



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

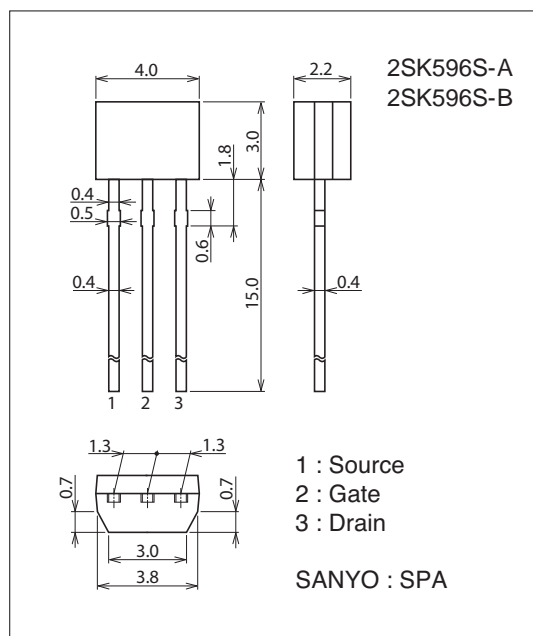
Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

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)

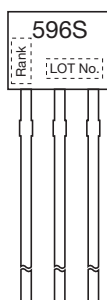
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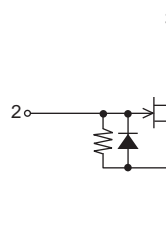
Product & Package Information

- 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	$V_{(BR)GDO}$	$I_G = -100\mu A$		-20			V
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 5V, I_D = 1\mu A$			-0.4	-1.5	V
Drain Current	I_{DSS}^*	$V_{DS} = 5V, V_{GS} = 0V$	A	100		170	μA
			B	150		240	
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = 5V, V_{GS} = 0V, f = 1kHz$		0.4	0.8		mS
Input Capacitance	C_{iss}	$V_{DS} = 5V, V_{GS} = 0V, f = 1MHz$			4.1		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = 5V, V_{GS} = 0V, f = 1MHz$			0.88		pF
[Ta=25°C, $V_{CC} = 4.5V, R_L = 1k\Omega, C_{in} = 15pF$, See specified Test Circuit.]							
Voltage Gain	G_V	$V_{IN} = 10mV, f = 1kHz$	A		-5.0		dB
			B		-3.8		
Reduced Voltage Characteristic	ΔG_{VV}	$V_{IN} = 10mV, f = 1kHz, V_{CC} = 4.5V \rightarrow 1.5V$	A		-0.84	-1.8	dB
			B		-0.90	-2.0	
Frequency Characteristic	ΔG_{vf}	$f = 1kHz \rightarrow 110Hz$				-1.0	dB
Total Harmonic Distortion	THD	$V_{IN} = 30mV, f = 1kHz$	A		2.0		%
			B		1.6		
Output Noise Voltage	V_{NO}	$V_{IN} = 0V, A \text{ curve}$				-110	dB

* : The 2SK596S is classified by I_{DSS} as follows : (unit : μA)

Rank	A	B
I_{DSS}	100 to 170	150 to 240

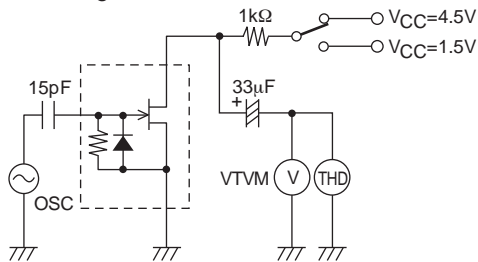
Test Circuit

Voltage Gain

Frequency Characteristic

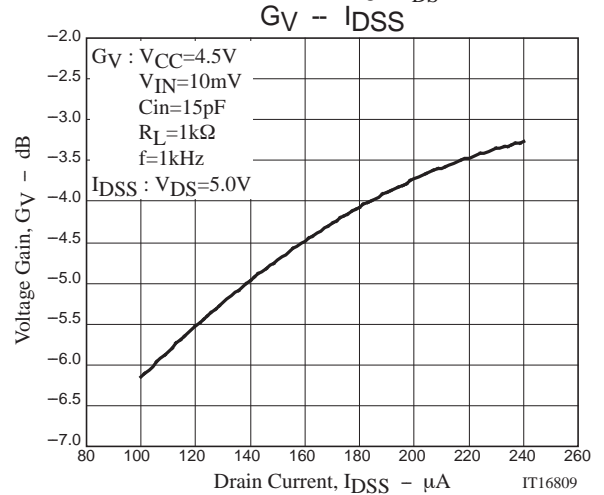
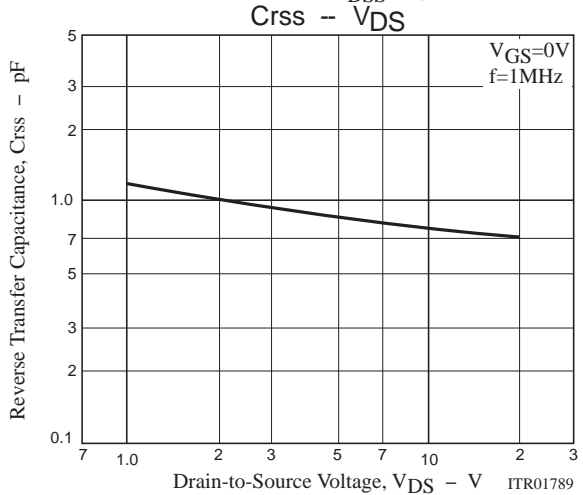
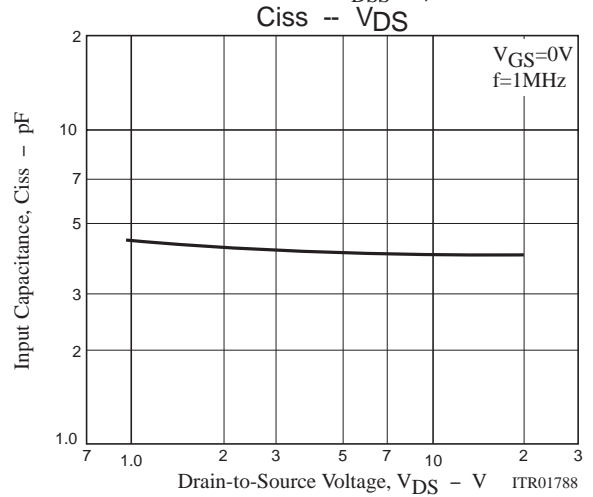
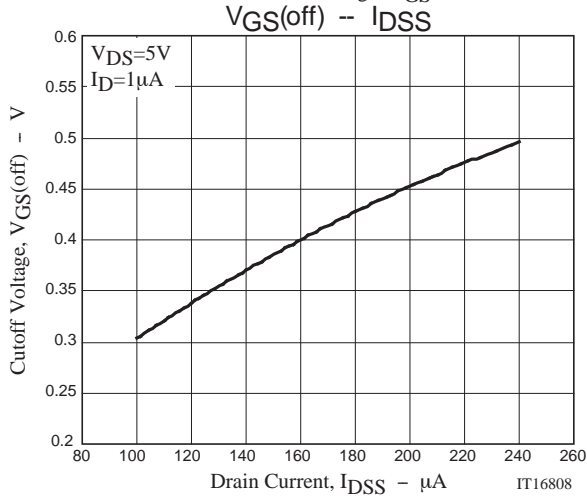
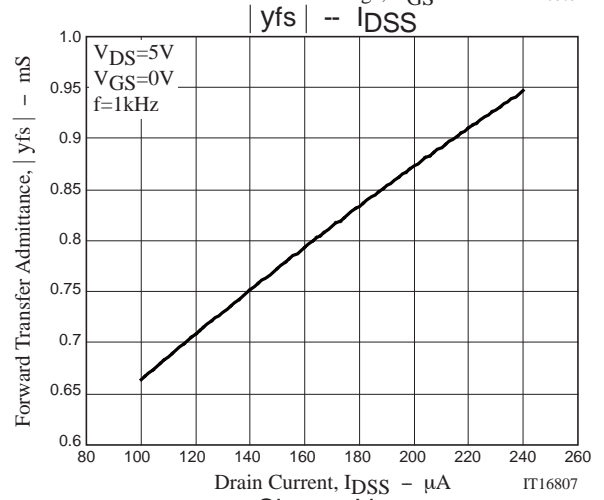
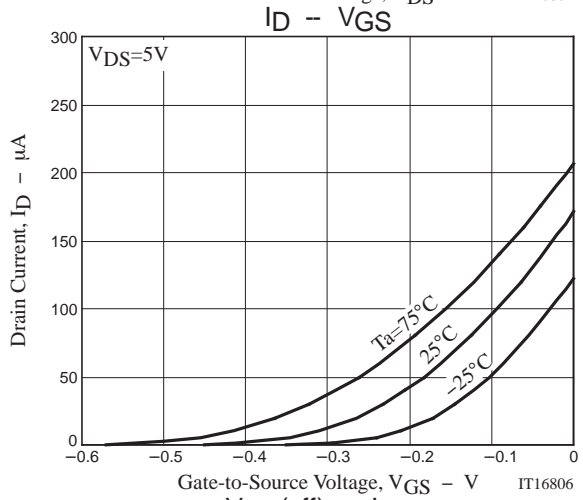
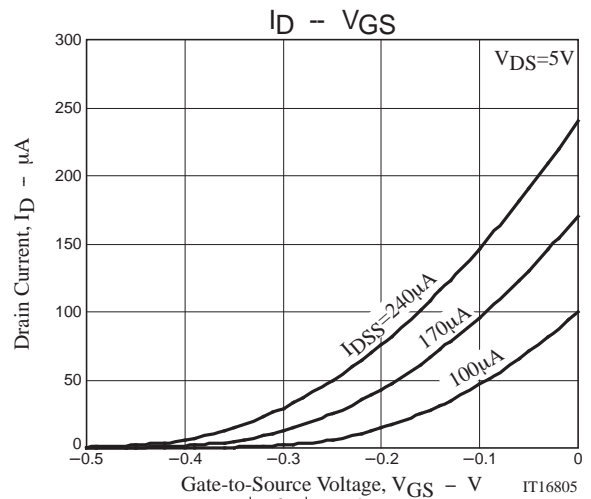
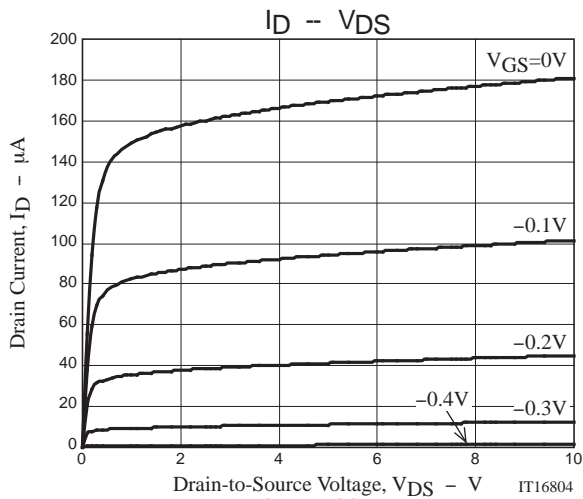
Harmonic Distortion

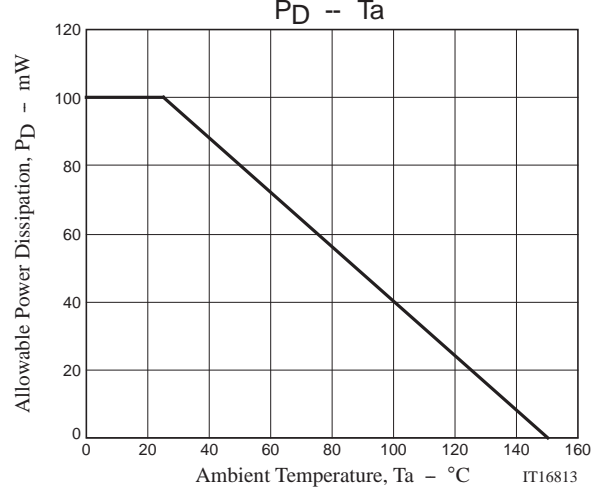
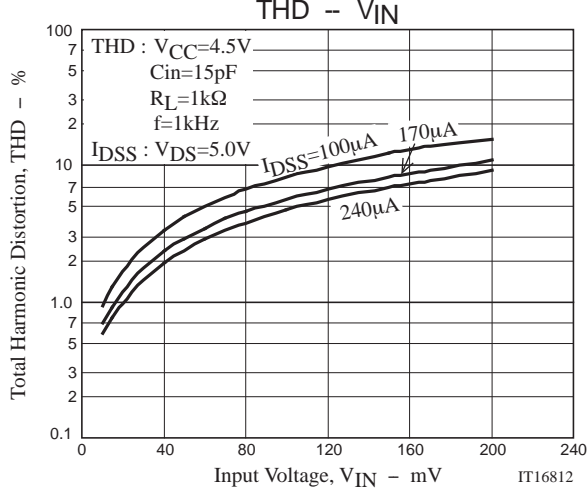
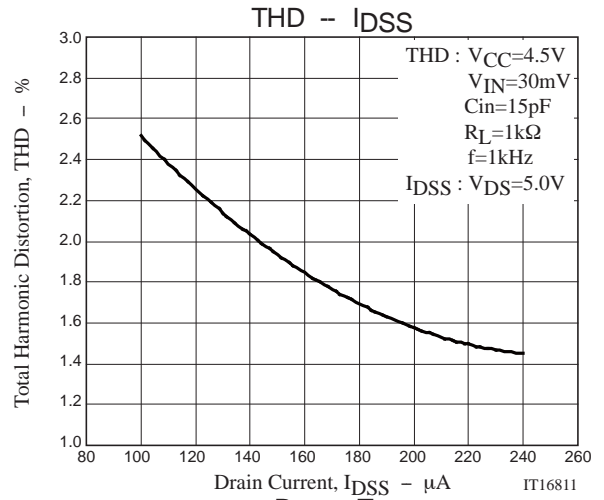
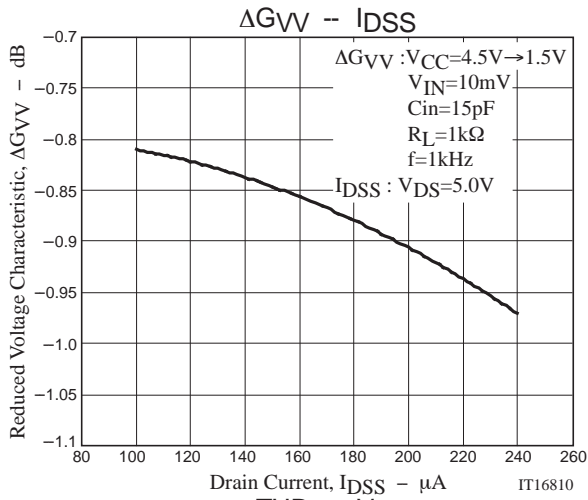
Reduced Voltage Characteristic



Ordering Information

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





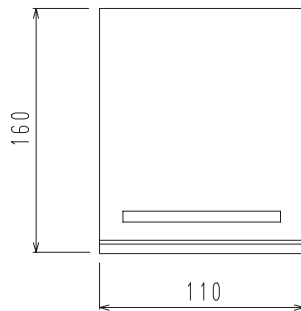
Bag Packing Specification

2SK596S-A, 2SK596S-B

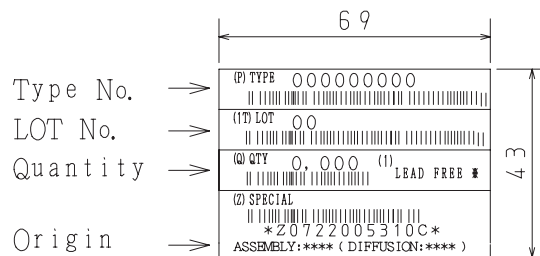
1. Packing Format

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)

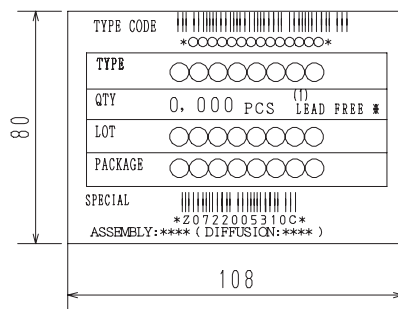


3. Bag label, Inner box label (unit:mm)



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.



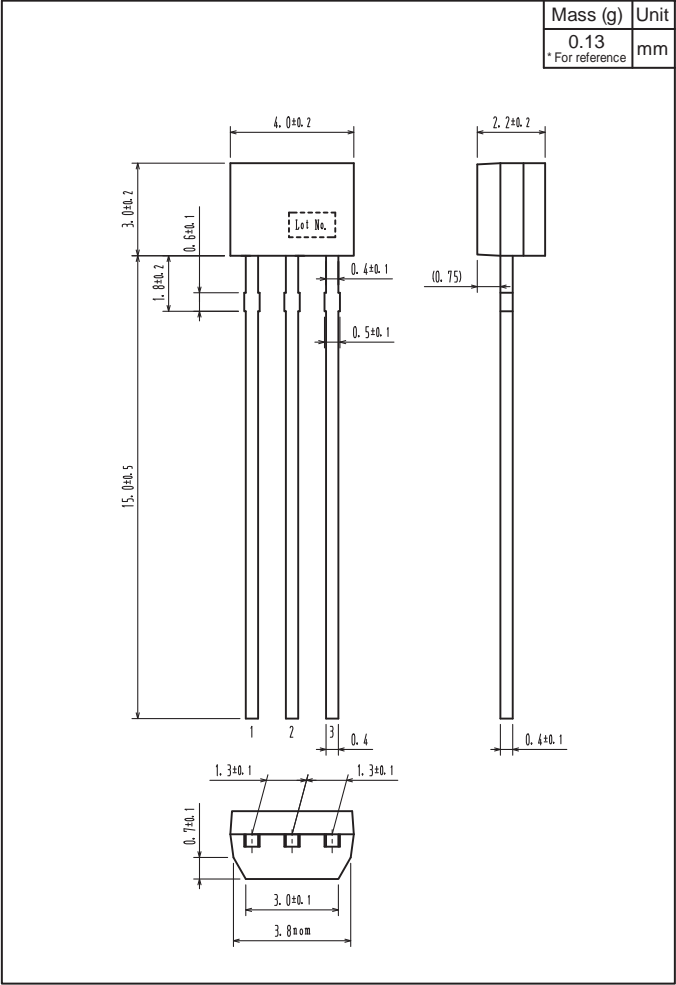
NOTE (1)

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

Outline Drawing

2SK596S-A, 2SK596S-B



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