Ordering number: EN 659K

SANYO

No.659K

# 2SK223

N-Channel Silicon Junction FET

## High Voltage Driver Applications

**Features**

- Ultrahigh withstand voltage ($V_{GDS} \geqq -80V$).
- Due to low gate leakage currents even at high voltages, the 2SK223 is suitable for a wide range of applications ($I_{GDL} = 1nA/V_{DS} = 50V$, $I_D = 1mA$).
- High $|y_{fs}|$ ($|y_{fs}| = 20mS/V_{DS} = 30V, f = 1kHz$).

**Absolute Maximum Ratings** at Ta = 25°C

| | | | unit |
|---|---|---|---|
| Drain-to-Source Voltage | $V_{DSS}$ | 80 | V |
| Gate-to-Drain Voltage | $V_{GDS}$ | −80 | V |
| Gate Current | $I_G$ | 10 | mA |
| Allowable Power Dissipation | $P_D$ | 400 | mW |
| Junction Temperature | Tj | 125 | °C |
| Storage Temperature | Tstg | −40 to +125 | °C |

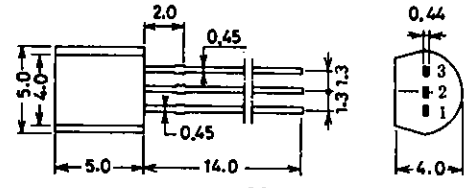
**Electrical Characteristics** at Ta = 25°C

| | | | min | typ | max | unit |
|---|---|---|---|---|---|---|
| Gate-to-Drain Breakdown Voltage | $V_{(BR)GDS}$ | $I_G = -100\mu A$ | −80 | | | V |
| Gate Cutoff Current | $I_{GSS}$ | $V_{GS} = -30V, V_{DS} = 0$ | | | −1.0 | nA |
| Drain Current | $I_{DSS}$ | $V_{DS} = 30V, V_{GS} = 0$ | 1.2※ | | 24※ | mA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS} = 30V, I_D = 10\mu A$ | −0.75 | | | V |
| Forward Transfer Admittance | $\|y_{fs}\|$ | $V_{DS} = 30V, V_{GS} = 0, f = 1kHz$ | 20 | | | mS |
| Input Capacitance | Ciss | $V_{DS} = 30V, V_{GS} = 0, f = 1MHz$ | | 12 | | pF |
| Reverse Transfer Capacitance | Crss | $V_{DS} = 30V, V_{GS} = 0, f = 1MHz$ | | 2.5 | | pF |
| Noise Figure | NF | $V_{DS} = 10V, I_D = 3mA, Rg = 10k\Omega$, $f = 1kHz$ | | 1.5 | | dB |

※ The 2SK223 is classified by $I_{DSS}$ as follows (unit : mm) :

| | | | |
|---|---|---|---|
| 1.2 D 3.0 | 2.5 E 6.0 | 5.0 F 12.0 | 10.0 G 24.0 |

**Package Dimensions** 2019B
(unit : mm)




JEDEC: TO-92
EIAJ : SC-43
SANYO: NP

1 : Source
2 : Gate
3 : Drain

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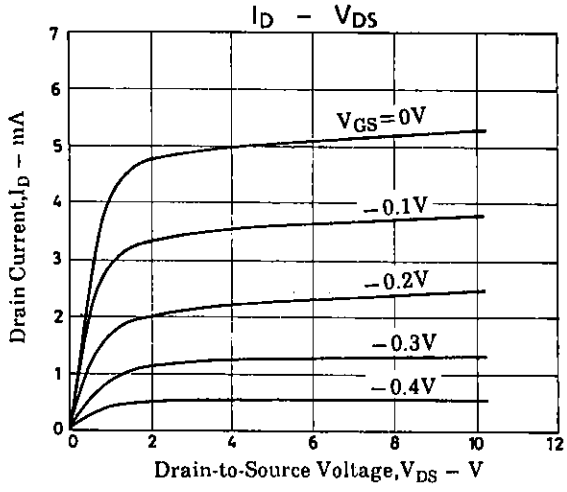
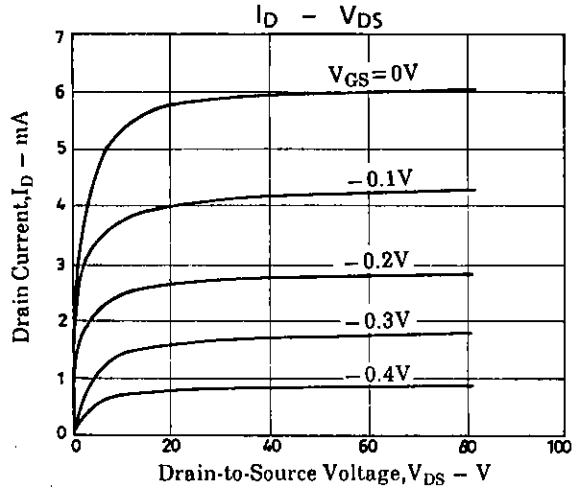
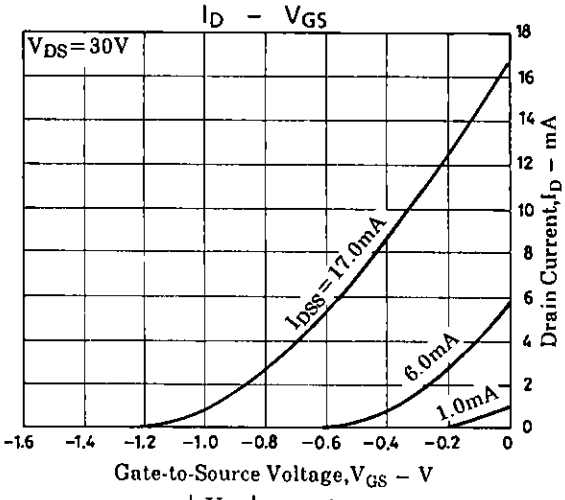
$I_D$ – $V_{DS}$



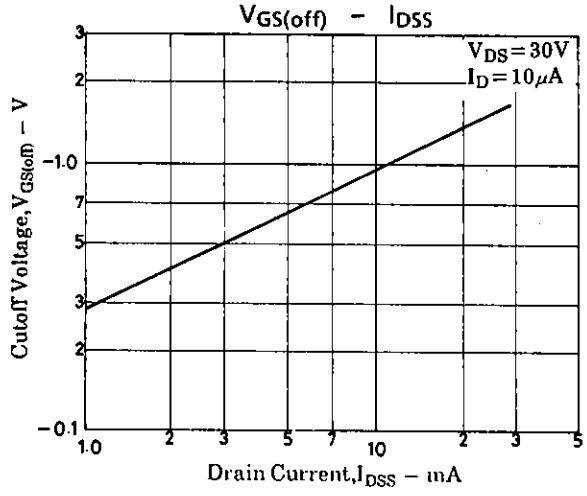

$I_D$ – $V_{DS}$



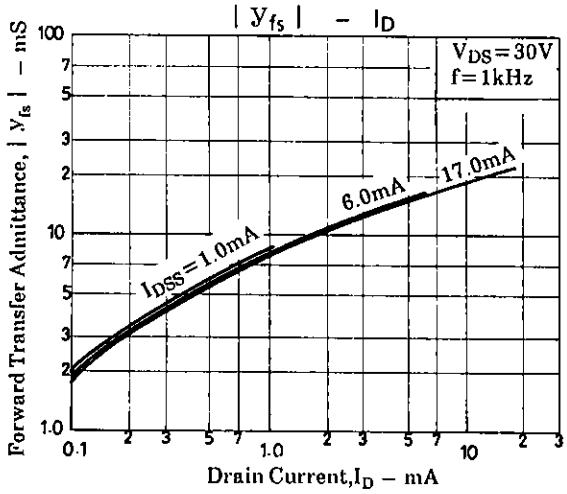

$I_D$ – $V_{GS}$



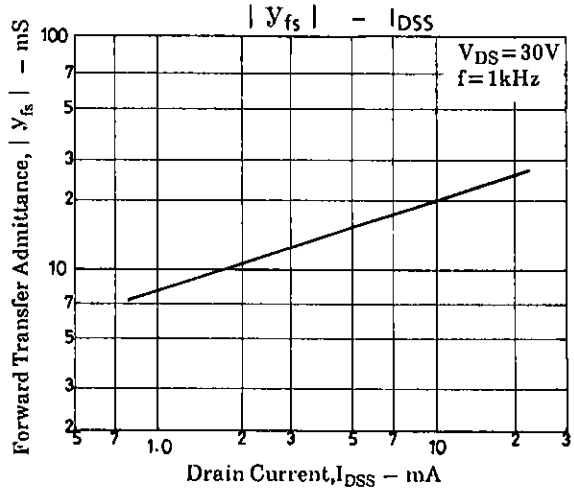

$V_{GS(off)}$ – $I_{DSS}$




$|y_{fs}|$ – $I_D$




$|y_{fs}|$ – $I_{DSS}$




$P_D$ – Ta