

# OKI electronic components

## KGF1323F

### Power FET (Plastic Package Type)

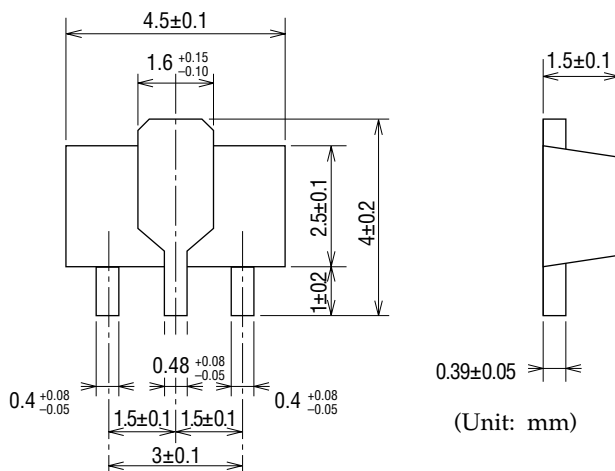
#### GENERAL DESCRIPTION

The KGF1323F, housed in a SOT-89 type plastic-mold package, is a KGF1323-based discrete GaAs power FET that features high efficiency and high output power. The KGF1323F specifications are guaranteed to a fixed matching circuit for 5.8 V and 850 MHz; external impedance-matching circuits are also required. Specified specifically for analog cellular applications, the KGF1323F is ideally suited to applications requiring a transmitter-final-stage amplifier for a cellular phone, such as AMPS and TACS. The device is directly mounted to a printed circuit board.

#### FEATURES

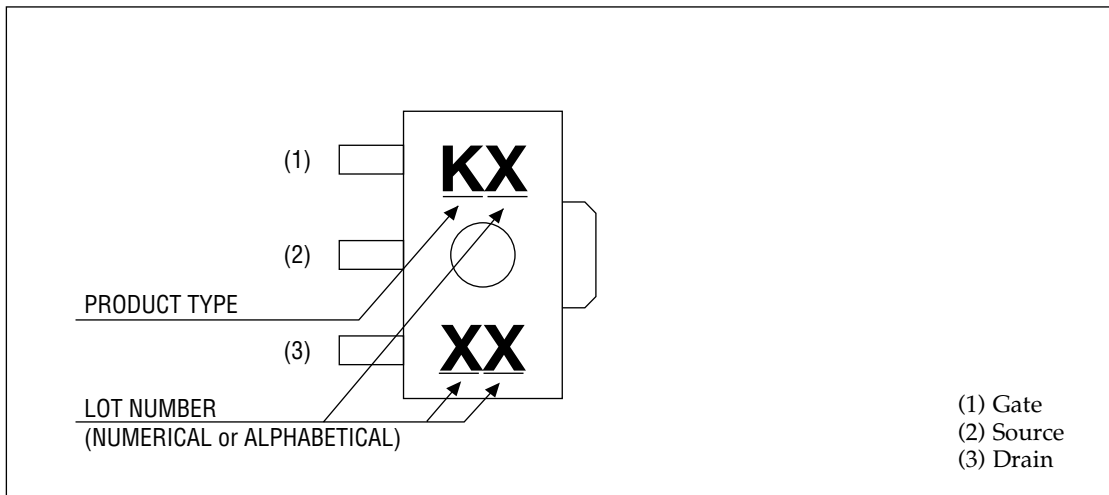
- Specifications guaranteed to a fixed matching circuit for 5.8 V and 850 MHz
- High output power: 31.5 dBm (min.)
- High efficiency: 70% (typ.)
- Low thermal resistance: 14°C/W (typ.)
- Package: 3PMMP (SOT-89 type)

#### PACKAGE DIMENSIONS

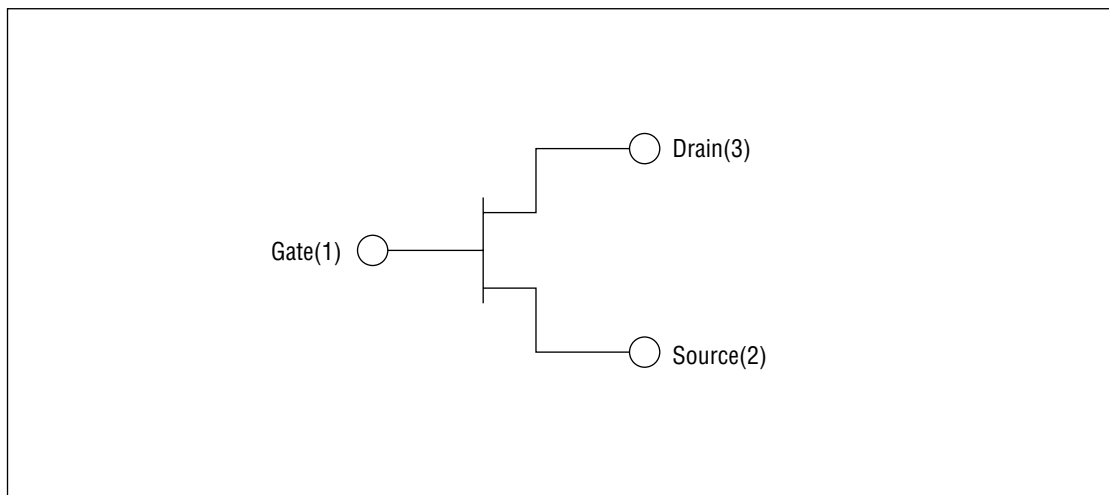


Package material	Epoxy resin
Lead frame material	Cu
Pin treatment	Solder plating
Solder plate thickness	5 $\mu$ m or more

### 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	—	3.0
Total power dissipation	$P_{tot}$	$T_a = T_c = 25^\circ\text{C}$	W	—	5.0
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	$I_{GSS}$	$V_{GS} = -6\text{ V}$	$\mu\text{A}$	—	—	10
Gate-drain Breakdown Voltage	$V_{GDO}$	$V_{GD} = -1.5\text{ mA}$	V	22	—	—
Drain-source cut-off 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)	dBm	31.5	—	—
Drain efficiency	$\eta_D$	(*1)	%	70	—	—
Drain efficiency 2	$\eta_{D2}$	(*2)	%	47	—	—
Thermal resistance	$R_{th}$	Channel to case	$^\circ\text{C/W}$	—	14	—

\*1 Condition:  $V_{DS} = 5.8\text{ V}, I_{DSQ} = 175\text{ mA}, P_{IN} = 20\text{ dBm}, f = 850\text{ MHz}$ \*2 Condition:  $V_{DS} = 5.8\text{ V}, I_{DSQ} = 175\text{ mA}, P_O = 29\text{ dBm}, f = 850\text{ MHz}$

RF CHARACTERISTICS

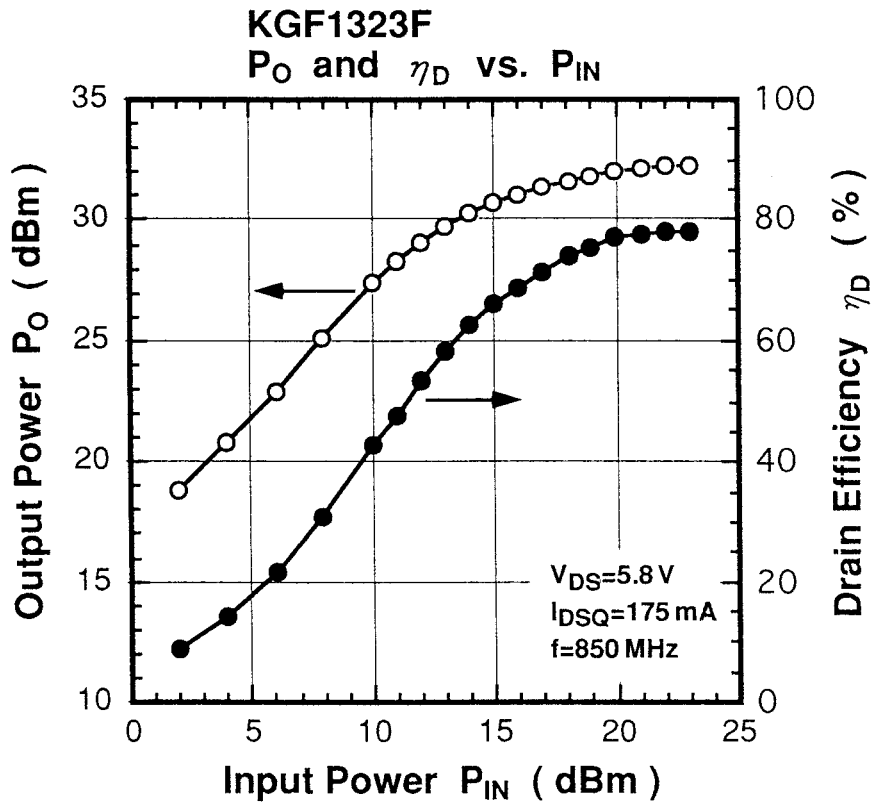
Matching conditions

Gamma S (Source impedance) :  $4.64 + j9.67 (\Omega)$

Gamma L (Load impedance) :  $11.69 + j8.20 (\Omega)$

Bias conditions

$V_{DS}=5.8V, I_{DSQ}=175mA, f=850MHz$



## 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	0.918	-152.58	4.044	92.67	0.037	18.00	0.635	-176.75
600.0	0.911	-158.56	3.392	88.12	0.039	14.56	0.643	-178.52
700.0	0.909	-163.14	2.943	83.68	0.039	13.30	0.645	-179.76
800.0	0.907	-166.95	2.589	79.92	0.039	12.33	0.646	178.79
900.0	0.908	-170.01	2.314	76.67	0.040	12.22	0.650	177.66
1000.0	0.906	-172.61	2.074	73.48	0.040	11.79	0.651	176.63
1100.0	0.905	-174.70	1.904	70.19	0.040	10.71	0.653	175.74
1200.0	0.907	-177.12	1.739	67.52	0.041	10.57	0.656	174.75
1300.0	0.904	-178.89	1.608	64.93	0.041	9.87	0.658	174.03
1400.0	0.901	178.99	1.513	61.44	0.042	10.46	0.659	173.25
1500.0	0.904	177.88	1.390	58.93	0.042	9.76	0.657	171.43
1600.0	0.901	176.00	1.315	56.03	0.043	9.28	0.663	171.43
1700.0	0.902	174.31	1.227	53.45	0.043	9.51	0.664	170.68
1800.0	0.899	173.54	1.172	50.80	0.044	10.06	0.660	169.99
1900.0	0.899	172.04	1.116	48.01	0.044	8.80	0.662	169.16
2000.0	0.896	170.57	1.062	45.79	0.045	8.22	0.662	168.23
2100.0	0.900	169.20	1.008	42.67	0.045	8.42	0.670	167.54
2200.0	0.899	167.90	0.968	40.33	0.045	8.69	0.665	167.10
2300.0	0.890	166.39	0.923	37.86	0.046	7.98	0.672	165.69
2400.0	0.893	165.43	0.895	35.74	0.046	7.80	0.666	165.44
2500.0	0.890	164.14	0.851	33.31	0.048	7.43	0.664	164.17
2600.0	0.886	162.85	0.827	31.00	0.048	7.74	0.670	163.42
2700.0	0.882	161.51	0.798	28.17	0.049	7.31	0.668	162.98
2800.0	0.879	160.27	0.764	25.77	0.051	6.78	0.667	161.72
2900.0	0.879	159.04	0.741	23.19	0.052	5.58	0.667	160.96
3000.0	0.874	158.24	0.718	20.45	0.052	4.92	0.667	160.39

Typical S Parameters

