

# OKI electronic components

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## KGF1321S

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### Power FET (Ceramic Package Type)

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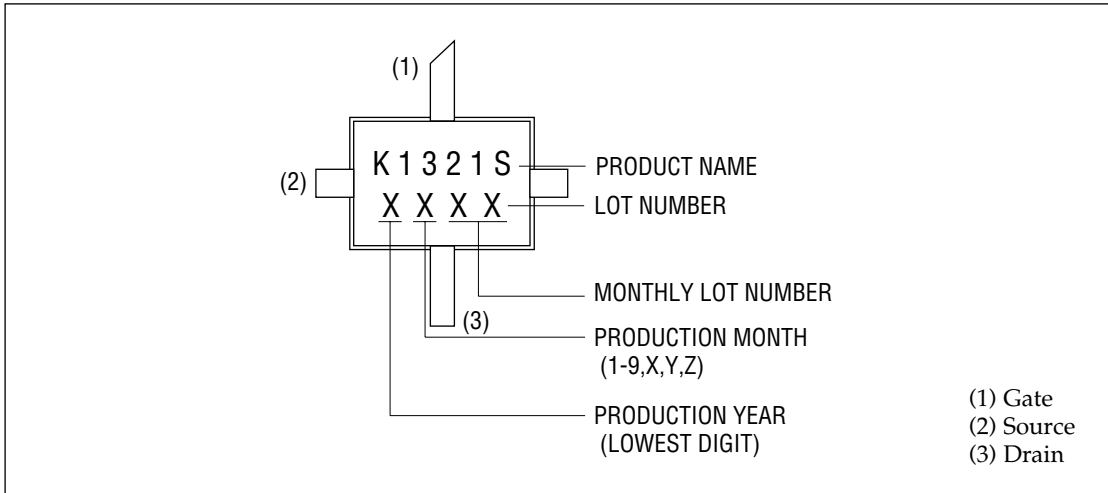
#### GENERAL DESCRIPTION

The KGF1321S, housed in a SMD-type ceramic package, is a discrete UHF-band power FET that features high efficiency, high output power, and low current operation. The KGF1321S specifications are guaranteed to a fixed matching circuit for 5.8 V and 850 MHz; external impedance-matching circuits are also required. Because of its high efficiency, high output power (more than 31.5 dBm), and SMD package, the KGF1321S is ideal as a transmitter-final-stage amplifier for personal handy phones, such as analog cellular phones.

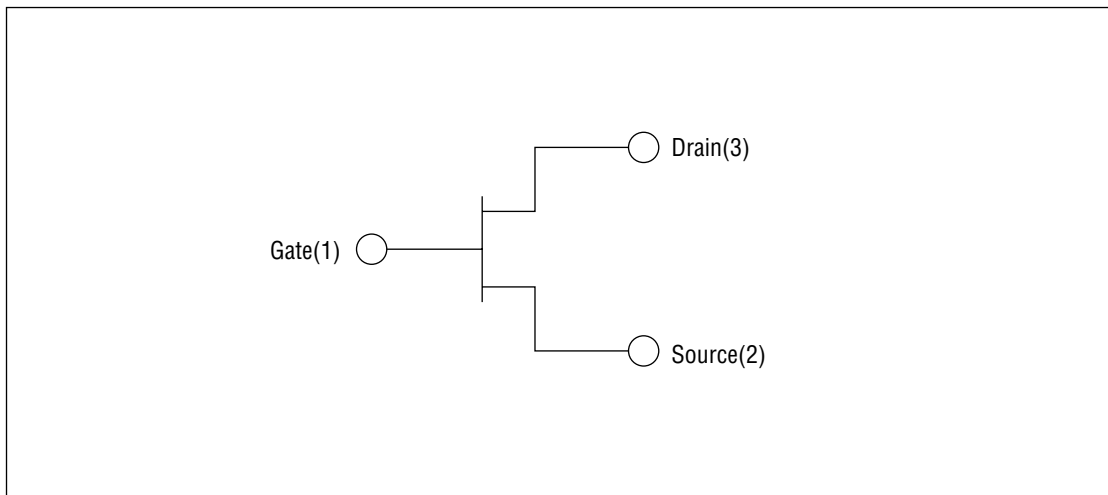
#### FEATURES

- High output power: 31.5 dBm (min.)
- High efficiency: 70% (min.)
- Low thermal resistance: 18°C/W (typ.)
- Package: 3PFP

## MARKING



## CIRCUIT



**ABSOLUTE MAXIMUM RATINGS**

Item	Symbol	Condition	Unit	Min.	Max.
Drain-source voltage	$V_{DS}$	$T_a = 25^{\circ}\text{C}$	V	—	10
Gate-source voltage	$V_{GS}$	$T_a = 25^{\circ}\text{C}$	V	-6.0	0.4
Drain current	$I_{DS}$	$T_a = 25^{\circ}\text{C}$	A	—	3
Total power dissipation	$P_{tot}$	$T_a = T_c = 25^{\circ}\text{C}$	W	—	5
Channel temperature	$T_{ch}$	—	$^{\circ}\text{C}$	—	150
Storage temperature	$T_{stg}$	—	$^{\circ}\text{C}$	-45	125

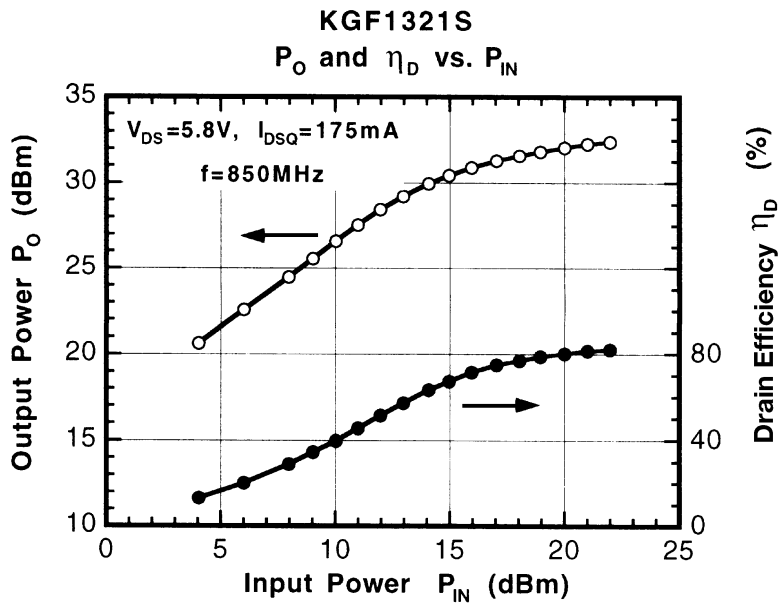
**ELECTRICAL CHARACTERISTICS**

(Ta = 25°C)

Item	Symbol	Condition	Unit	Min.	Typ.	Max.
Gate-source leakage current	$I_{GSS}$	$V_{GS} = -6\text{ V}$	mA	—	—	0.1
Gate-drain leakage current	$I_{GDO}$	$V_{GD} = -16\text{ V}$	mA	—	—	0.5
Drain-source leakage current	$I_{DS(off)}$	$V_{DS} = 10\text{ V}, V_{GS} = -6\text{ V}$	mA	—	—	1.5
Drain current	$I_{DSS}$	$V_{DS} = 1.5\text{ V}, V_{GS} = 0\text{ V}$	A	2.0	—	—
Gate bias Q-point	$V_{GSQ}$	$V_{DS} = 5.8\text{ V}, I_{DSQ} = 175\text{ mA}$	V	-3.35	—	-2.45
Output power	$P_O$	(*1), $P_{IN} = 20\text{ dBm}$	dBm	31.5	—	—
Drain efficiency	$\eta_D$	(*1), $P_{IN} = 20\text{ dBm}$	%	70	—	—
Thermal resistance	$R_{th}$	Channel to case	$^{\circ}\text{C/W}$	—	18	—

\*1 Condition:  $f = 850\text{ MHz}$ ,  $V_{DS} = 5.8\text{ V}$ ,  $I_{DSQ} = 175\text{ mA}$

### CHARACTERISTICS

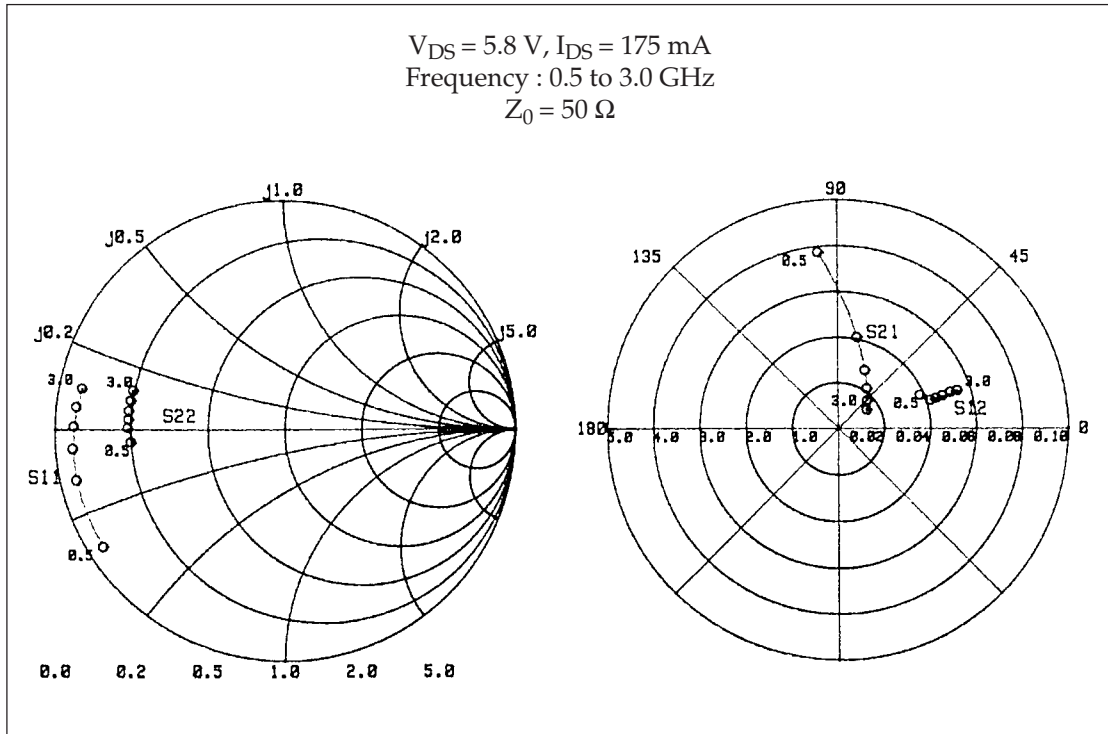


## Typical S Parameters

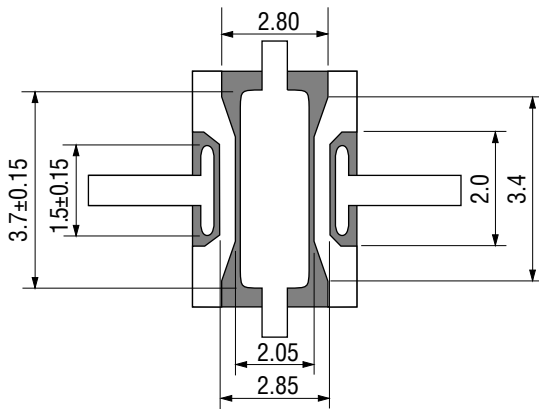
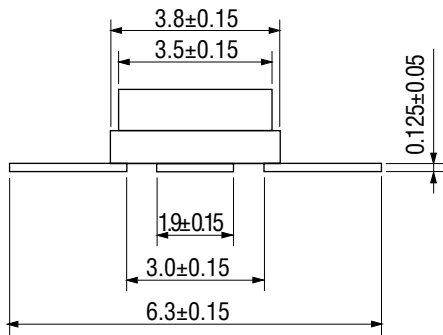
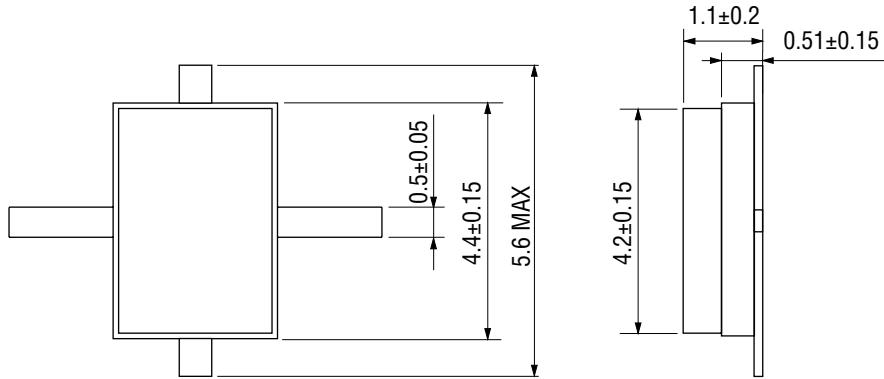
 $V_{DS} = 5.8\text{ V}$ ,  $I_{DS} = 175\text{ mA}$ 

Freq(MHz)	MAG(S <sub>11</sub> )	ANG(S <sub>11</sub> )	MAG(S <sub>21</sub> )	ANG(S <sub>21</sub> )	MAG(S <sub>12</sub> )	ANG(S <sub>12</sub> )	MAG(S <sub>22</sub> )	ANG(S <sub>22</sub> )
500.0	0.934	-147.47	3.870	96.34	0.038	21.91	0.666	-175.31
600.0	0.933	-153.34	3.279	91.79	0.039	19.84	0.671	-176.79
700.0	0.931	-157.83	2.828	87.72	0.040	18.53	0.674	-177.80
800.0	0.933	-161.16	2.511	84.05	0.041	17.91	0.674	-178.81
900.0	0.930	-164.05	2.240	81.08	0.041	17.58	0.678	-179.43
1000.0	0.929	-166.41	2.030	77.97	0.042	16.76	0.678	179.49
1100.0	0.928	-168.49	1.857	75.35	0.042	16.78	0.677	179.10
1200.0	0.926	-170.28	1.707	72.50	0.043	16.71	0.678	178.16
1300.0	0.926	-171.90	1.592	69.75	0.043	16.93	0.677	177.44
1400.0	0.923	-173.38	1.473	67.32	0.044	16.46	0.679	176.95
1500.0	0.923	-174.79	1.389	64.77	0.045	16.93	0.675	176.29
1600.0	0.922	-176.22	1.302	62.62	0.045	16.32	0.678	175.63
1700.0	0.917	-177.31	1.236	60.10	0.046	17.35	0.676	175.18
1800.0	0.920	-178.52	1.173	57.77	0.046	17.04	0.678	174.46
1900.0	0.914	-179.85	1.109	55.53	0.047	16.94	0.676	173.46
2000.0	0.915	179.28	1.066	53.31	0.048	17.25	0.676	173.10
2100.0	0.911	177.85	1.012	51.00	0.048	16.74	0.674	172.11
2200.0	0.911	176.88	0.976	49.02	0.049	16.78	0.677	171.75
2300.0	0.908	175.84	0.937	46.71	0.050	17.16	0.673	170.74
2400.0	0.907	174.63	0.899	44.87	0.050	16.68	0.674	170.18
2500.0	0.907	173.85	0.866	42.33	0.051	17.70	0.674	169.41
2600.0	0.902	172.51	0.838	40.77	0.051	16.95	0.675	168.69
2700.0	0.900	171.60	0.808	38.27	0.053	17.15	0.673	167.92
2800.0	0.898	170.55	0.790	36.48	0.053	17.33	0.674	167.17
2900.0	0.899	169.48	0.753	34.27	0.054	17.22	0.675	166.38
3000.0	0.894	168.51	0.740	32.15	0.054	17.56	0.673	165.56

### Typical S Parameters



**PACKAGE DIMINTIONS**



■ METALIZATION

(Unit: mm)

Package material	Al <sub>2</sub> O <sub>3</sub>
Lead frame material	Fe-Ni-Co alloy
Pin treatment	Ni/Au plating
plate thickness	Au:1.0 μm or more