



# 2SK596S

## N-Channel JFET 20V, 140 to 350 $\mu$ A, 1.0mS, SPA

ON Semiconductor®

<http://onsemi.com>

### 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

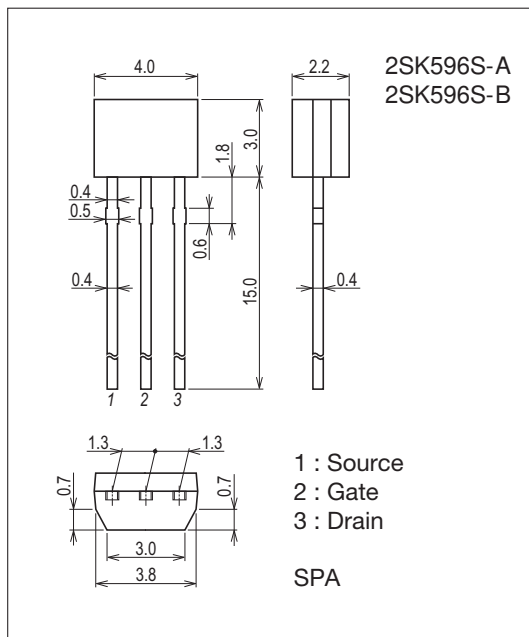
#### Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

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	$^\circ\text{C}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

### Package Dimensions

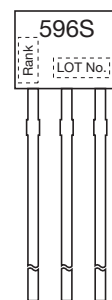
unit : mm (typ)  
7524-005



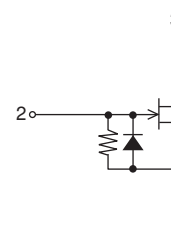
### Product & Package Information

- 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	GV	V <sub>IN</sub> =10mV, f=1kHz	A		-5.0		dB
			B		-3.8		
Reduced Voltage Characteristic	ΔGVV	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	ΔGvf	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

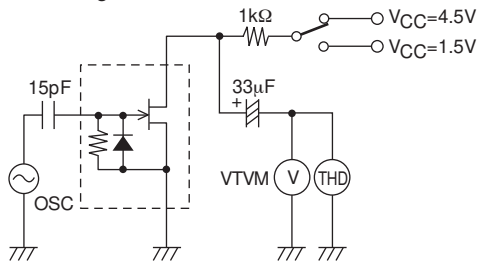
### Test Circuit

Voltage Gain

Frequency Characteristic

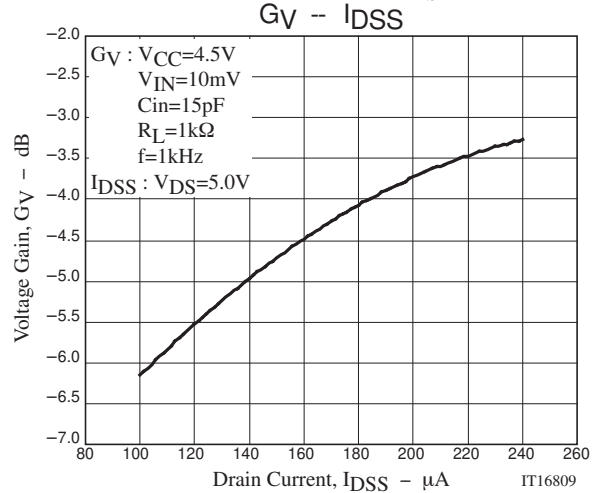
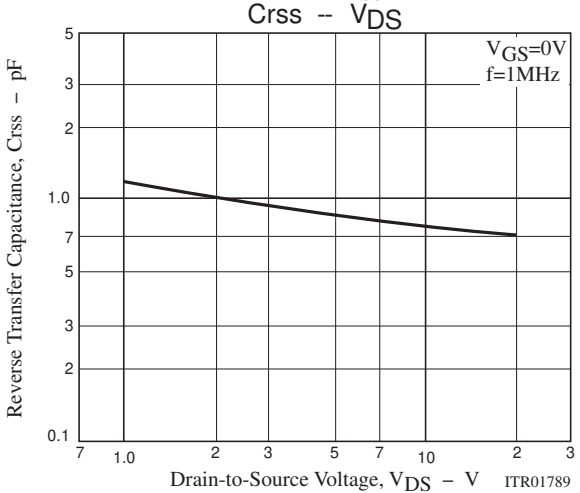
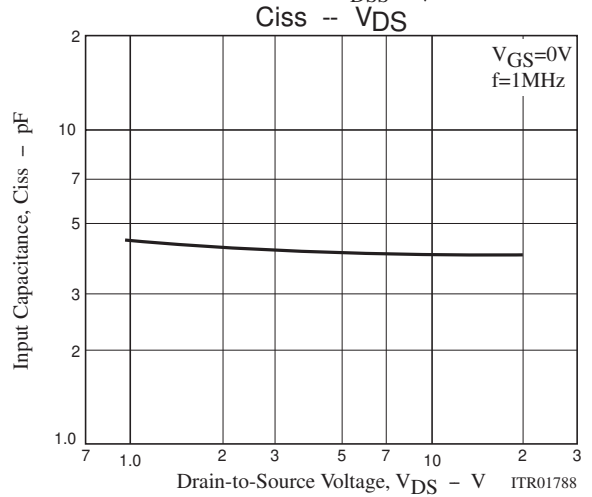
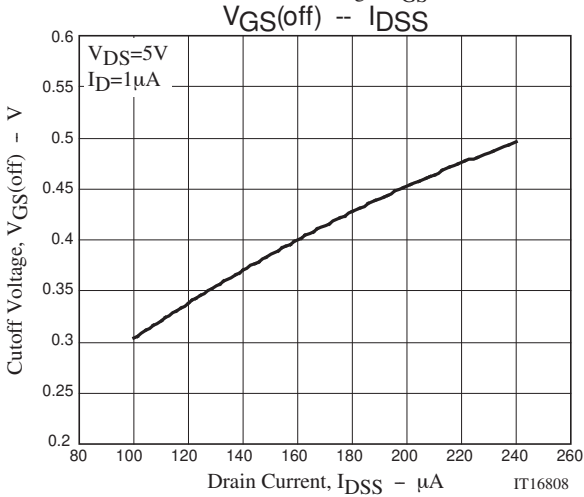
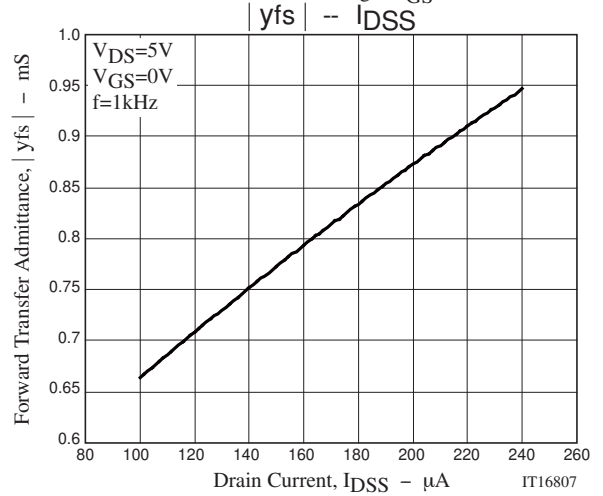
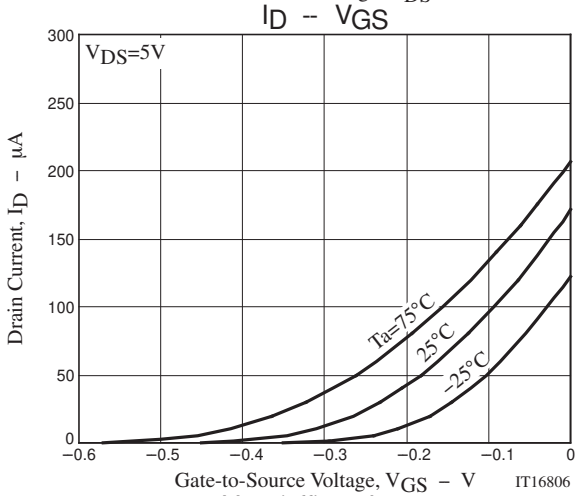
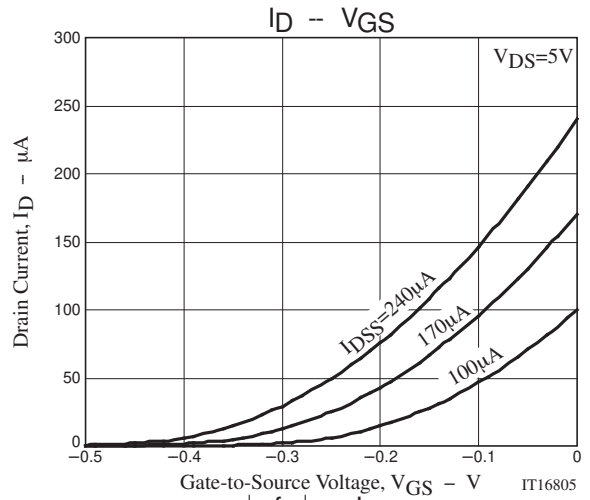
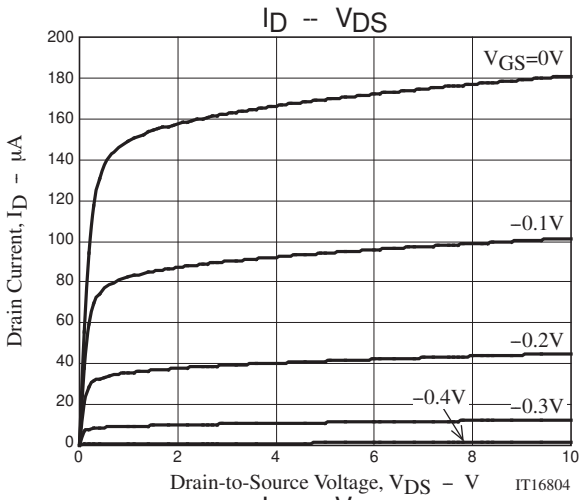
Harmonic Distortion

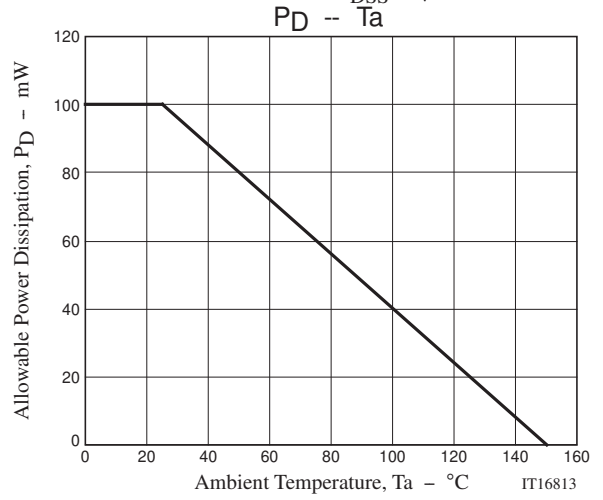
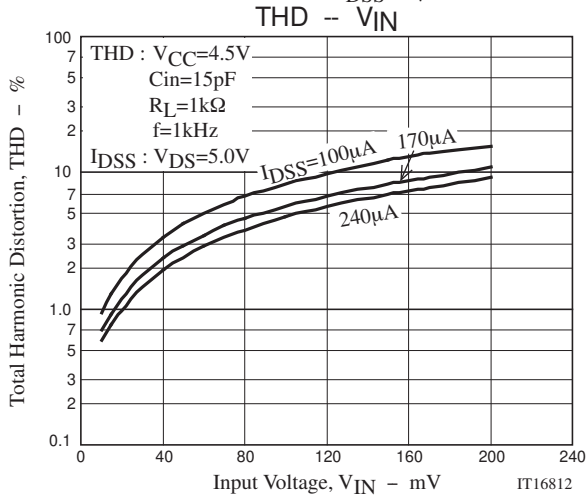
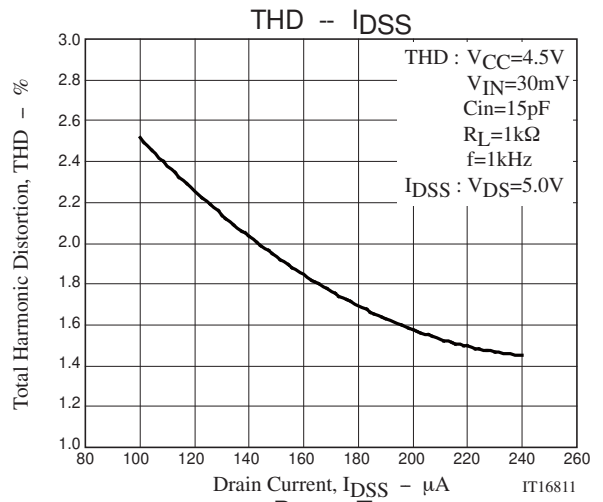
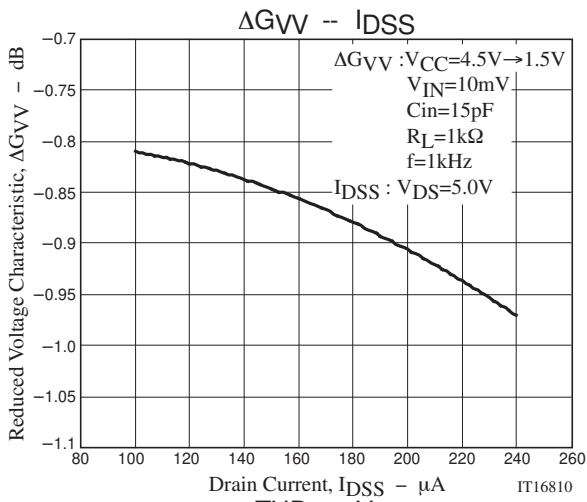
Reduced Voltage Characteristic



### Ordering Information

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





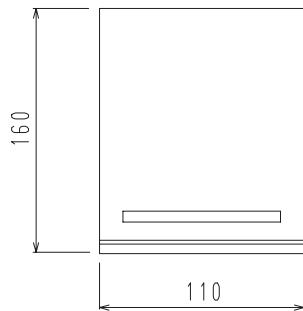
**Bag Packing Specification**

2SK596S-A, 2SK596S-B

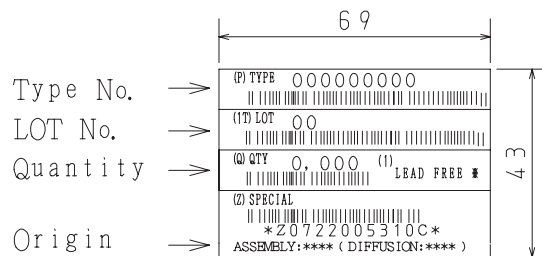
1. Packing Format

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)

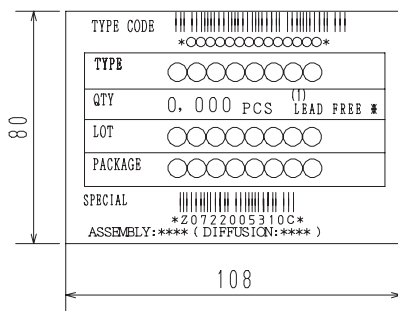


3. Bag label, Inner box label  
(unit:mm)



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)

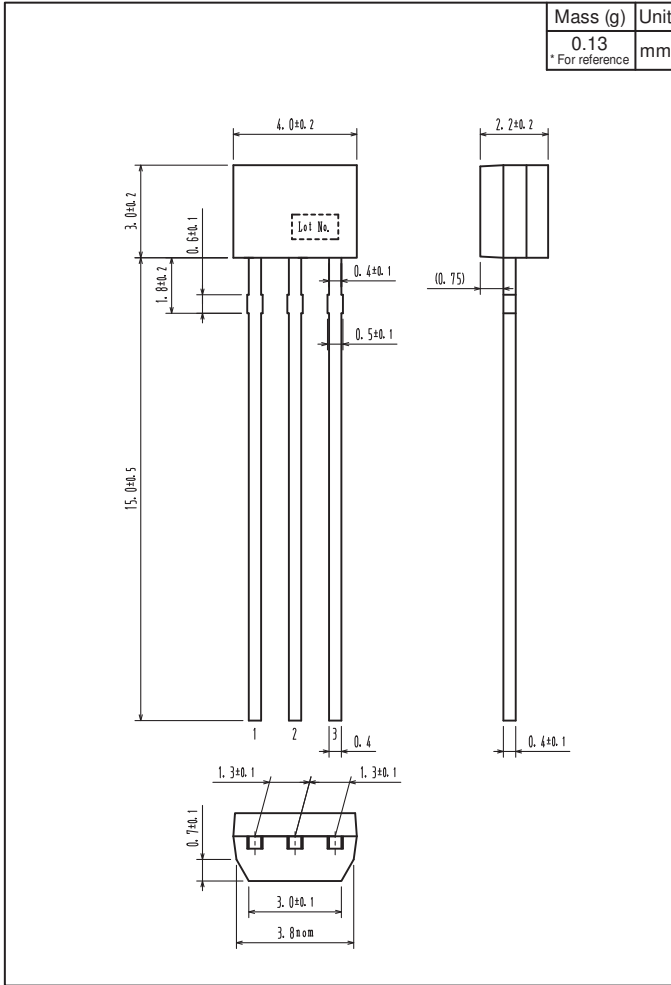
The LEAD FREE \* description shows that the surface treatment of the terminal is lead free.

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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