



QNHCHIP

2SK208

Product Specification

2SK208

Silicon N-Channel Junction FET



Description

This product is N-Channel Junction FET designed for high current switching applications.

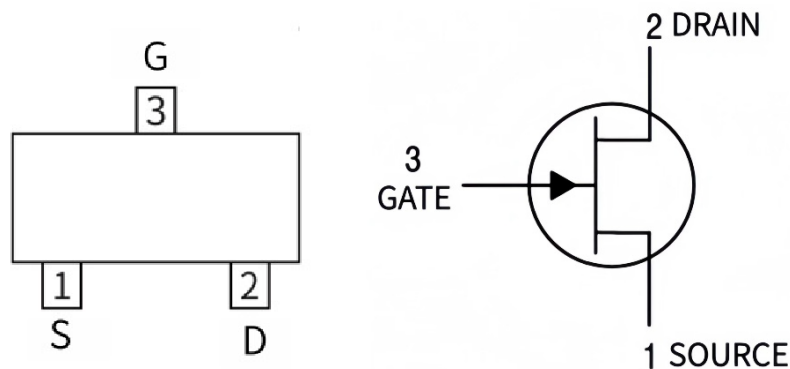
FEATURES

- High breakdown voltage: $V_{GDS} = -50\text{ V}$
- High input impedance: $I_{GSS} = -1.0\text{ nA (max)}$ ($V_{GS} = -30\text{ V}$)
- Low noise: $NF=0.5\text{ dB(typ.)}$ ($R_G = 100\text{ k}\Omega$, $f = 120\text{ Hz}$)
- Small package.

Applications

- General Purpose Impedance Converter
- Condenser Microphone

Function Diagram



Pin Assignments

PIN NO.	PIN NAME
1	SOURCE
2	DRAIN
3	GATE

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$)

Characteristics	Symbol	Rating	Unit
Gate-drain voltage	V_{GDS}	-50	V
Gate current	I_G	10	mA
Drain power dissipation	P_D	100	mW
Junction temperature	T_j	125	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to 125	$^\circ\text{C}$

Note:

Using continuously under heavy loads (e.g. the application of high temperature / current / voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature / current / voltage, etc.) are within the absolute maximum ratings.



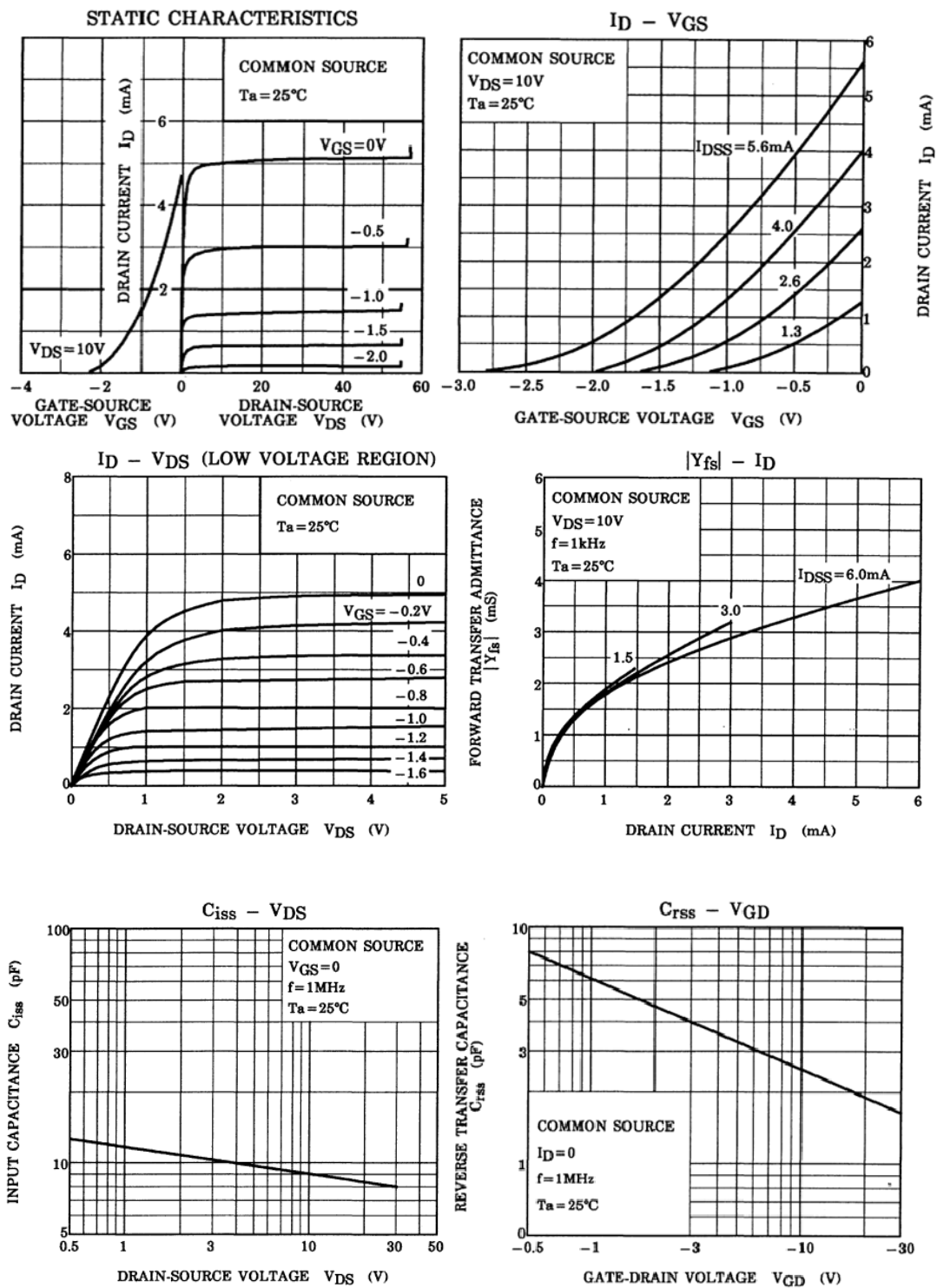
Electrical Characteristics ($T_A = 25^\circ\text{C}$)

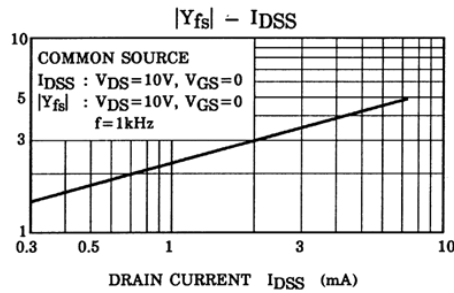
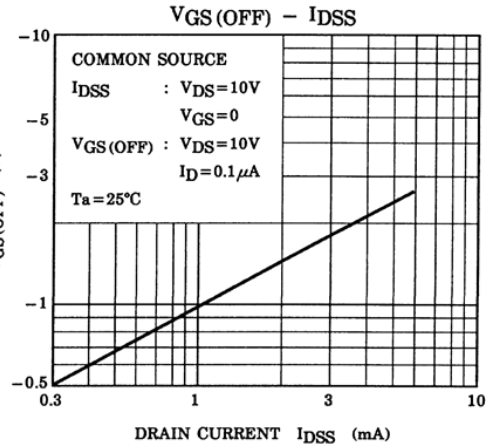
Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Gate cut-off current	I_{GSS}	$V_{GS} = -30\text{ V}, V_{DS} = 0$	-	-	-1.0	nA
Gate-drain breakdown voltage	$V_{(BR)GDS}$	$V_{DS} = 0, I_G = -100\mu\text{A}$	-50	-	-	V
Drain current	$I_{DSS}^{(Note)}$	$V_{DS} = 10\text{ V}, V_{GS} = 0$	0.3	-	6.5	mA
Gate-source cut-off voltage	$V_{GS(OFF)}$	$V_{DS} = 10\text{ V}, I_D = 0.1\mu\text{A}$	-0.4	-	-5.0	V
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = 10\text{ V}, V_{GS} = 0, f = 1\text{ kHz}$	1.2	-	-	mS
Input capacitance	C_{iss}	$V_{DS} = 10\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$	-	8.2	-	pF
Reverse transfer capacitance	C_{rss}	$V_{GD} = -10\text{ V}, I_D = 0, f = 1\text{ MHz}$	-	2.6	-	pF
Noise figure	NF	$V_{DS} = 15\text{ V}, V_{GS} = 0$ $R_G = 100\text{k}\Omega, f = 120\text{ Hz}$	-	0.5	-	dB

Note: I_{DSS} classification R: 0.30 ~ 0.75 mA, O: 0.60 ~ 1.40 mA, Y: 1.2 ~ 3.0 mA, GR: 2.6 ~ 6.5 mA

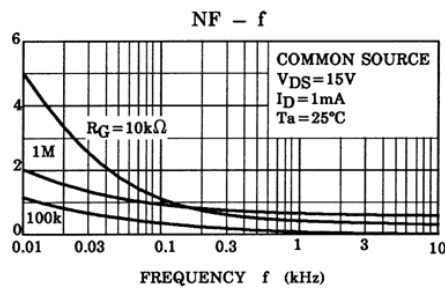


Operating Characteristics

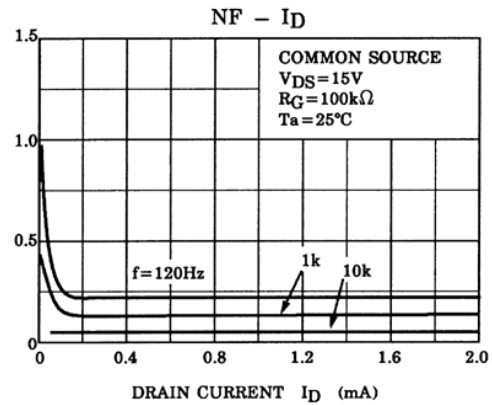


FORWARD TRANSFER ADMITTANCE
 $|Y_{fs}|$ (mS)GATE-SOURCE CUT-OFF VOLTAGE
 $V_{GS(OFF)}$ (V)

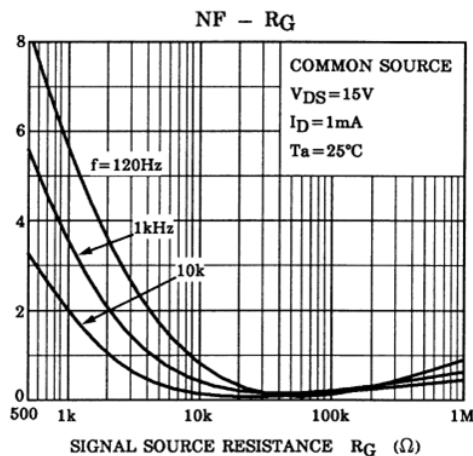
NOISE FIGURE NF (dB)



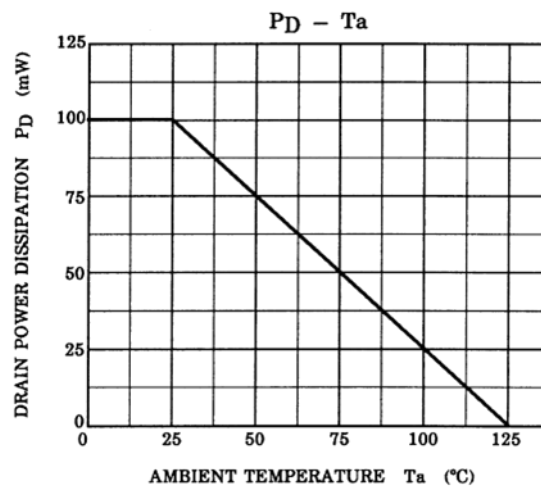
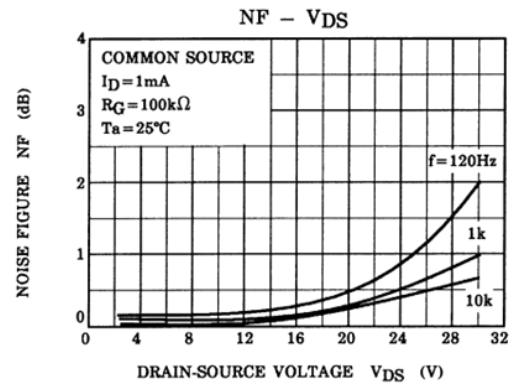
NOISE FIGURE NF (dB)



NOISE FIGURE NF (dB)



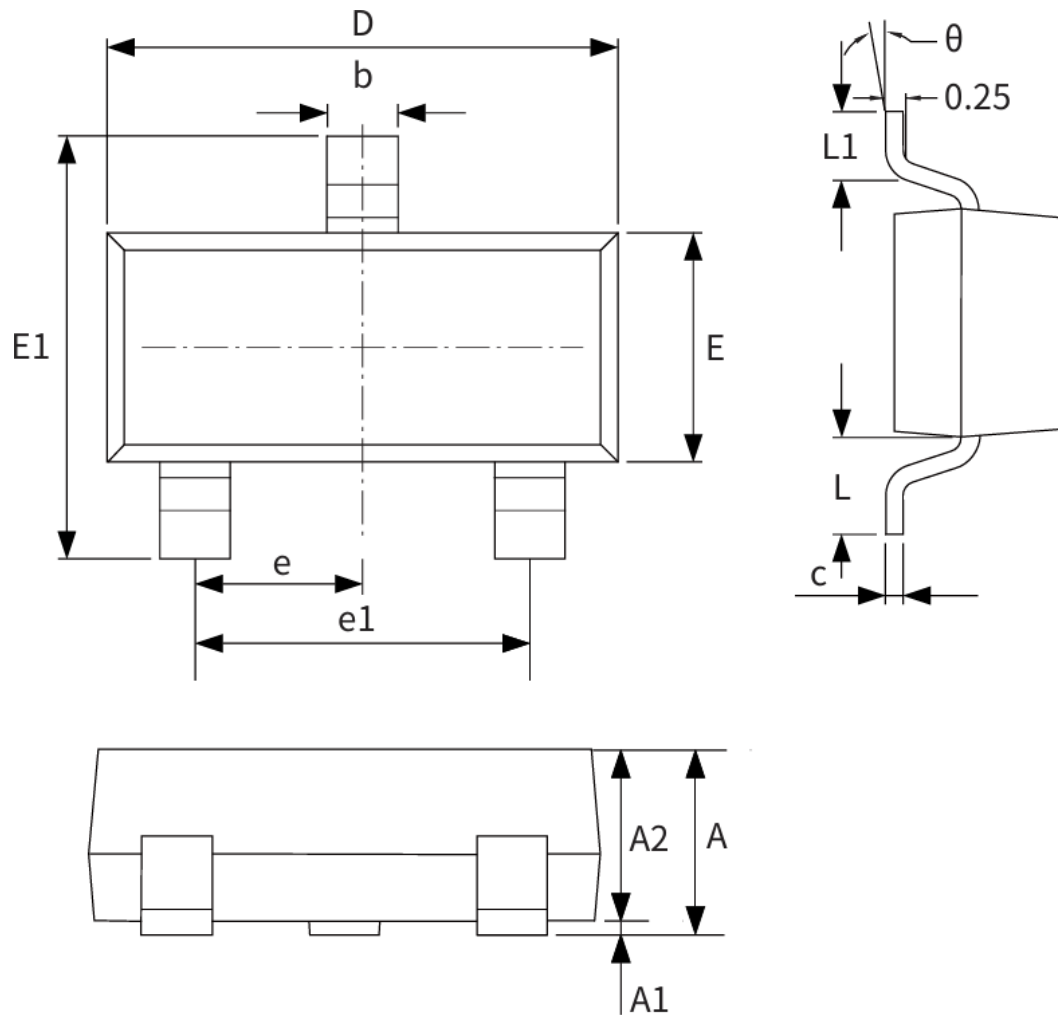
NOISE FIGURE NF (dB)





Package Outline

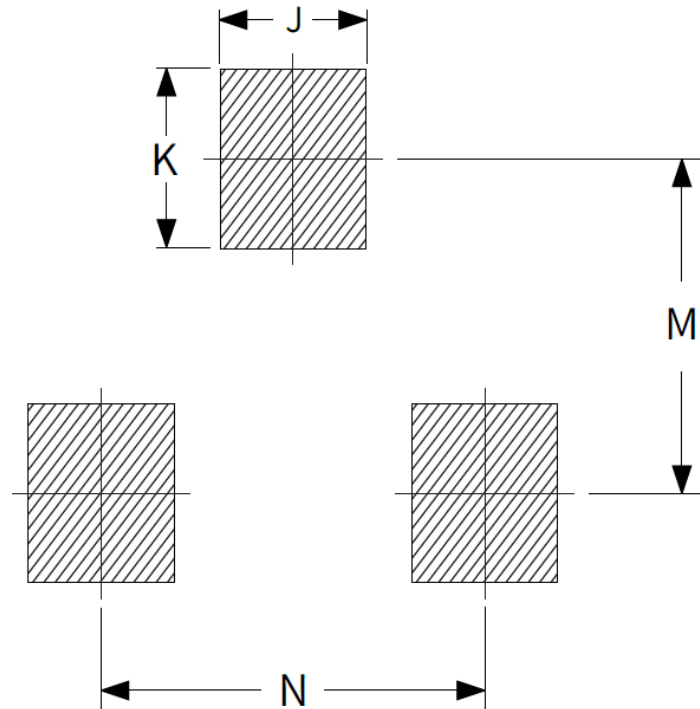
SOT23-3



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.15	0.035	0.045
A1	-	0.10	-	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.50	0.012	0.020
c	0.10	0.20	0.004	0.008
D	2.80	3.00	0.110	0.118
E	1.20	1.40	0.047	0.055
E1	2.25	2.55	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.80	2.00	0.071	0.079
L	0.550REF		0.022REF	
L1	0.30	0.50	0.012	0.020
θ	-	8°	-	8°



Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.75	0.85	0.030	0.033
K	0.85	0.95	0.033	0.037
M	1.95	2.05	0.077	0.081
N	1.85	1.95	0.073	0.077

Ordering information

Order Code	Marking	$I_{DSS}(mA)$	Package	Base QTY	Delivery Mode
2SK208-Y	K208-Y	1.2~3.0	SOT23-3	3000	Tape and reel
2SK208-GR	K208-GR	2.6~6.5	SOT23-3	3000	Tape and reel