



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

N-channel Silicon Junction FET

## 2SK596S — Electret Condenser Microphone Applications

### Features

- Low output noise voltage :  $V_{NO} = -110\text{dB max}$  ( $V_{CC} = 4.5\text{V}$ ,  $R_L = 1\text{k}\Omega$ ,  $C_{in} = 15\text{pF}$ ,  $V_{IN} = 0\text{V}$ , A curve)
- Especially suited for use in condenser microphone for audio equipments and telephones
- Excellent transient characteristic
- Adoption of FBET process

### Specifications

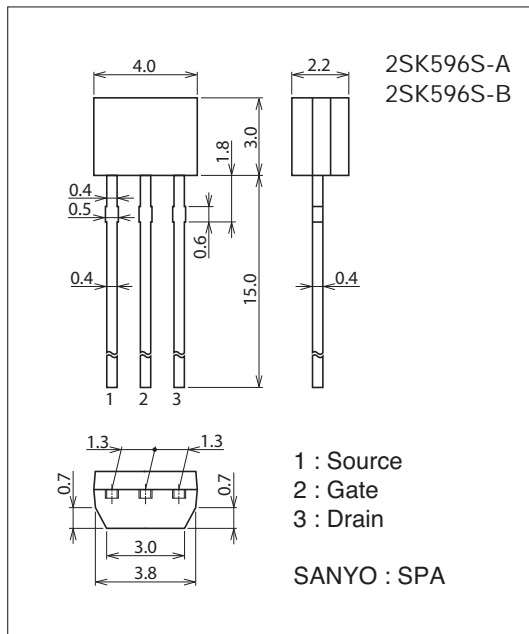
Absolute Maximum Ratings at  $T_a = 25^\circ\text{C}$

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	$^\circ\text{C}$

### Package Dimensions

unit : mm (typ)

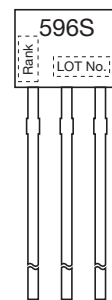
7524-005



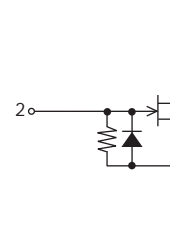
### Product & Package Information

- Package : SPA
- JEITA, JEDEC : SC-72
- Minimum Packing Quantity : 500 pcs./bag

### Marking



### Electrical Connection



# 2SK596S

## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit	
			Rank	min	typ		max
Gate-to-Drain Breakdown Voltage	V(BR)GDO	I <sub>G</sub> =-100μA		-20		V	
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =1μA			-0.4	-1.5	V
Drain Current	I <sub>DSS</sub> *	V <sub>DS</sub> =5V, V <sub>GS</sub> =0V	A	100		170	μA
			B	150		240	
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =5V, V <sub>GS</sub> =0V, f=1kHz		0.4	0.8	mS	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =5V, V <sub>GS</sub> =0V, f=1MHz			4.1	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =5V, V <sub>GS</sub> =0V, f=1MHz			0.88	pF	
[Ta=25°C, V <sub>CC</sub> =4.5V, R <sub>L</sub> =1kΩ, C <sub>in</sub> =15pF, See specified Test Circuit.]							
Voltage Gain	G <sub>V</sub>	V <sub>IN</sub> =10mV, f=1kHz	A		-5.0		dB
			B		-3.8		
Reduced Voltage Characteristic	ΔG <sub>VV</sub>	V <sub>IN</sub> =10mV, f=1kHz, V <sub>CC</sub> =4.5V → 1.5V	A		-0.84	-1.8	dB
			B		-0.90	-2.0	
Frequency Characteristic	ΔG <sub>vf</sub>	f=1kHz → 110Hz				-1.0	dB
Total Harmonic Distortion	THD	V <sub>IN</sub> =30mV, f=1kHz	A		2.0		%
			B		1.6		
Output Noise Voltage	V <sub>NO</sub>	V <sub>IN</sub> =0V, A curve				-110	dB

\* : The 2SK596S is classified by I<sub>DSS</sub> as follows : (unit : μA)

Rank	A	B
I <sub>DSS</sub>	100 to 170	150 to 240

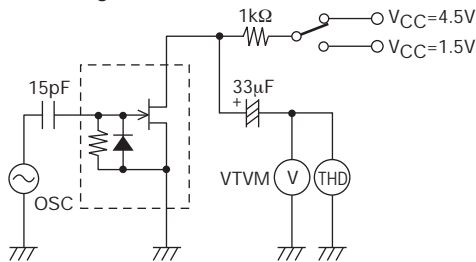
## Test Circuit

Voltage Gain

Frequency Characteristic

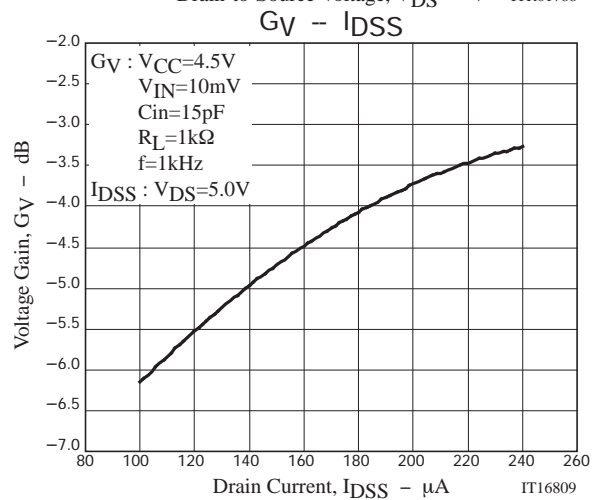
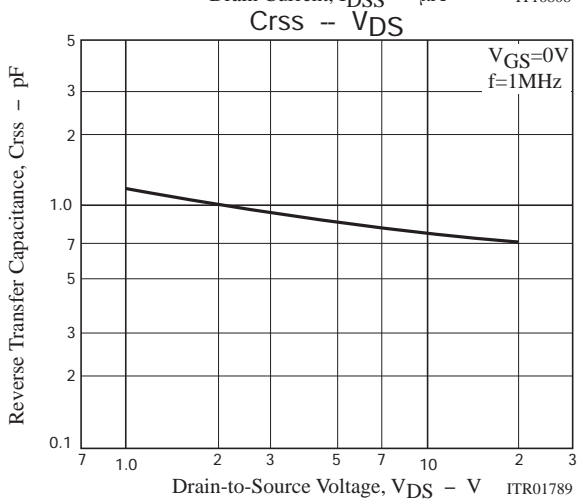
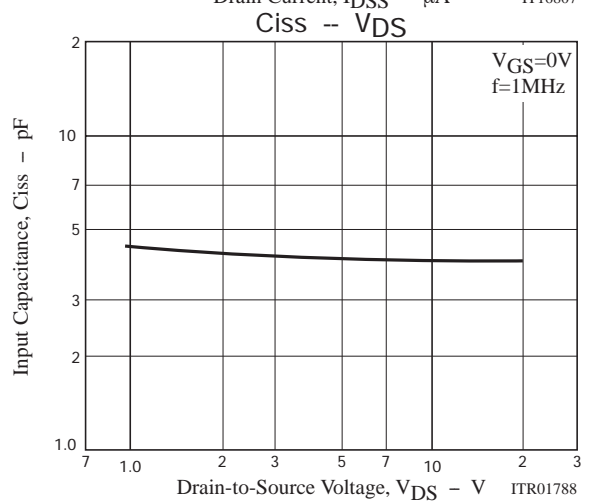
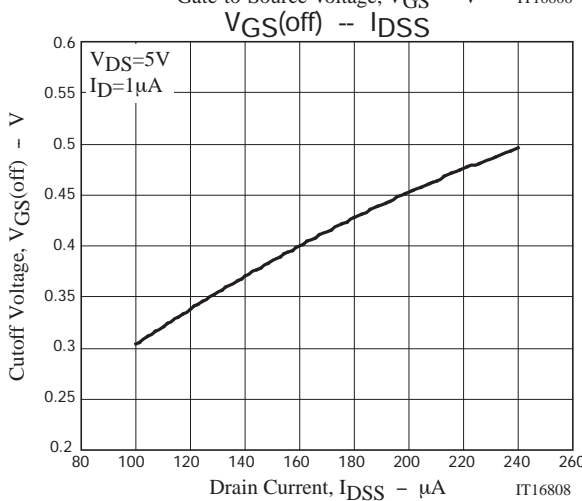
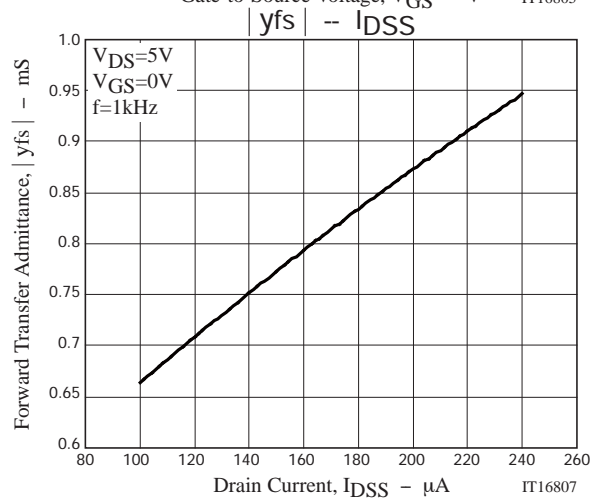
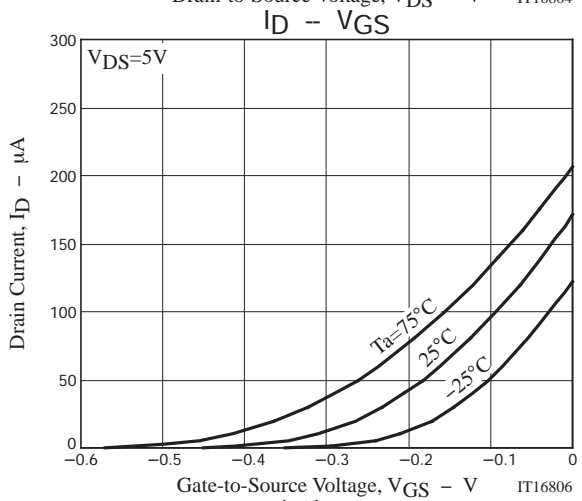
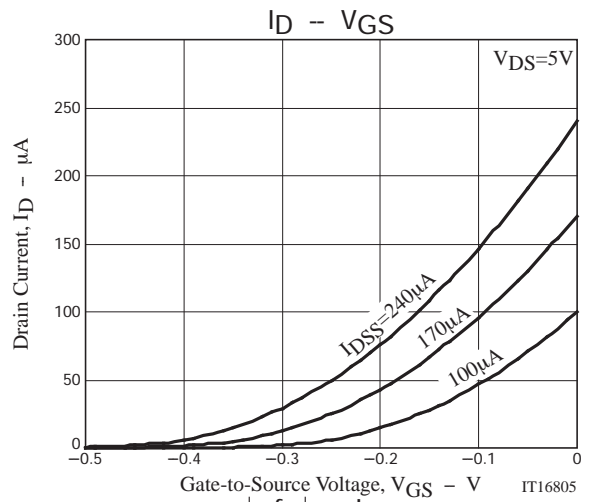
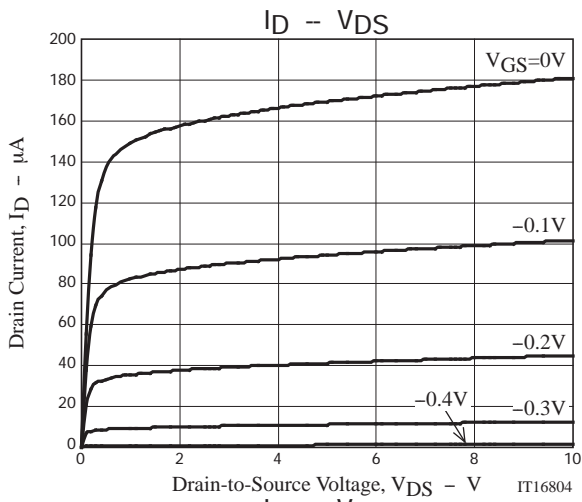
Harmonic Distortion

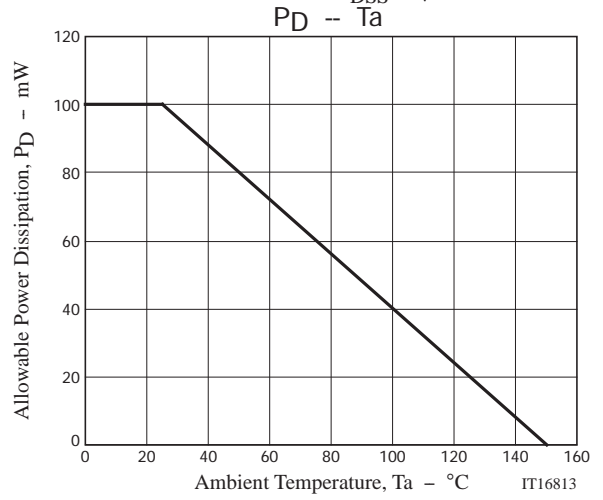
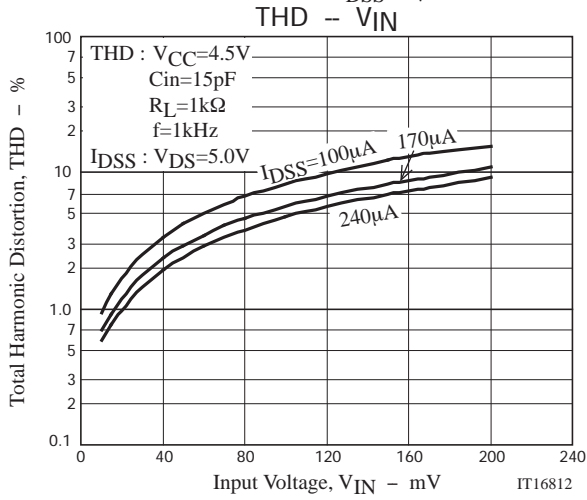
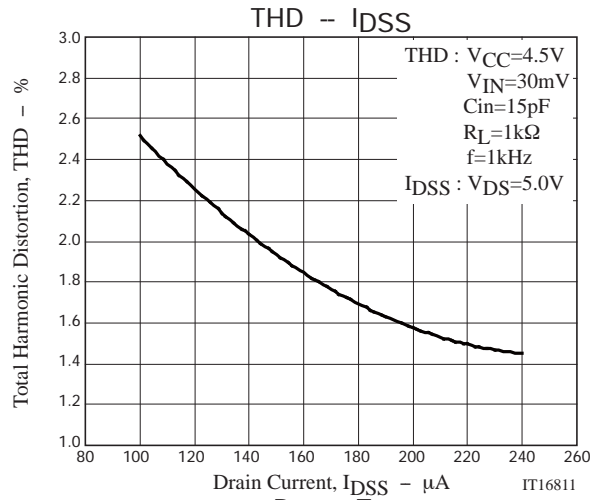
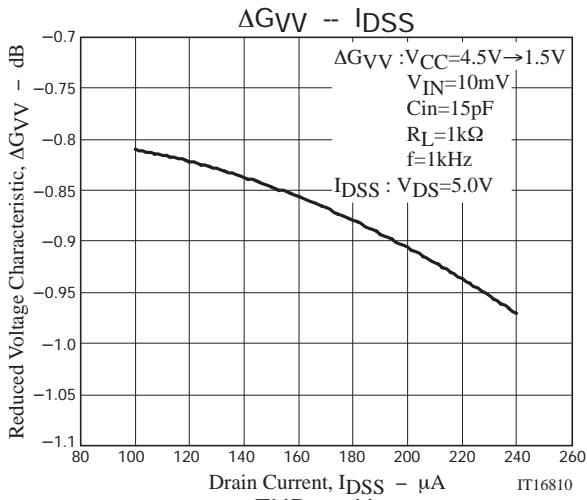
Reduced Voltage Characteristic



## Ordering Information

Device	Package	Shipping	memo
2SK596S-A	SPA	500pcs./bag	Pb Free
2SK596S-B	SPA	500pcs./bag	





# 2SK596S

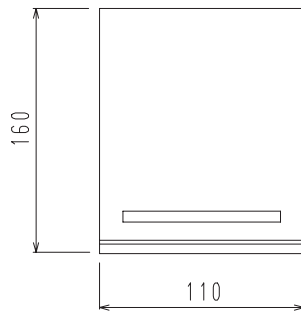
## Bag Packing Specification

2SK596S-A, 2SK596S-B

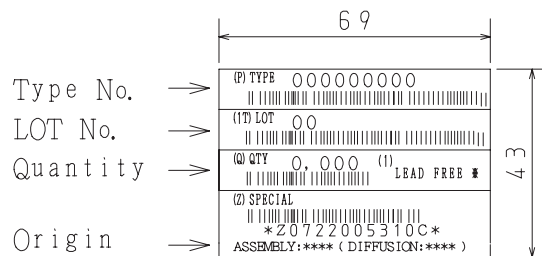
### 1. Packing Format

Package Name	Maximum Number of devices contained (pcs)				
	Bag	Inner BOX		Outer BOX	
SPA	500	B-1	B-1/2	A-1	A-2
		20,000	10,000	100,000	60,000
Packing format (Dimensions:mm (external))					
		Inner BOX		Outer BOX	
		B-1	B-1/2	A-1	A-2
		445×225×55	445×225×55	470×250×300	470×250×190

### 2. Bag dimensions (unit:mm)

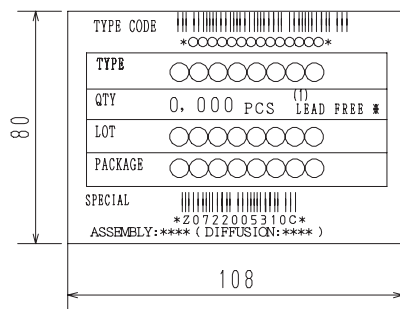


### 3. Bag label, Inner box label (unit:mm)



### 4. Outer box label (unit:mm)

It is a label at the time of factory shipments.  
The form of a label may change in physical  
distribution process.



**NOTE (1)**

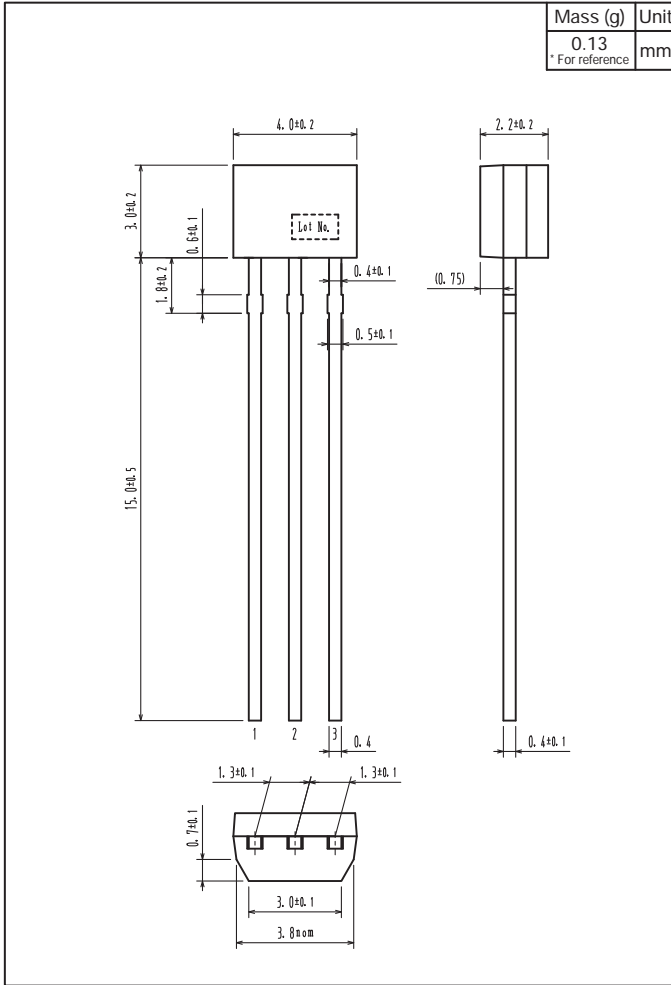
The LEAD FREE \* description shows that the  
surface treatment of the terminal is lead free.

Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

# 2SK596S

## Outline Drawing

2SK596S-A, 2SK596S-B



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