

OKI electronic components

KGF1323C

Power FET (Plastic Package Type)

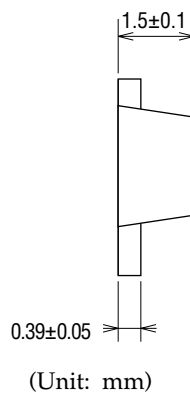
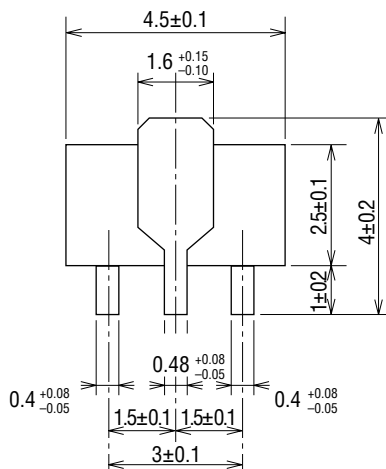
GENERAL DESCRIPTION

The KGF1323C, 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 KGF1323C specifications are guaranteed to a fixed matching circuit for 5.8 V and 1.8 GHz; external impedance-matching circuits are also required. Because of its high efficiency, high output power (more than 33 dBm), and plastic package, the KGF1323C is ideal as a transmitter-final-stage amplifier for high frequency personal handy systems, such as DCS1800 and PCS.

FEATURES

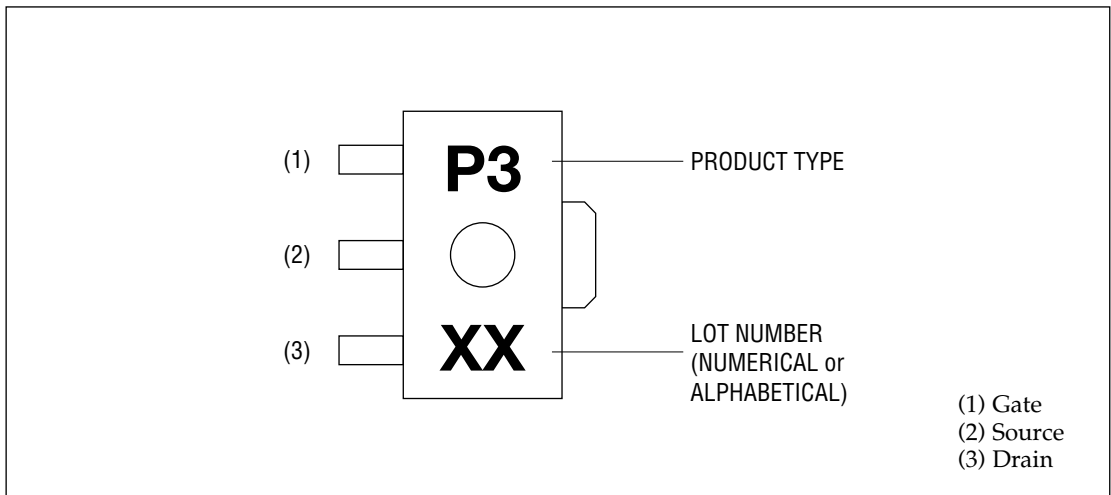
- Specifications guaranteed to a fixed matching circuit for 5.8 V and 1.8 GHz
- High output power: 33 dBm (min.)
- High efficiency: 63% (typ.)
- Low thermal resistance: 23°C/W (typ.)
- Package: 3PMMP (SOT-89 type)

PACKAGE DIMENSIONS

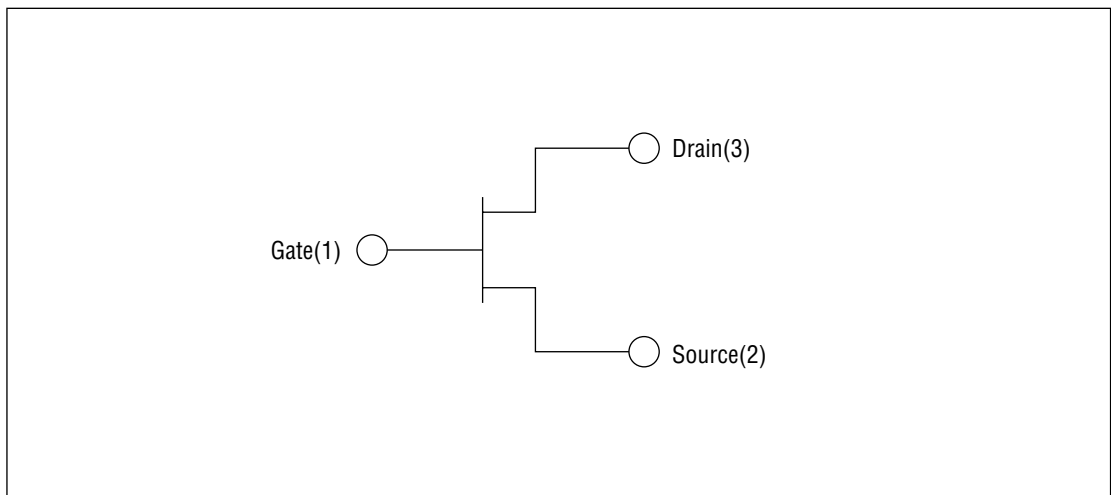


Package material	Epoxy resin
Lead frame material	Cu
Pin treatment	Solder plating
Solder plate thickness	5 μm or more

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
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}	$V_{GS} = -6\text{ V}$	μA	—	—	100
Gate-drain leakage current	I_{GDO}	$V_{GD} = -16\text{ V}$	μA	—	—	500
Drain-source leakage current	$I_{DS(off)}$	$V_{DS} = 10\text{ V}, V_{GS} = -6\text{ V}$	μA	—	—	1500
Drain current	I_{DSS}	$V_{DS} = 1.5\text{ V}, V_{GS} = 0\text{ V}$	A	2.0	—	—
Gate-source cut-off voltage	$V_{GS(off)}$	$V_{DS} = 3\text{ V}, I_{DS} = 4.8\text{ mA}$	V	-3.8	—	-2.8
Output power	P_O	(*1), $P_{IN} = 26\text{ dBm}$	dBm	33.0	33.4	—
Drain efficiency	η_D	(*1), $P_{IN} = 26\text{ dBm}$	%	57	63	—
Linear gain	G_{LIN}	(*1), $P_{IN} = 10\text{ dBm}$	dB	—	9.5	—
Thermal resistance	R_{th}	Channel to case	$^\circ\text{C/W}$	—	14	—

*1 Condition: $f = 1.8\text{ GHz}$, $V_{DS} = 5.8\text{ V}$, $I_{DSQ} = 500\text{ mA}$

RF CHARACTERISTICS

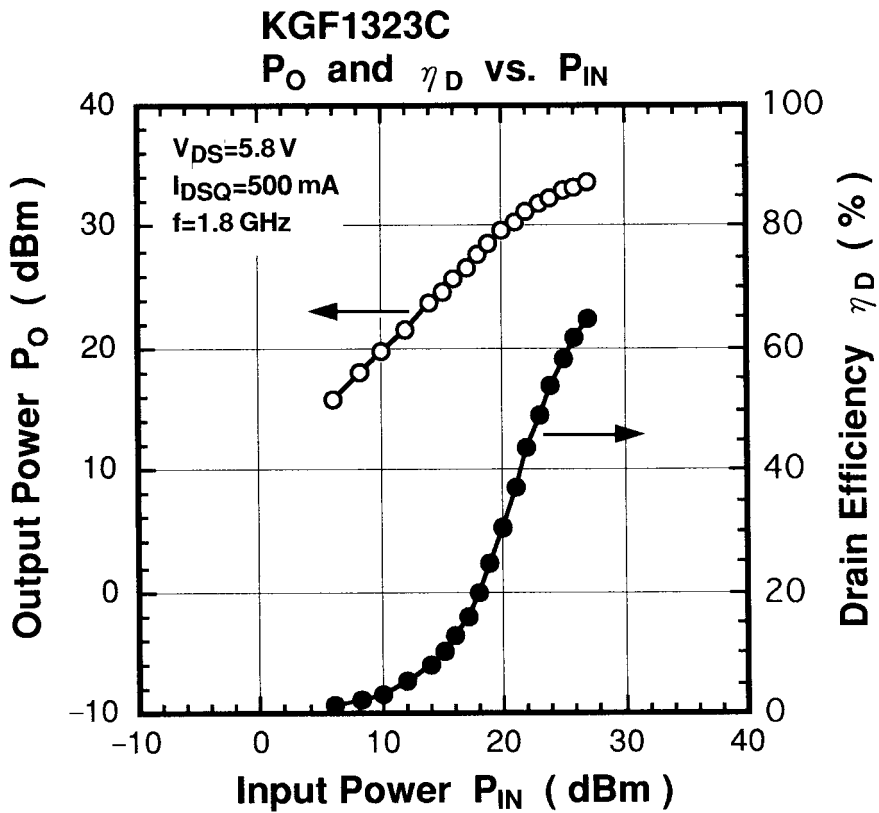
Matching conditions

Gamma S (Source impedance) : $7.05 - j3.03 (\Omega)$

Gamma L (Load impedance) : $10.74 - j5.81 (\Omega)$

Bias conditions

$V_{DS}=5.8V, I_{DSQ}=500mA, f=1.8GHz$



Typical S Parameters

 $V_{DS} = 5.8 \text{ V}$, $I_{DS} = 500 \text{ mA}$

Freq(MHz)	MAG(S ₁₁)	ANG(S ₁₁)	MAG(S ₂₁)	ANG(S ₂₁)	MAG(S ₁₂)	ANG(S ₁₂)	MAG(S ₂₂)	ANG(S ₂₂)
500.0	0.926	-159.74	4.135	89.07	0.030	18.92	0.665	-176.96
600.0	0.925	-164.71	3.460	85.00	0.031	18.94	0.664	-178.23
700.0	0.923	-168.51	2.978	80.91	0.032	18.87	0.664	-179.18
800.0	0.921	-171.43	2.630	77.39	0.033	18.16	0.668	179.67
900.0	0.921	-174.01	2.339	74.43	0.033	18.79	0.665	179.14
1000.0	0.918	-176.36	2.113	71.08	0.034	18.27	0.667	177.62
1100.0	0.915	-178.36	1.931	68.29	0.035	18.39	0.662	177.44
1200.0	0.912	179.65	1.777	64.91	0.036	18.12	0.664	176.12
1300.0	0.911	177.70	1.650	62.09	0.037	19.03	0.660	175.55
1400.0	0.908	176.12	1.532	59.52	0.038	18.35	0.662	174.56
1500.0	0.906	174.39	1.437	56.33	0.039	18.66	0.659	173.72
1600.0	0.904	172.80	1.347	53.66	0.040	18.22	0.664	172.71
1700.0	0.903	171.07	1.264	50.37	0.041	18.24	0.654	171.68
1800.0	0.898	169.70	1.209	49.13	0.042	17.78	0.663	171.05
1900.0	0.894	167.99	1.142	45.91	0.043	18.09	0.655	169.82
2000.0	0.892	166.35	1.088	43.29	0.044	17.33	0.659	169.21
2100.0	0.887	164.85	1.043	40.77	0.045	16.73	0.656	167.89
2200.0	0.882	163.26	0.996	37.71	0.046	16.77	0.657	167.27
2300.0	0.880	161.66	0.959	35.39	0.047	16.65	0.653	166.00
2400.0	0.878	160.03	0.922	32.66	0.048	16.08	0.654	165.38
2500.0	0.873	158.50	0.883	30.18	0.050	16.13	0.653	163.58
2600.0	0.870	157.01	0.862	28.21	0.051	15.27	0.654	163.17
2700.0	0.866	155.40	0.823	25.06	0.052	13.61	0.651	161.52
2800.0	0.864	154.11	0.796	23.17	0.053	13.77	0.651	160.81
2900.0	0.861	152.44	0.767	20.65	0.054	12.14	0.653	159.09
3000.0	0.859	151.11	0.750	18.19	0.055	12.45	0.648	158.20

Typical S Parameters

