

3SK288

Silicon N Channel Dual Gate MOS FET

Application

VHF TV tuner RF amplifier

Features

- Low noise figure.
NF = 1.5 dB typ.at f = 200 MHz
- High gain.
PG = 28.5 dB typ.at f = 200 MHz

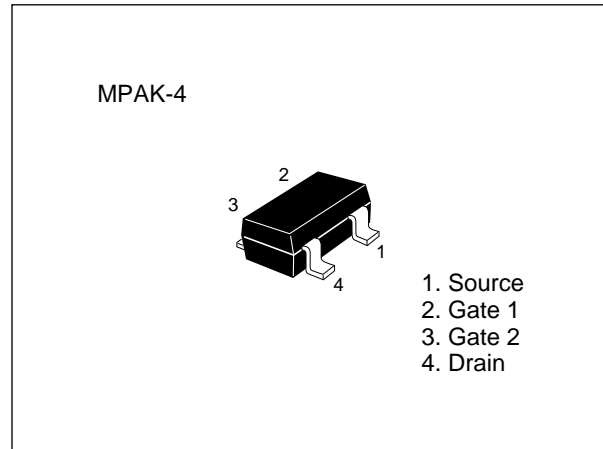


Table 1 Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DS}	12	V
Gate1 to source voltage	V _{G1S}	±8	V
Gate2 to source voltage	V _{G2S}	±8	V
Drain current	I _D	25	mA
Channel power dissipation	P _{ch}	150	mW
Channel temperature	T _{ch}	125	°C
Storage temperature	T _{stg}	-55 to +125	°C

Note: Marking is "ZH-"

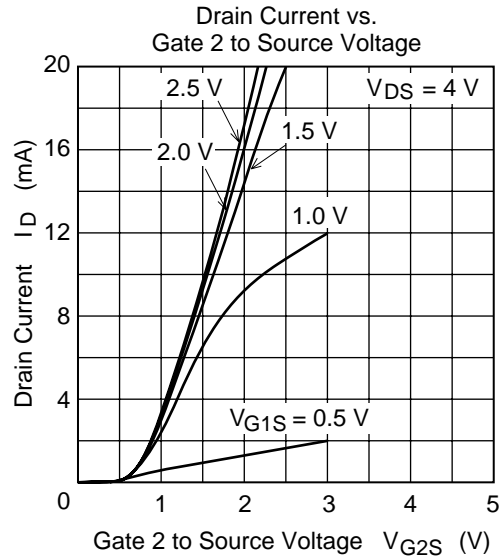
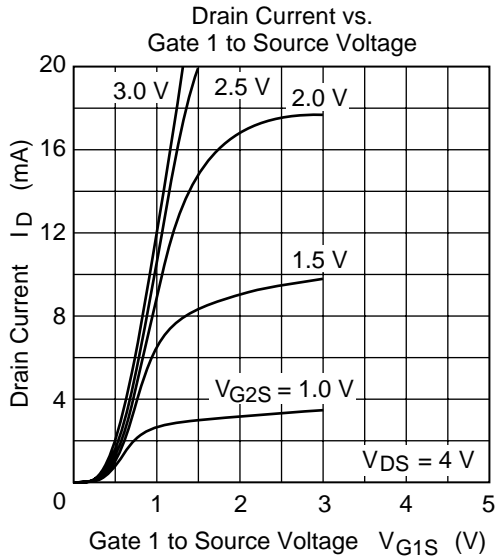
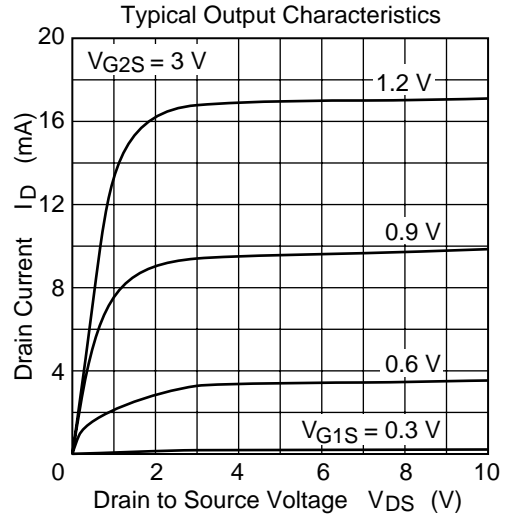
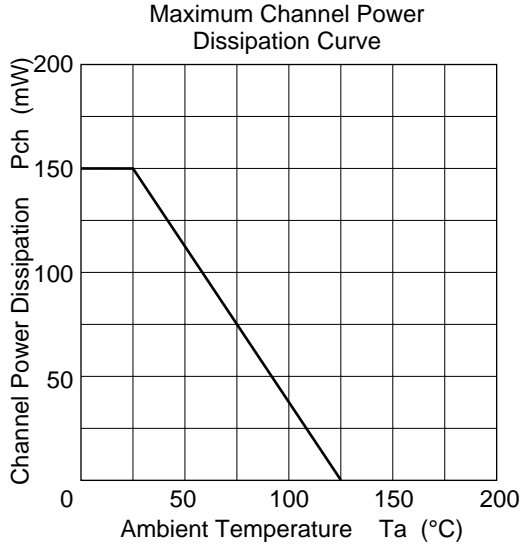
Attention: This device is very sensitive to electro static discharge.

It is recommended to adopt appropriate cautions when handing this transistor.

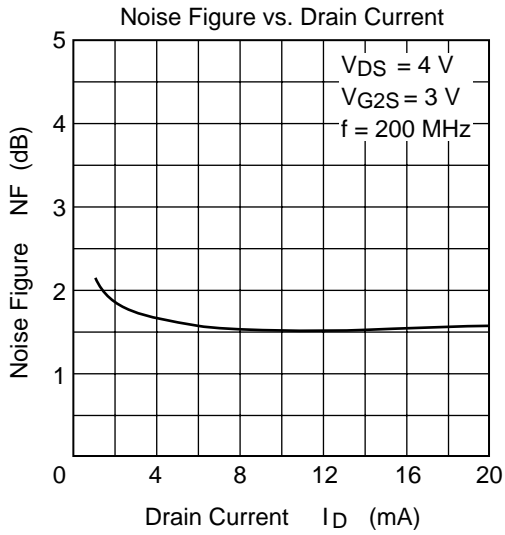
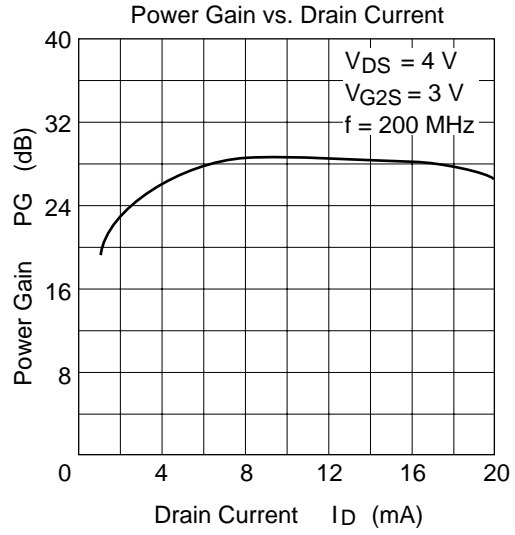
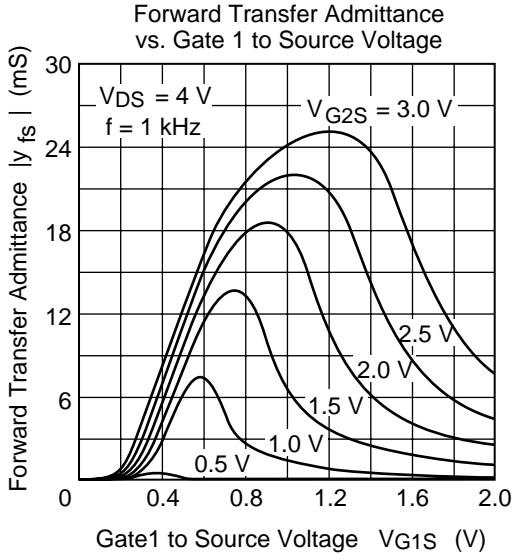
3SK288

Table 2 Electrical Characteristics (Ta = 25°C)

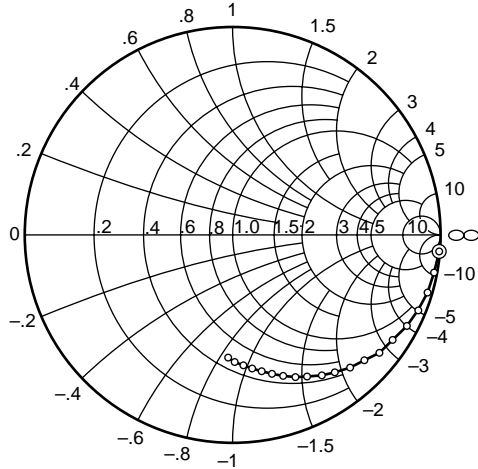
Item	Symbol	min.	typ.	max.	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSX}$	12	—	—	V	$I_D = 200 \mu A$, $V_{G1S} = -3 V$, $V_{G2S} = -3 V$
Gate1 to source breakdown voltage	$V_{(BR)G1SS}$	± 8	—	—	V	$I_{G1} = \pm 10 \mu A$, $V_{G2S} = V_{DS} = 0$
Gate2 to source breakdown voltage	$V_{(BR)G2SS}$	± 8	—	—	V	$I_{G2} = \pm 10 \mu A$, $V_{G1S} = V_{DS} = 0$
Gate1 cutoff current	I_{G1SS}	—	—	± 100	nA	$V_{G1S} = \pm 6 V$, $V_{G2S} = V_{DS} = 0$
Gate2 cutoff current	I_{G2SS}	—	—	± 100	nA	$V_{G2S} = \pm 6 V$, $V_{G1S} = V_{DS} = 0$
Drain current	$I_{DS(on)}$	1	—	10	mA	$V_{DS} = 4 V$, $V_{G1S} = 0.75 V$, $V_{G2S} = 3 V$
Gate1 to source cutoff voltage	$V_{G1S(off)}$	0	—	+0.6	V	$V_{DS} = 10 V$, $V_{G2S} = 3V$, $I_D = 100 \mu A$
Gate2 to source cutoff voltage	$V_{G2S(off)}$	0	—	+1.0	V	$V_{DS} = 10 V$, $V_{G1S} = 3V$, $I_D = 100 \mu A$
Forward transfer admittance	$ y_{fs} $	18	23	—	mS	$V_{DS} = 4V$, $V_{G2S} = 3 V$, $I_D = 10 mA$, $f = 1 kHz$
Input capacitance	C_{iss}	2.4	3.0	3.6	pF	$V_{DS} = 4. V$, $V_{G2S} = 3 V$, $I_D = 10 mA$, $f = 1 MHz$
Output capacitance	C_{oss}	1.0	1.4	1.8	pF	
Reverse transfer capacitance	C_{rss}	—	0.022	0.03	pF	
Power gain	PG	23	28.5	—	dB	$V_{DS} = 4 V$, $V_{G2S} = 3 V$, $I_D = 10 mA$, $f = 200 MHz$
Noise figure	NF	—	1.5	2.5	dB	



3SK288

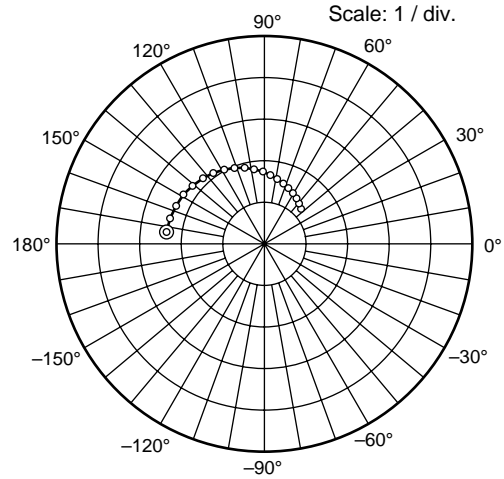


S11 Parameter vs. Frequency



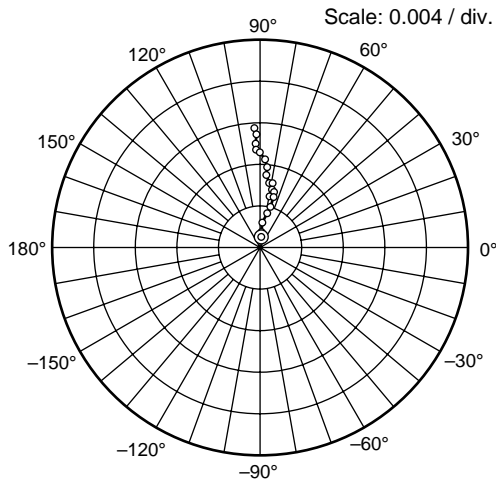
Condition: $V_{DS} = 4\text{ V}$, $V_{G2S} = 3\text{ V}$
 $I_D = 10\text{ mA}$, $Z_0 = 50\ \Omega$
 50 to 1000 MHz (50 MHz step)

S21 Parameter vs. Frequency



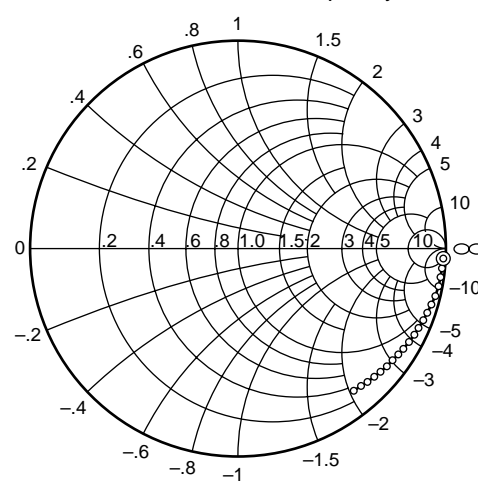
Condition: $V_{DS} = 4\text{ V}$, $V_{G2S} = 3\text{ V}$
 $I_D = 10\text{ mA}$, $Z_0 = 50\ \Omega$
 50 to 1000 MHz (50 MHz step)

S12 Parameter vs. Frequency



Condition: $V_{DS} = 4\text{ V}$, $V_{G2S} = 3\text{ V}$
 $I_D = 10\text{ mA}$, $Z_0 = 50\ \Omega$
 50 to 1000 MHz (50 MHz step)

S22 Parameter vs. Frequency



Condition: $V_{DS} = 4\text{ V}$, $V_{G2S} = 3\text{ V}$
 $I_D = 10\text{ mA}$, $Z_0 = 50\ \Omega$
 50 to 1000 MHz (50 MHz step)

3SK288

Table 3 S Parameter ($V_{DS} = 4\text{ V}$, $V_{G2S} = 3\text{ V}$, $I_D = 10\text{ mA}$, $Z_O = 50\ \Omega$)

f (MHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
50	0.997	-4.6	2.37	173	0.001	83.2	0.989	-2.8
100	0.986	-10.6	2.35	165	0.002	84.7	0.986	-5.6
150	0.978	-16.5	2.31	157	0.002	84.6	0.984	-8.1
200	0.964	-22.1	2.28	149	0.003	78.1	0.982	-10.7
250	0.946	-27.6	2.22	141	0.004	75.6	0.977	-13.6
300	0.921	-33.3	2.16	133	0.005	74.9	0.969	-16.2
350	0.906	-38.8	2.10	126	0.005	79.4	0.962	-18.8
400	0.875	-43.6	2.03	118	0.006	75.8	0.956	-21.2
450	0.853	-48.5	1.96	112	0.006	78.3	0.950	-23.8
500	0.824	-53.4	1.89	105	0.006	78.9	0.945	-26.1
550	0.801	-57.6	1.81	97.9	0.006	81.9	0.938	-28.7
600	0.770	-62.3	1.74	91.1	0.007	85.0	0.931	-31.3
650	0.748	-66.2	1.66	85.0	0.008	84.9	0.925	-33.5
700	0.721	-70.3	1.59	78.8	0.008	86.7	0.918	-35.9
750	0.695	-74.2	1.52	72.5	0.009	90.5	0.914	-38.4
800	0.671	-78.0	1.46	66.7	0.009	90.1	0.907	-40.9
850	0.650	-81.7	1.40	60.6	0.009	92.3	0.901	-43.3
900	0.630	-85.3	1.34	54.7	0.010	92.4	0.895	-45.9
950	0.612	-89.1	1.28	49.3	0.011	91.8	0.888	-48.2
1000	0.519	-92.1	1.22	43.6	0.012	92.7	0.883	-50.9

