

# 2SK596S



## JFET

20V, 150 to 350 $\mu$ A, 1.0mS, N-Channel

ON Semiconductor®

www.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  $T_a = 25^\circ\text{C}$

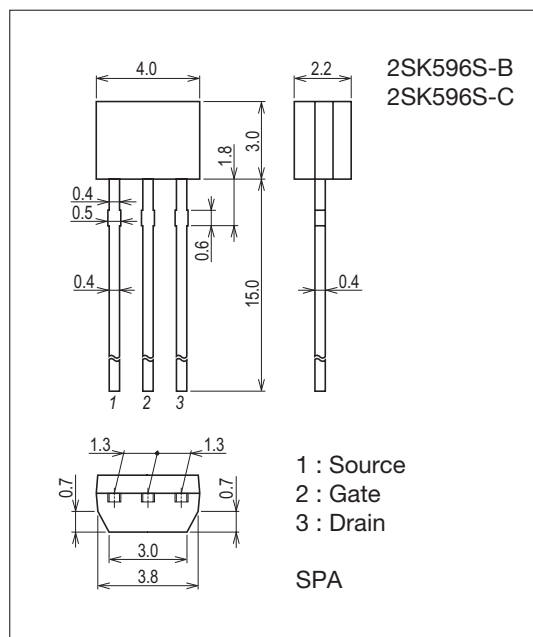
| Parameter                   | Symbol    | Conditions | Ratings     | Unit             |
|-----------------------------|-----------|------------|-------------|------------------|
| Gate-to-Drain Voltage       | $V_{GDO}$ |            | -20         | V                |
| Gate Current                | $I_G$     |            | 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 those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

### Package Dimensions

unit : mm (typ)

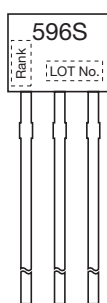
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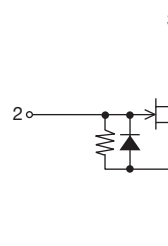
### Product & Package Information

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

### Marking



### Electrical Connection



### ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

# 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                                                                          | $V_{GS(off)}$   | $V_{DS} = 5V, I_D = 1\mu A$                               |         |     | -0.5 | -1.0 | V       |
| Drain Current                                                                           | $I_{DSS}^*$     | $V_{DS} = 5V, V_{GS} = 0V$                                | B       | 150 |      | 240  | $\mu A$ |
|                                                                                         |                 |                                                           | C       | 210 |      | 350  |         |
| Forward Transfer Admittance                                                             | $ y_{fs} $      | $V_{DS} = 5V, V_{GS} = 0V, f = 1kHz$                      |         | 0.4 | 1.0  |      | 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                                                                            | $G_V$           | $V_{IN} = 10mV, f = 1kHz$                                 |         |     | -3.0 |      | dB      |
| Reduced Voltage Characteristic                                                          | $\Delta G_{VV}$ | $V_{IN} = 10mV, f = 1kHz, V_{CC} = 4.5V \rightarrow 1.5V$ |         |     | -1.0 | -3.5 | dB      |
| Frequency Characteristic                                                                | $\Delta G_{vf}$ | $f = 1kHz \rightarrow 110Hz$                              |         |     |      | -1.0 | dB      |
| Total Harmonic Distortion                                                               | THD             | $V_{IN} = 30mV, f = 1kHz$                                 |         |     | 1.2  |      | %       |
| Output Noise Voltage                                                                    | $V_{NO}$        | $V_{IN} = 0V, A \text{ curve}$                            |         |     |      | -110 | dB      |

\* : The 2SK596S is classified by  $I_{DSS}$  as follows : (unit :  $\mu A$ )

| Rank      | B          | C          |
|-----------|------------|------------|
| $I_{DSS}$ | 150 to 240 | 210 to 350 |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

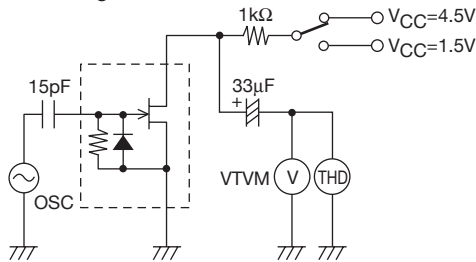
## Test Circuit

Voltage Gain

Frequency Characteristic

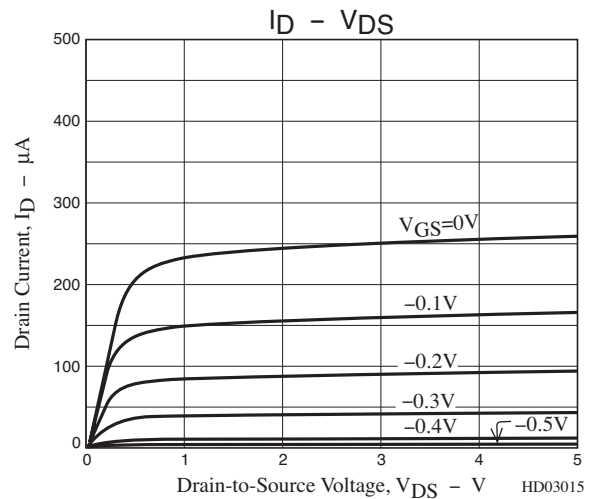
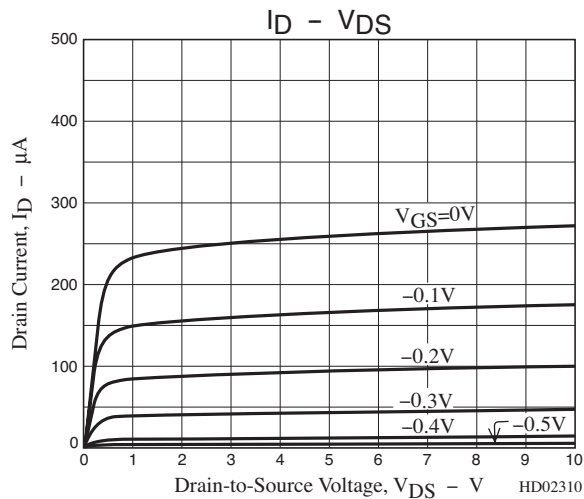
Harmonic Distortion

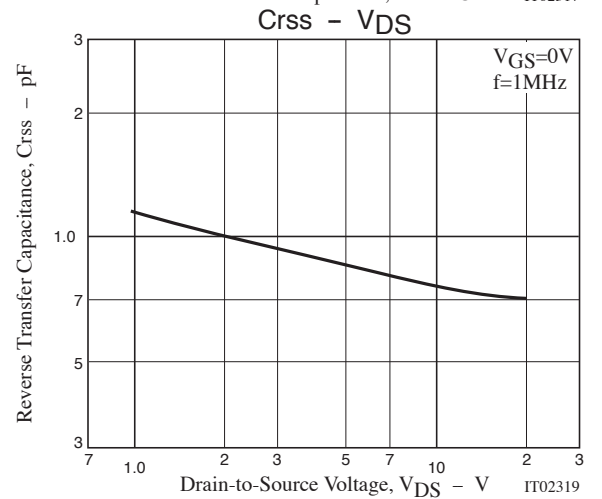
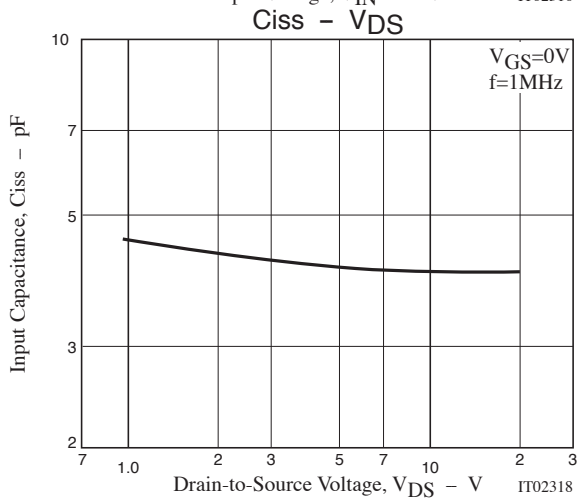
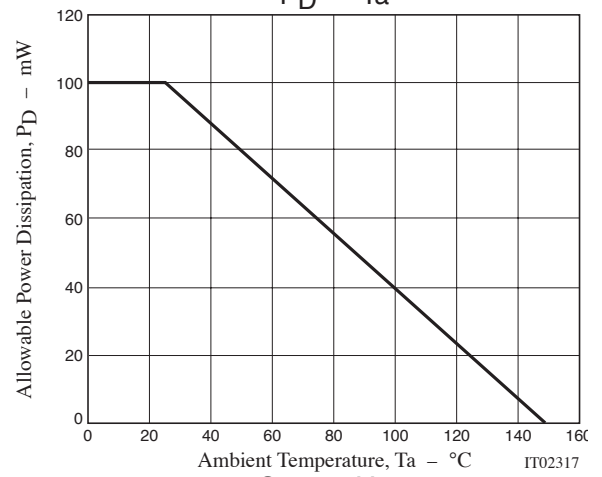
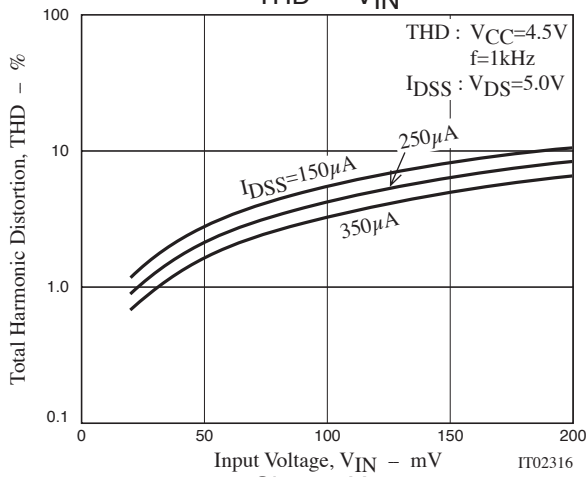
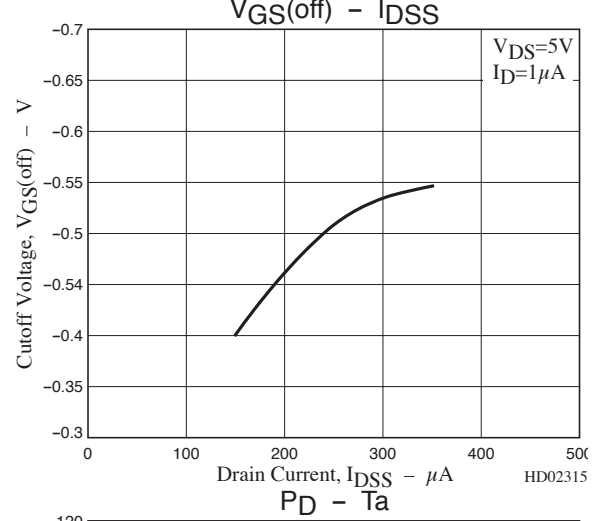
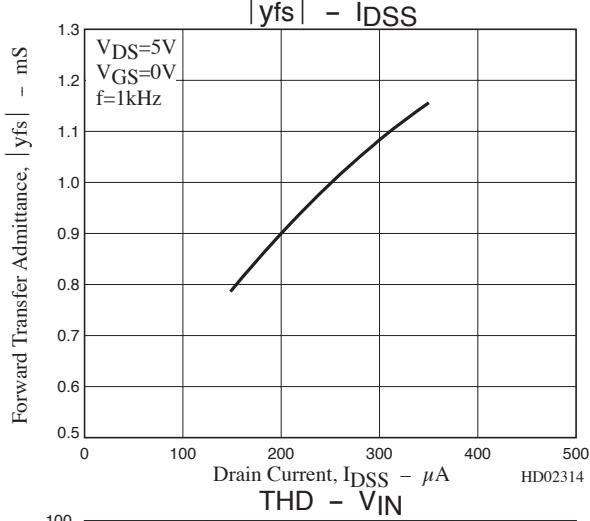
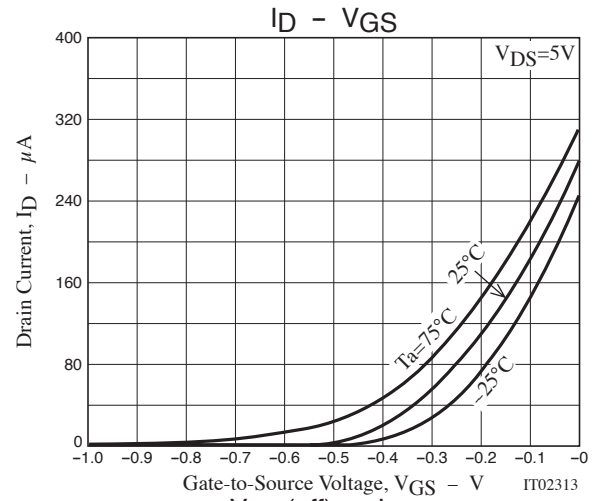
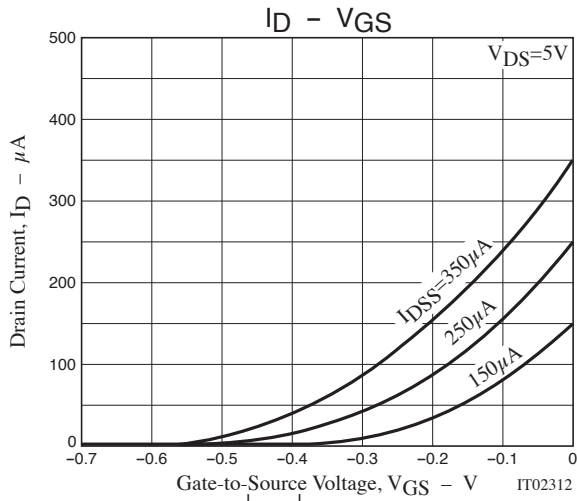
Reduced Voltage Characteristic

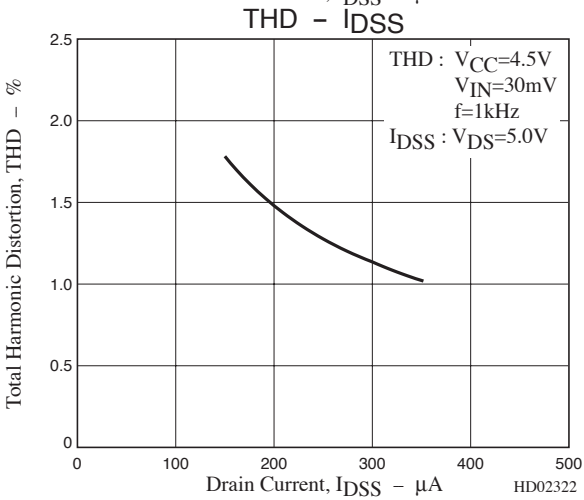
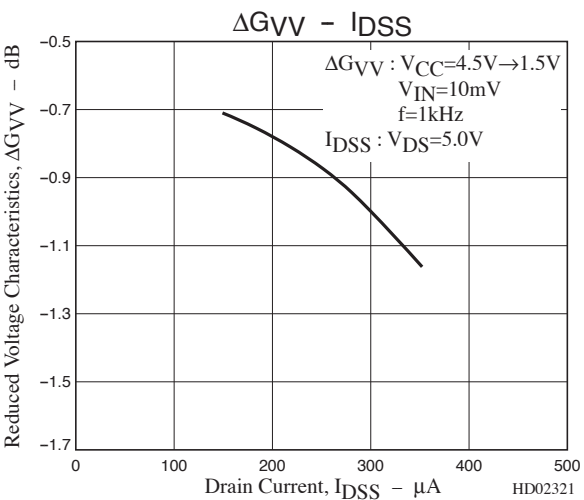
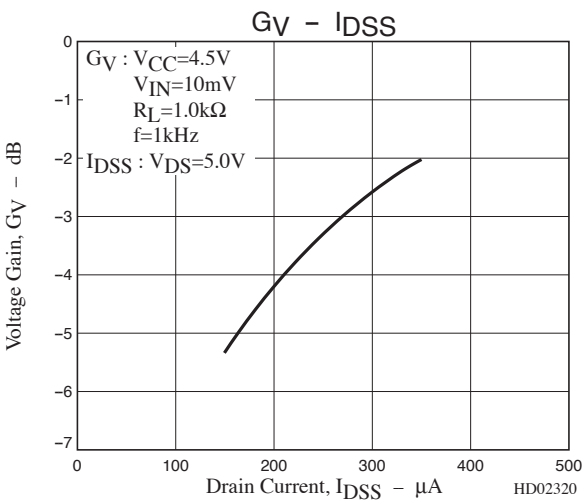


## ODERING INFORMATON

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

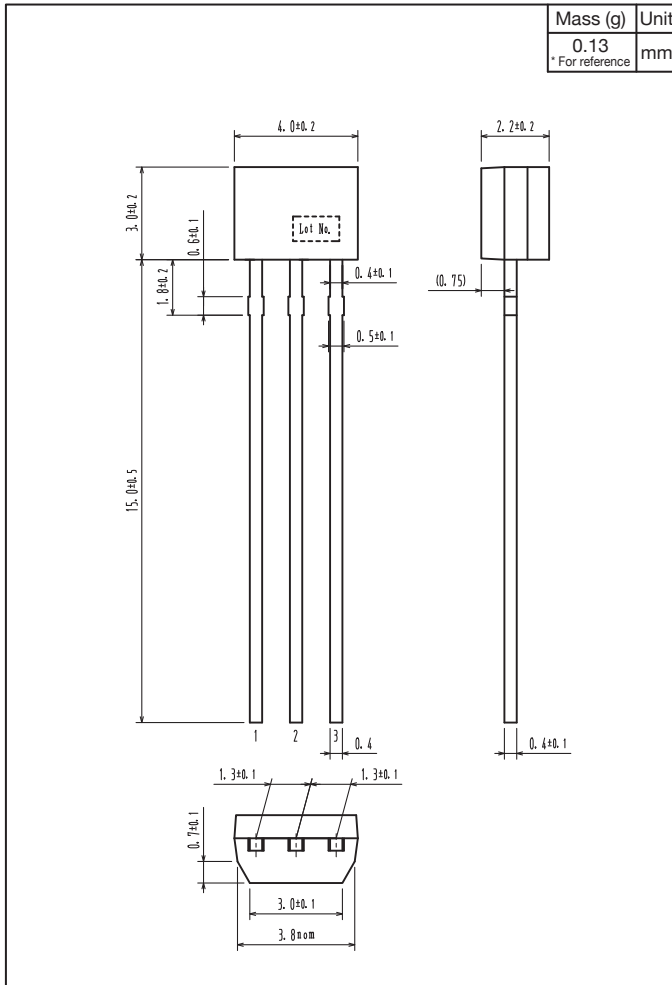






# Outline Drawing

2SK596S-B, 2SK596S-C



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