

Ordering number : ENN7617

N-Channel Silicon Junction FET

**EC3A01T**

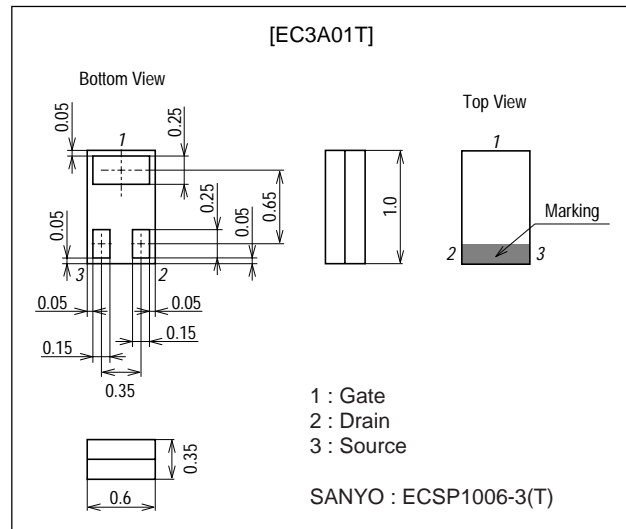
## Electret Condenser Microphone Applications

### 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  $T_a=25^\circ\text{C}$

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	$V_{GS(off)}$	$V_{DS}=5\text{V}, I_D=1\mu\text{A}$	-0.2	-0.6	-1.2	V
Drain Current	$I_{DSS}$	$V_{DS}=5\text{V}, V_{GS}=0$	140*		350*	$\mu\text{A}$
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=5\text{V}, V_{GS}=0, f=1\text{kHz}$	0.5	1.2		mS
Input Capacitance	$C_{iss}$	$V_{DS}=5\text{V}, V_{GS}=0, f=1\text{MHz}$		3.5		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=5\text{V}, V_{GS}=0, f=1\text{MHz}$		0.65		pF

Continued on next page.

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N1504 TS IM TB-00000353 No.7617-1/5

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[ $T_a=25^\circ\text{C}$ ,  $V_{CC}=4.5\text{V}$ ,  $R_L=1\text{k}\Omega$ ,  $C_{in}=15\text{pF}$ , See Specified Test Circuit]

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

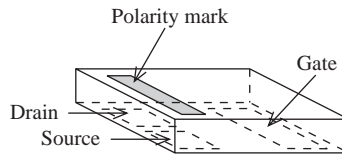
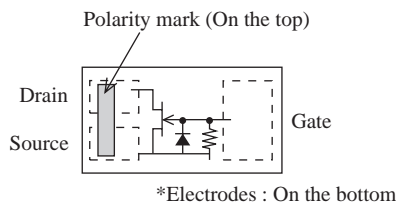
\*The EC3A01T is classified by  $I_{DSS}$  as follows.(unit :  $\mu\text{A}$ )

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

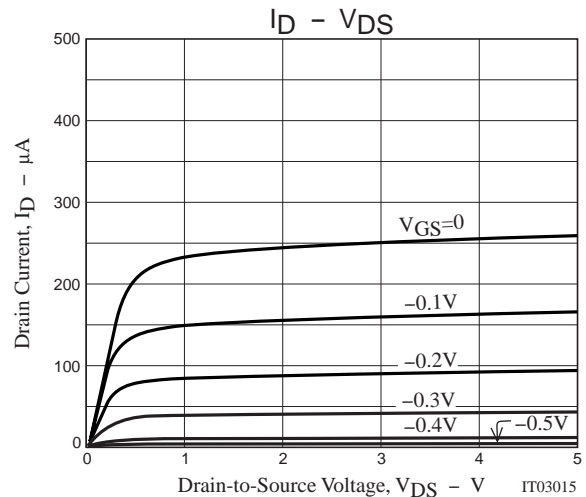
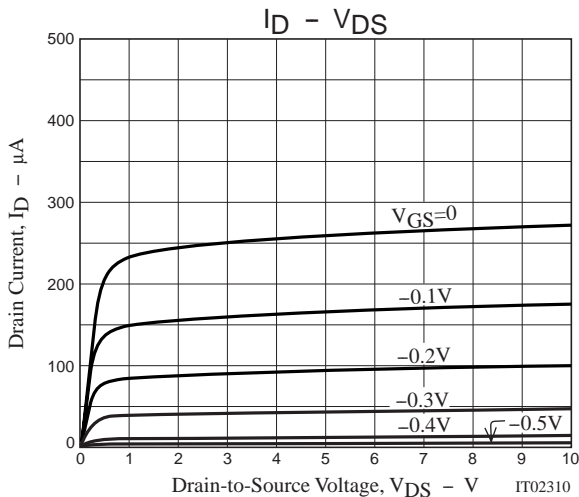
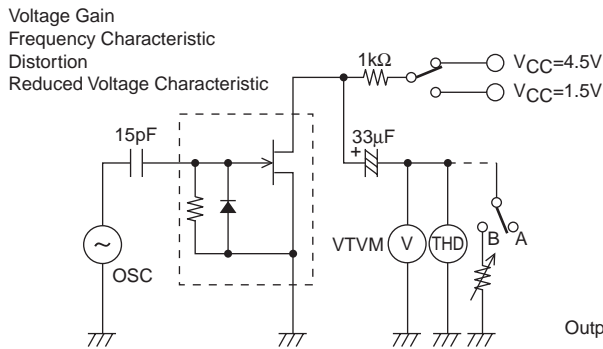
## Type No. Indication (Top view)



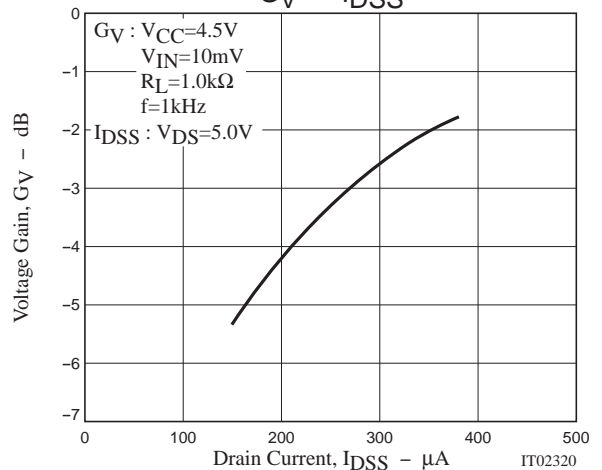
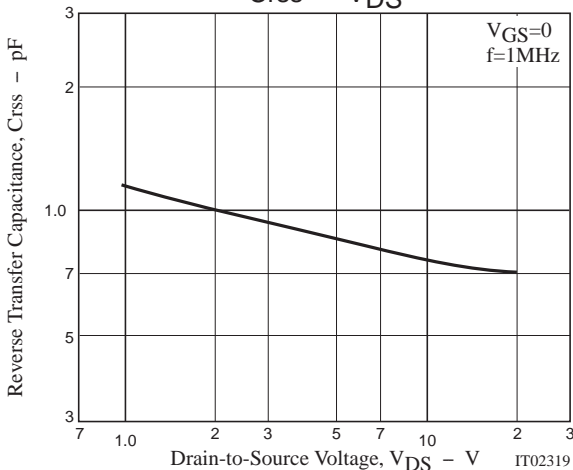
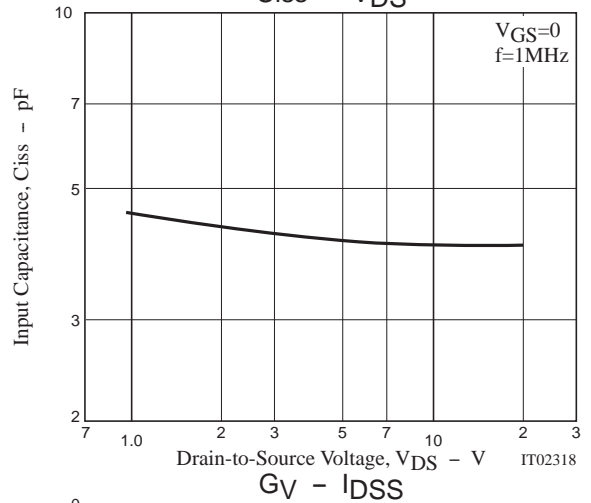
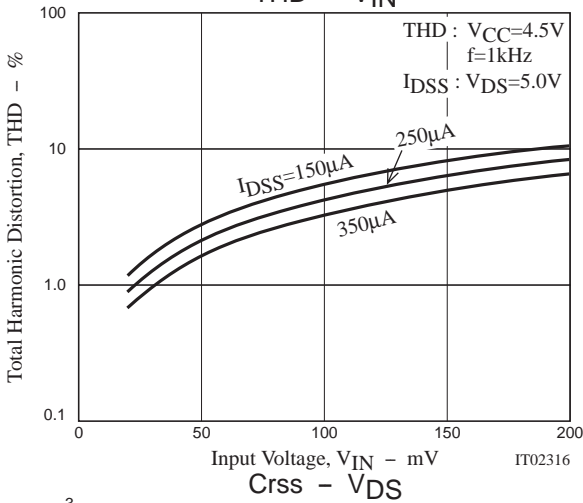
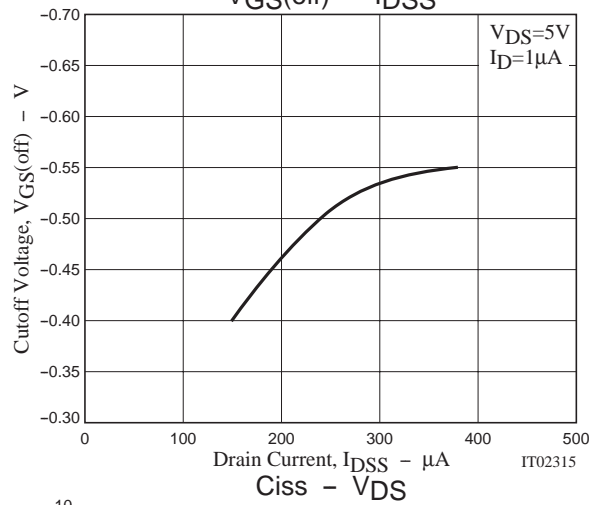
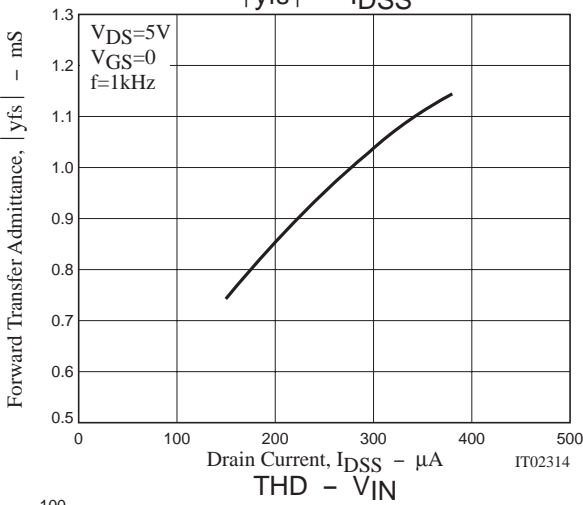
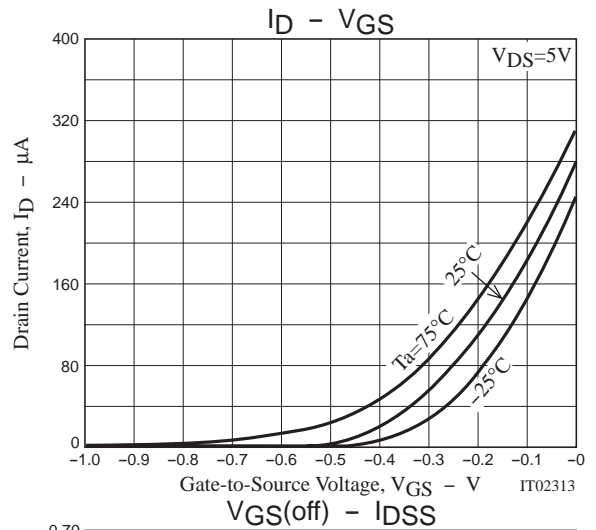
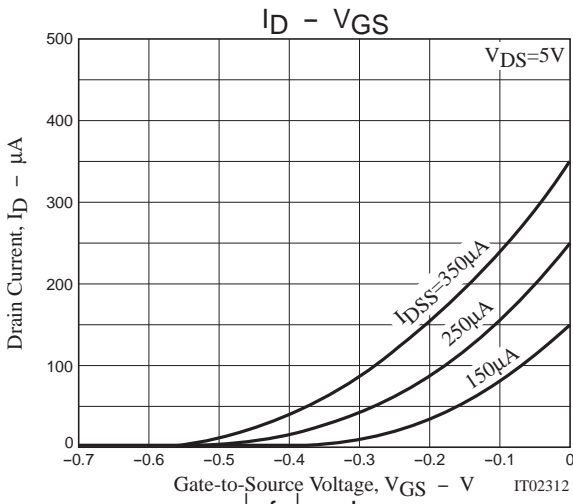
## Electrical Connection (Top view)



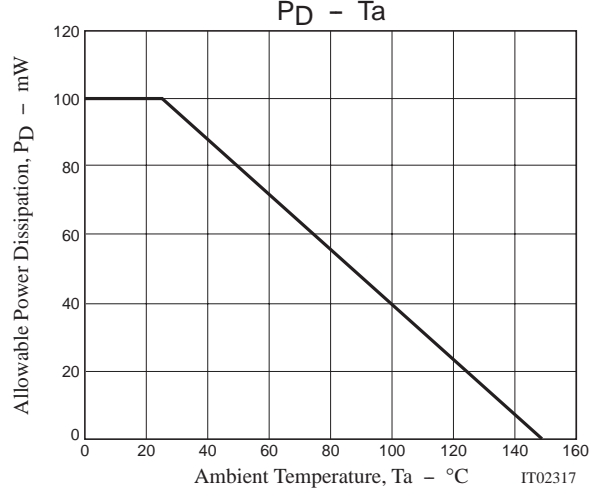
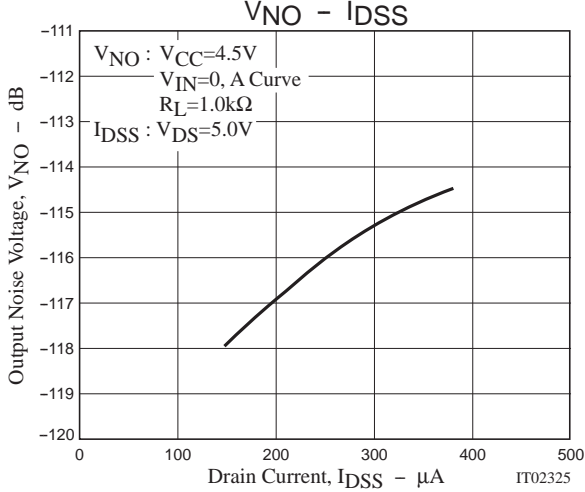
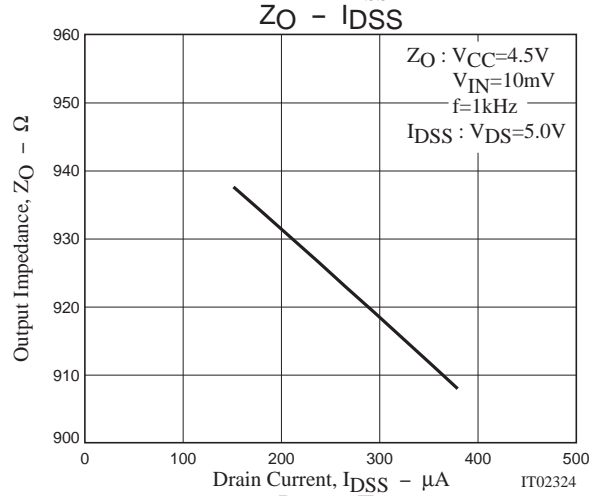
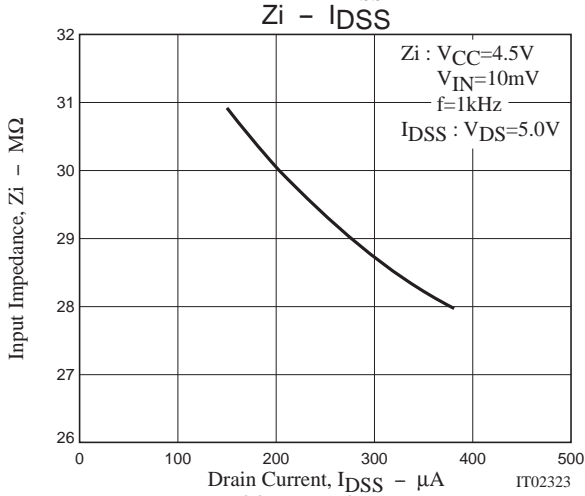
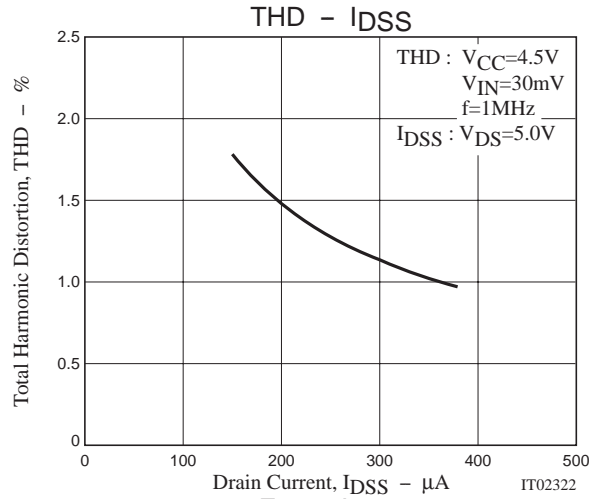
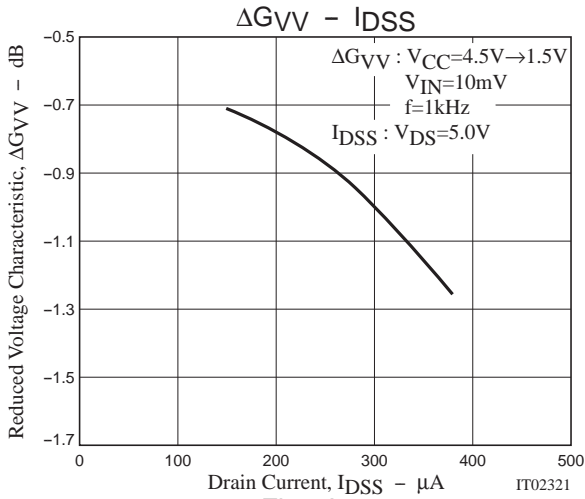
## Test Circuit



# EC3A01T



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