Ordering number:EN659K

N-Channel Junction Silicon FET

2SK223

High Voltage Driver Applications

Features

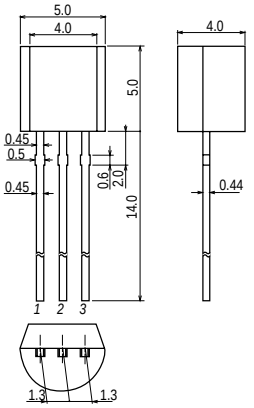
- Ultrahigh withstand voltage (V_{GDS}≥–80V).
- Due to low gate leakage currents even at high voltage, the 2SK223 is suitable for a wide range of application (I_{GDL}=1nA/V_{DS}=50V, I_D=1mA).
- High $|y_{fs}|$ ($|y_{fs}|$=20mS/V_{DS}=30V, f=1kHz).

Package Dimensions

unit:mm

2019B

[2SK223]



1 : Source
2 : Gate
3 : Drain
SANYO : NP
JEDEC : TO-92
EIAJ : SC-43

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	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

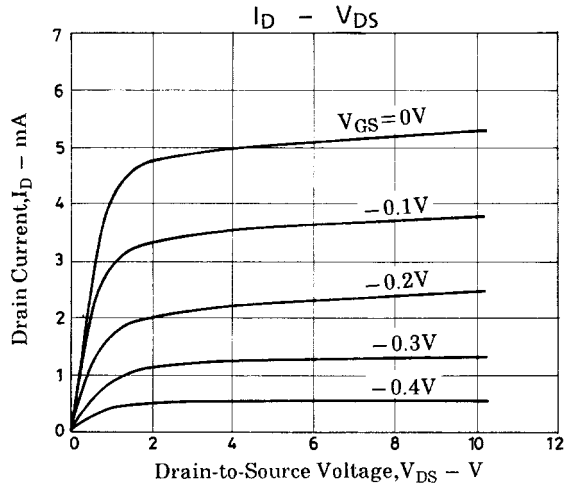
Electrical Characteristics at Ta = 25˚C

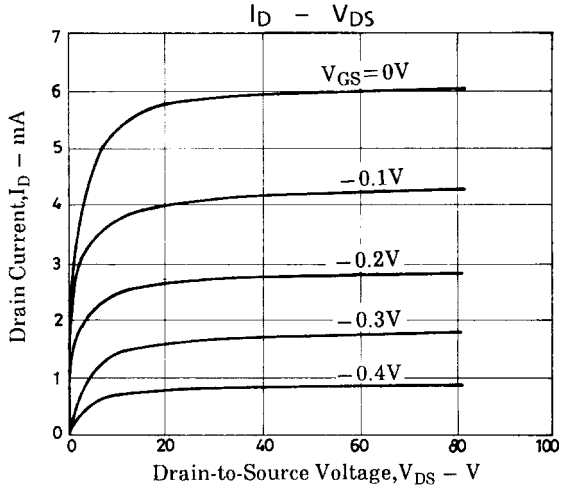
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Drain Breakdown Voltage	$V_{(BR)GDS}$	I_G=–100μA	–80			V
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=–30V, V_{DS}=0			–1.0	nA
Zero-Gate Voltage Drain Current	I_{DSS}*	V_{DS}=30V, V_{GS}=0	1.2*		24*	mA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=30V, I_D=10μA		–0.75		V
Forward Transfer Admittance	| yfs |	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=10kΩ, f=1kHz		1.5		dB

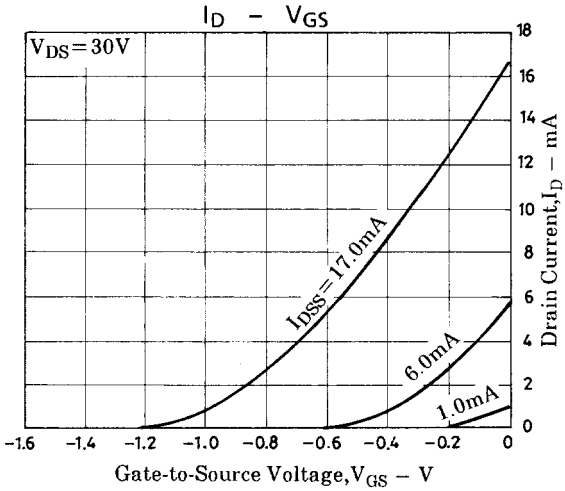
* : The 2SK223 is classified by I_{DSS} as follows (unit : mm) :

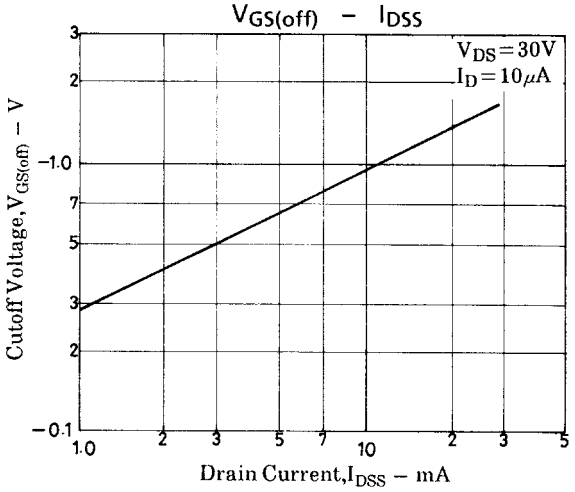
1.2	D	3.0	2.5	E	6.0	5.0	F	12.0	10.0	G	24.0

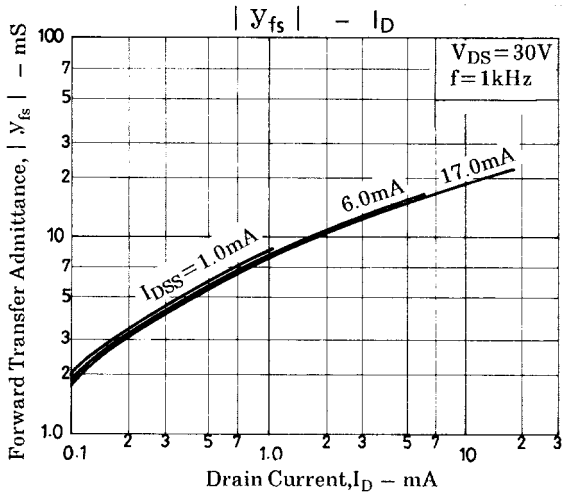
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

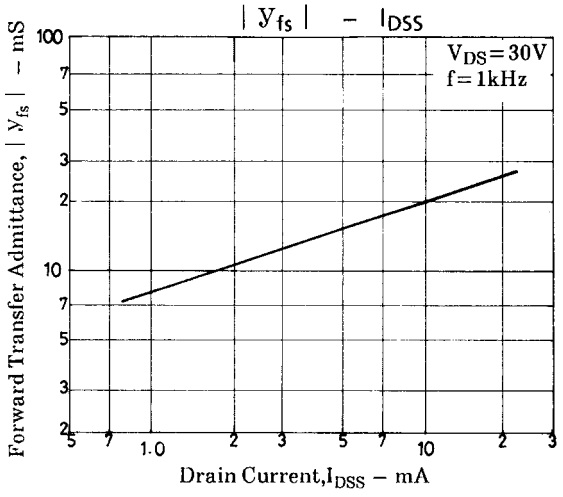

I_D – V_{DS}
V_{GS}=0V
–0.1V
–0.2V
–0.3V
–0.4V
Drain Current,I_D – mA
Drain-to-Source Voltage,V_{DS} – V

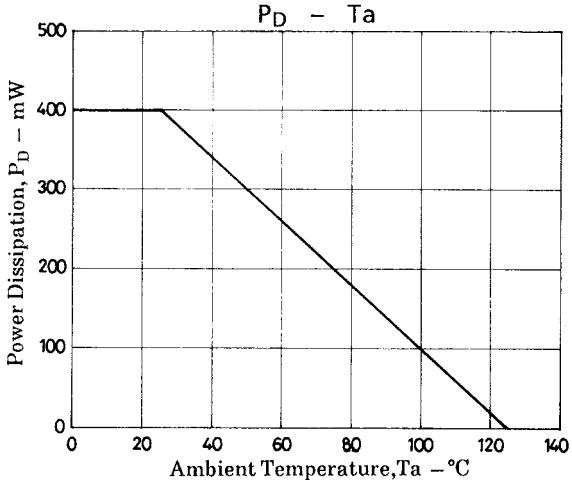

I_D – V_{DS}
V_{GS}=0V
–0.1V
–0.2V
–0.3V
–0.4V
Drain Current,I_D – mA
Drain-to-Source Voltage,V_{DS} – V


I_D – V_{GS}
V_{DS}=30V
I_{DSS}=17.0mA
6.0mA
1.0mA
Drain Current,I_D – mA
Gate-to-Source Voltage,V_{GS} – V

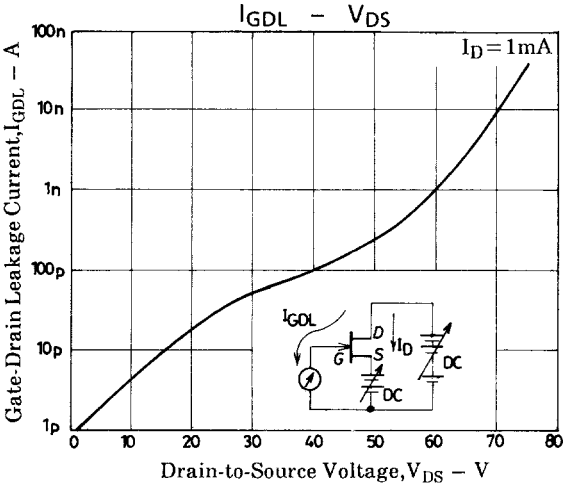

$V_{GS(off)}$ – I_{DSS}
V_{DS}=30V
I_D=10μA
Cutoff Voltage,$V_{GS(off)}$ – V
Drain Current,I_{DSS} – mA


$|y_{fs}|$ – I_D
V_{DS}=30V
f=1kHz
I_{DSS}=1.0mA
6.0mA
17.0mA
Forward Transfer Admittance, $|y_{fs}|$ – mS
Drain Current,I_D – mA

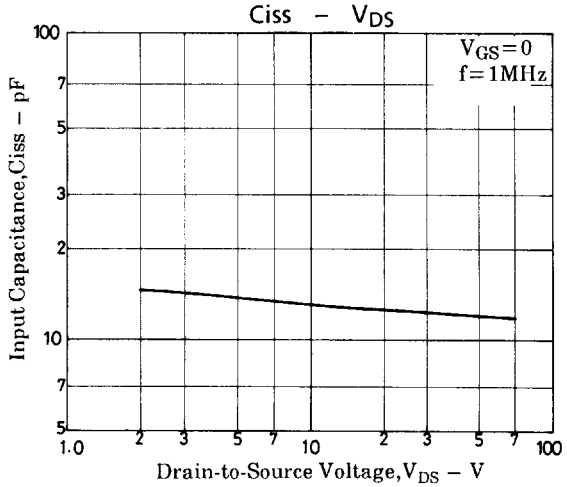

$|y_{fs}|$ – I_{DSS}
V_{DS}=30V
f=1kHz
Forward Transfer Admittance, $|y_{fs}|$ – mS
Drain Current,I_{DSS} – mA


P_D – Ta
Power Dissipation, P_D – mW
Ambient Temperature,Ta – °C

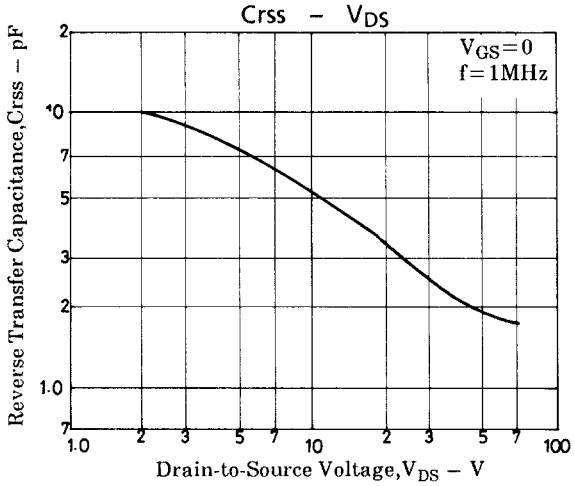
I_{GDL} – V_{DS}



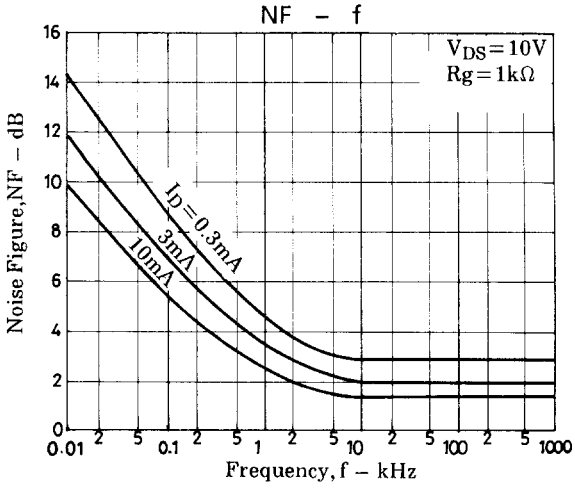
Ciss – V_{DS}



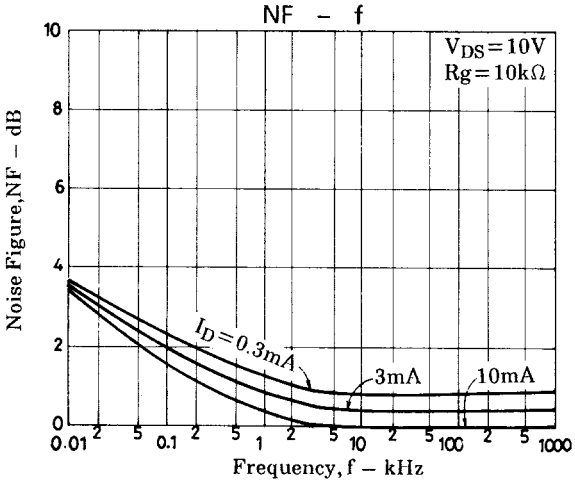
Crss – V_{DS}



NF – f



NF – f



NF – f