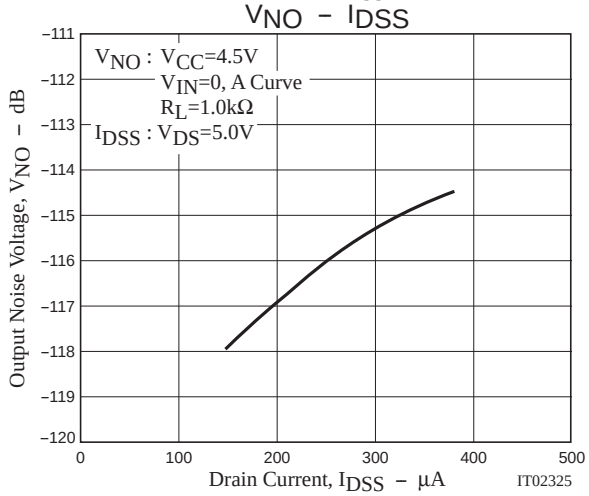
Zi – I_{DSS}



Z_O – I_{DSS}



V_{NO} – I_{DSS}



P_D – Ta